

A COMPARATIVE STUDY OF PERSONALITY DEVELOPMENT  
IN IDENTICAL AND FRATERNAL TWINS BY  
MEANS OF THE RORSCHACH METHOD

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## Chapter 1

### THE PROBLEM AND DEFINITION OF TERMS USED

#### Introduction

The problem of heredity and environment and their relative contributions in the development of personality is a very controversial issue. Biologists tend to stress the importance of heredity, while sociologists and educators emphasize the importance of environmental factors. One is confronted with unexpected difficulties if he seeks to penetrate deeply into the problem of differentiation between the influence due to environment and the influence due to heredity in their effects upon personality. The progress of investigations has, however, made it necessary for each discipline to recognize some merit in the claims of the other.

To ask whether heredity or environment is more important to life is like asking whether fuel or oxygen is more necessary for making fire. But when we ask whether the differences between human individuals or groups are due to their differing heredity or to differences in their present and previous environment, we have a genuine question and one of great importance.<sup>1</sup>

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<sup>1</sup>R. S. Woodworth, "A Critical Survey of Recently Published Material on Twins and Foster Children," Heredit  
and Environment, 47:1-2, 1941.



But the research workers in this field are beset with difficulties. Because of the intricate interaction of heredity and environment in human behavior, it is not difficult to fall into the habit of interpreting all the differences among men in terms of either heredity or environment. The same data may seem to one investigator as the result of heredity and to another as the result of environment. Some particular ability which may be found in a family may be explained as a clear instance of heredity by one and of environmental influence by another. Most investigators have tried to explain some situation in which either heredity or environment was uniform so that differences might be ascribed to the factor that varied. One way to carry on an investigation in this field is to take cases where hereditary factors are the same and then observe the differences. If it were possible in the case of human beings to keep procreation of the ovum under experimental control as is possible in experiments on plants and animals, the problem would not be a difficult one. But such control is not possible. In the absence of such control, one substitute is the study of monozygotic twins. In the case of monozygotic twins the hereditary factors are identical, and the differences in personality make-up of the twins can, therefore, be attributed to differences in environmental factors. Thus, monozygotic twins provide material for the study of the differentiating effects of environment. Since they are genetically identical, any basic difference which develops between them

must be due to environmental factors.

The logic for the study of identical twins is, therefore, quite clear. If identical twins, having similar heredity, grow more unlike, the cause must be sought in their environment. Many early investigators thought that if the environment plays the dominant role, a common environment acting on differently endowed individuals (fraternal twins) should make them more alike. From an external point of view it may seem that both identical or fraternal twins have the same environment. They live in the same home, they go to the same school, and are subjected to the same community and cultural influences. But many investigators have shown that to be a fallacy. As Stocks pointed out,

Dizygotic twins are very different in general body build, healthiness, tastes, and temperament so that they naturally tend to subject themselves, or be subjected, to differences in nature to a greater degree than monozygotic twins who have usually the same needs, tastes, and inclinations and are rarely seen apart during childhood.<sup>2</sup>

However, for the study of the differentiating effect of heredity and environment on personality the "twin method" has been used by many investigators where a comparison was made regarding the average resemblance of identicals with that of fraternal. The difference between identicals, due to environment alone, is compared with the difference between fraternal, due to heredity and environment.

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<sup>2</sup>P. A. Stocks, "A Bimetric Investigation of Twins and Their Brothers and Sisters," Annals of Eugenics, 4:49-108, 1930.

## Statement of the Problem

The purpose of this investigation was to study the relative effect of hereditary and environmental influences on personality development in children by studying monozygotic twins and comparing them with dizygotic twins. In order to furnish a basis of comparison and for the sake of a more complete study of both types of twins, identical and fraternal, were selected. It was expected that since identical twins have the same hereditary factors they would show greater similarity in their basic personality make-up than fraternal twins who are dissimilar in their hereditary factors.

This investigation has been done in the hope of increasing knowledge, to some extent, of the differentiating effects of heredity and environment on personality make-up.

## Statement of Hypothesis

The hypothesis of this study was that comparison on both a quantitative and qualitative basis of the Rorschach protocols of identical and fraternal twins would show a significantly greater similarity of personality make-up for identical twins than for fraternal twins.

## Purpose of the Study

The purpose of the study was to determine whether identical twins show greater resemblances in general personality make-up than fraternal twins. Since the

Rorschach technique is supposed to reflect personality adjustment, it was proposed that identical twins should produce more similar Rorschach protocols than fraternal twins.

## Chapter 2

### REVIEW OF LITERATURE

A great deal of work has been done on the study of identical and fraternal twins as an approach to an understanding of the nature-nurture problem. No attempt will be made here to survey the whole literature that has appeared in the last few decades, but an attempt will be made to summarize only the important studies.

The earliest attempt in this direction was made by Galton in 1883.<sup>1</sup> Galton sought by case histories to determine whether twins who were very much alike as young children grew to differ, and whether pairs showing a large initial difference became more alike as they grew up. He studied thirty-five pairs of twins and concluded that none of the environmental conditions studied, except disease, exerted a pronounced effect upon their psychic traits.

The earlier investigators were more concerned with finding physical and intellectual resemblances than with studying similarities and differences in personality developments. Lauterbach<sup>2</sup> studied 200 pairs of twins and found the

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<sup>1</sup>Francis Galton, Inquiries Into Human Faculty and its Development (London: MacMillan Co., 1883).

<sup>2</sup>C. E. Lauterbach, "Studies in Twin Resemblance," *Genetice*, 10:525-569, 1925.

coefficient of correlation based on physical measurements of like sex twins (which include some fraternal twins) to range from .70 to .93 while those of the unlike sex twins ranged from .50 to .59. Newman and Patterson<sup>3</sup> found that the coefficient of correlation of the physical measurements of nine-banded armadillas was .90. Wilson and Wolfsohn did a review of the literature concerning mental disease in identical twins. The conclusions were:

1. In health, homologous twins show a striking similarity of structural, functional and mental equipment.

2. When organic nervous disease occurs in homologous twins, it is most probably the result of inherent defects and is always present in both twins.

3. The same obtains for the presence of anomalies and deformities in identical twins.

4. An anomaly of development is always similar and equivalent in both homologous twins.

5. Biologically considered, homologous twins are only one individual; physically they are two.<sup>4</sup>

Murray<sup>5</sup> described twins whose education and careers were

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<sup>3</sup>H. H. Newman and J. T. Patterson, "The Limits of Hereditary Control in Armadillo Quadruplets. A Study of Blastogenic Variation," J. Morphol., 22, 1911.

<sup>4</sup>S. A. K. Wilson and J. Wolfsohn, "Organic Nervous Disease in Identical Twins," Archives of Neurology and Psychiatry, 21:477, 1929.

<sup>5</sup>G. H. Murray, "A Study of Twins in Health and Disease," Lancet, 5298:208, 1925.

remarkably alike. Richmond<sup>6</sup> described a pair of identical twins who developed psychotic histories of striking similarity, although they lived apart much of the time.

Muller's study<sup>7</sup> of identical twins reared apart was more concerned with intellectual abilities than physical traits. He found that identical twins have very close intellectual abilities, as measured by the Army Alpha and Otis Advanced tests, and marked personality differences as tested by Pressey X-0 and the Downey Will-Temperament tests. The next year Burks<sup>8</sup> criticized Muller's study on the grounds that the tests for temperament used were not sufficiently well standardized to draw valid conclusions. Newman published three cases of twins reared apart. His first case<sup>9</sup> (a pair of identical twins) showed a marked difference in mental abilities but quite a similarity in emotional reactions. This was in marked contrast to Muller's findings. In his second case<sup>10</sup> he found practically the same thing as

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<sup>6</sup>W. Richmond, "The psychic resemblances in identical twins," American Journal of Psychiatry, 6:161-174, July, 1926.

<sup>7</sup>H. J. Muller, "Mental Traits and Heredity," Journal of Heredity, 16:433-448, 1925.

<sup>8</sup>Barbara S. Burks, "Determining Identity of Twins," Journal of Heredity, 17:193-195, 1929.

<sup>9</sup>H. H. Newman, "Mental and Physical Traits of Identical Twins Reared Apart (Case 1)," Journal of Heredity, 20:49-64, 1929.

<sup>10</sup>H. H. Newman, "Mental and Physical Traits of Identical Twins Reared Apart (Case 2)," Journal of Heredity, 20:153-166, 1929.

in his first. However, in his third case<sup>11</sup> his results more nearly agreed with those of Muller.

Similarities have been found with psychological tests as well as with physical measurements. Thorndike<sup>12</sup> in his study of intellectual resemblance of twins used both fraternal and identical twins and he did not distinguish like sex from unlike sex twins. He did prove the existence of close similarity of twins in physical and mental traits and gave approximate measure of the resemblance in eight physical and six mental traits. Merriman,<sup>13</sup> using three standard tests for intelligence, found coefficients of correlation in like sex twins ranging from .86 to .92, while in unlike sex twins correlations ranged from .50 to .86. Lauterbach,<sup>14</sup> using the Stanford-Binet Test with 210 pairs of twins, found a coefficient of correlation in like sex twins of .77 and in unlike sex twins of .56. Wingfield,<sup>15</sup> using a less well standardized test, studied 102 pairs of

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<sup>11</sup>H. H. Newman, "Mental and Physical Traits of Identical Twins Reared Apart (Case 3)," Journal of Heredity, 20:153-166, 1929.

<sup>12</sup>E. L. Thorndike, "Measurement of Twins," Archives of Philosophy, Psychology and Scientific Method, 1:1-64, 1905.

<sup>13</sup>C. Merriman, "The Intellectual Resemblance of Twins," Psychological Monographs, 33:1-58, 1924.

<sup>14</sup>C. E. Lauterbach, "Studies in Twin Resemblance," Genetice, 10:525-569, 1925.

<sup>15</sup>A. H. Wingfield, Twins and Orphans: The Inheritance and Intelligence, Dent. 1938.



twins and found a coefficient of correlation of .82 in like sex twins and .59 in unlike sex twins. Burks<sup>16</sup> in 1940 did a study of mental and physical development of identical twins in relation to organismic growth theory. Physical and mental data of twenty pairs of monozygotic twins obtained by the Harvard Growth Study were examined. Correlations between ten pairs of male monozygotic twins were extremely high for the separate traits of I.Q., height, leg length, weight, and iliac. The same year Burnham<sup>17</sup> made case studies of identical twins. Anthropometric, intelligence, and personality tests as well as tests of physical skill were administered to eight sets of twins each diagnosed as monozygotic and reared together. The first pair of female twins showed unusual similarity in appearance and in attitude, interests, and personality. The second pair showed some difference on various personality traits. The third pair was highly similar in physical characteristics, but displayed definite personality differences. Stephens<sup>18</sup> in 1943 found different results by his study

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<sup>16</sup>Barbara S. Burks, "Mental and Physical Development Patterns of Identical Twins in Relation to Organismic Growth Theory," Yearbook, National Society for the Study of Education, 11:39, 1940.

<sup>17</sup>R. W. Burnham, "Case Studies of Identical Twins," Journal of Genetic Psychology, 56:323-351, 1940.

<sup>18</sup>F. E. Stephens and R. B. Thompson, "The Case of Millan and George, Identical Twins Reared Apart," Journal of Heredity, 34, 1943.

of identical twins reared apart. He made a study of identical twin boys separated at birth and reunited and tested at the age of nineteen. He found them very similar in most physical and mental traits though differing somewhat in certain social attitudes. Peto<sup>19</sup> in 1946 made a psychoanalytical study of identical twins with reference to inheritance. He concluded that whatever problems inheritance propounds, the special reaction of the individual to the environment cannot be overestimated. A very interesting study was done by Smith<sup>20</sup> in 1949. This was a study of negative after-images and eidetic images from the hereditary psychological angle. Some sixty pairs of identical twins were experimental subjects. The intra-twin correlation for eidetic indices was positive for identical twins, but not significant for fraternal twins. There was also a greater similarity of reaction time for identicals than for fraternal. Another important study was done by Schields<sup>21</sup> in 1954. A representative sample of South London school children aged twelve to fifteen comprising thirty-six identical twin pairs and

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<sup>19</sup>Endre Peto, "The Psychoanalysis of Identical Twins with Reference to Inheritance," International Journal of Psycho-Analysis, 27, 1946.

<sup>20</sup>Gudmund Smith, Psychological Studies in Twin Differences; With References to After Image and Eidetic Phenomena As Well As More General Personality Characteristics, (Sweden: Lund University, 1949).

<sup>21</sup>James Schields, "Personality Differences and Neurotic Traits in Normal School Children: A Story in Psychiatric Genetice," Eugenics Review, 45, 1954.

twenty-six fraternal twin pairs was studied intensively by him for personality differences and minor psychiatric maladjustment. Effects of environment were noted in the generally closer similarity of the identicals than of the fraternal pairs. The genetic factor was not ruled out, however, for any case.

Although the studies cited described personalities quite well, they were mostly concerned with the physical and intellectual resemblances. Little attention has been paid to similarities and differences in personality development. These investigators were rather concerned with biological factors, mental traits, and abnormalities of identical and fraternal twins.

Some investigations have used the Rorschach Technique to study personality development in identical and fraternal twins. Since the present study uses the Rorschach Technique for the investigation of personality difference between identical and fraternal twins, a brief summary of those studies which employed the Rorschach Technique is included. Kerr<sup>22</sup> found that the amount of resemblances in identical twins was not greater than in fraternal twins. The resemblance in whole responses, percentage of popular answers, kinesthetic responses, number of identical answers in twenty-eight pairs of identical twins was not statistically greater than in eighty-seven pairs of fraternal twins.

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<sup>22</sup>M. Kerr, "The Rorschach Test Applied to Children," British Journal of Psychology, 25:170-185, 1934.

In 1938, Troup made a comparative study of personality development in twenty pairs of identical twins. The children were found in sixth, seventh and eighth grades of Buffalo, New York schools. The Rorschach was used as the experimental instrument, "since it seemed to afford insight into the fundamental similarities and differences in the whole personality make-up of the subject."<sup>23</sup> Comparative qualitative analyses of the protocols of ten of the twenty pairs who had been retested after a half-year period were made. Not only were the similarities and differences in personality development at the time of the first test noted, but the data of the retests furnished an opportunity to study the trend in the development over the period intervening between the tests. In addition, this data furnished an opportunity to study the reliability of Rorschach results. Analyses of protocols were made with the knowledge of age, grade, and nationality of the subjects. In the quantitative study of the degree of similarity in temperament of identical twins and also in the investigation of the reliability of the test, Vernon's method of correct matchings was applied. While the qualitative analyses gave no numerical index of the degree of similarity of the two members of the pair, the matching method afforded a means of comparing the total personality picture of one member of the pair with

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<sup>23</sup>E. Troup, "A Comparative Study by Means of the Rorschach Method of Personality Development in Twenty Pairs of Identical Twins," Genet. Psy. Monogr., 20, 1938.

that of the other, and the qualitative results could be subjected to quantitative analysis. Although the comparative analyses of the protocols of the ten pairs of twins yielded no single numerical index of the degree of similarity in personality development, careful comparison of the total personality picture of the members of each pair indicated in general no high degree of resemblance in temperament. In this phase of the study the experimenter was interested in investigating how the twins differed or were similar. Examination of the protocols seemed to indicate that these twins differed in three phases of personality development: one, in the tempo; two, in the quality; and three, in the direction which the development appeared to be taking.

While the analysis of a single Rorschach record indicated only the state of development at the time the test was given, the result of the repeated tests did furnish some indication as to trends in development. The evidence on these qualitative studies not only indicated no high degree of similarity in personality development, but also destroyed any rigid concept of environment and drew attention to the importance of environmental influences in the molding of personality. However, no definite conclusions were made because it was believed that

. . . in order to complete the relative effect of environmental influences on personality development as seen in the Rorschach test, the same experimental procedure should be employed with a group of fraternal

twins and siblings in order to furnish basis of comparison.<sup>24</sup>

In 1941 Kisker<sup>25</sup> made a Rorschach study of psychotic personality in identical twins. The twins used in this investigation were two sisters twenty-seven years of age. Both were patients at Columbus State Hospital. An examination of the protocols of each of the twins revealed that similarities far outweighed the dissimilarities. The total number of responses in the case of the twin Alpha was thirty-one, while for twin Beta it was thirty-three. This indicates significant correlation of intelligence at a low average level. It was found that 77 percent of twin Alpha's responses, and 55 percent of twin Beta's responses were classified as "anatomical." This preoccupation with somatic ideas dominated the clinical picture in both cases and revealed the extraordinary degree to which both patients were saturated with somatic reference. Another source of similarity, and one which indicates schizoid trends, was the low regard for form. Of the responses made by twin Alpha, 31 percent were scored as "poor" form, while 30 percent of twin Beta's responses were scored as "poor." Also schizoid was the manner of approach stressed by the

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<sup>24</sup>E. Troup, "A Comparative Study by Means of the Rorschach Method of Personality Development in Twenty Pairs of Identical Twins," Genet. Psy. Monogr., 20, 1938.

<sup>25</sup>G. W. Kisker and N. Michael, "A Rorschach Study of Psychotic Personality in Vinocular Twins," Journal of Nervous and Mental Disorders, 94, 1941.

two subjects. In each case there was a decided tendency to concern themselves with the unessential details of the Rorschach forms. In both cases complete absence of human movement (M) responses indicated the absence of fantasy thinking. Summarizing the Rorschach finding, Kisker concluded that the two patients exhibited a marked similarity of personality structure. Another interesting study in this respect was done by Schachter<sup>26</sup> in 1953. He used the Rorschach Technique to study twenty-three monozygotic and seven dizygotic pairs of twins. He emphasized the distinct and original personality of each twin regardless of hereditary identity of the monozygotic pairs.

This brief review of the literature gives the impression that results of different studies in this field have not been consistent. Although most of the studies demonstrate clearly that there is a high degree of similarity and resemblance in identical twins, there are studies which have failed to show any high degree of similarity. It may be pointed out that when only intelligence or any other one or two mental traits have been examined in the case of identical twins, very often high correlations have been found. It is only when attempts have been made to compare the total personality make-up of identical twins that results have varied. It seems that the variations in results have been

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<sup>26</sup>M. Schachter and H. Chatnet, "New Contribution to the Study of Rorschach Test in Twins," Acta-Geneticae Medicae Gemellologiae, 2, 1953.

due to sampling difficulties, inadequacies of the tests used, and vagueness in regards to the proper measures of personality. What is an essential trait to one may be unimportant to another. The tests for measuring total personality make-up are many and varied. The use of different experimental instruments for measuring personality may lead to different results, since different tests do not always measure the same traits. The moment one wants to study total personality one is confronted with innumerable difficulties. Some of them may be insurmountable. However, further studies in this respect with refined experimental instruments can shed more light and clarify some of the findings. It is only through intensive research in this area that one can hope to gain more insight into the nature-nurture riddle.



## Chapter 3

### DATA AND PROCEDURE

As this study was concerned with the relative effect of hereditary and environmental factors on personality development, two groups of identical and fraternal twins were found desirable for this kind of investigation. A comparative study of identical and fraternal twins regarding their general personality make-up would provide an answer to the question of how far hereditary factors determine the personality make-up. It was postulated that if identical twins were shown to have greater resemblances in their personality make-up than fraternal twins, the study would be more meaningful than when either fraternal or identical twins are studied. After a careful examination of available twins, seven pairs of identical and eight pairs of fraternal twins were selected. The diagnosis that the twins were either fraternal or identical was made by the family doctor who informed the parents at the time of the birth of twins.

It was not possible to match all the fraternal and identical twins for age. However, it was kept in mind that the age range between pairs of twins should not be extreme. Both the identical and the fraternal twins ranged between the age of eight and thirteen years.

Table 1

## Eight Pairs of Fraternal Twins

<u>Pair Number</u>	<u>Age</u>	<u>Sex</u>
1	8	Boys
2	9	Girls
3	9	Girls
4	8	Boys
5	9	Boys
6	11	Boy and Girl
7	10	Boy and Girl
8	10	Boy and Girl

Table 2

## Seven Pairs of Identical Twins

<u>Pair Number</u>	<u>Age</u>	<u>Sex</u>
1	13	Boys
2	8	Girls
3	13	Girls
4	10	Girls
5	12	Boys
6	13	Boys
7	8	Girls

## Procedure

As mentioned before, the test material used in this investigation was the ten standard Rorschach Ink-Blots. The test was given to eight pairs of fraternal and seven pairs of identical twins. It was thought desirable to test the two members of each pair in succession so that any discussion by the subjects might be avoided.

The cards were presented to the subjects by the experimenter, and while each card was presented the subject was asked, "What could that be?" or "What do you see?" When subjects asked such questions as, "May I turn the card?" or "Should I tell you what comes to my mind first?" the experimenter gave noncommittal answers, such as "That is entirely up to you." or "You may do as you like." Sometimes when the subject hesitated it was made clear to him that there was no right or wrong answer in this test, and that anything the ink-blot suggested to him should be given. Whenever it was felt that the child was hesitating, he was encouraged to give responses. Lack of interest or a negative attitude was fortunately not found among any of the twins. When some of the subjects inquired about the length of time, they were told that there was no time limit, and they should feel free to take their time.

The responses of the subjects to the cards were recorded verbatim. Care was taken to record all that was said by the subject about the test or performance. The total time of presentation and reaction time for each card was noted.

The scoring of each response was done following the method proposed by Klopfer.<sup>1</sup> The data were analyzed and examined in two ways. First, the data were submitted to a quantitative analysis which revealed in quantitative terms the degree of similarity or dissimilarity in fraternal and identical twins, and then a qualitative analysis of each pair of identical and fraternal twins was done separately so as to facilitate the comparison of personality make-up of the twins.

The investigations may, therefore, be considered a union of the qualitative and the quantitative approach to the study of personality--an attempt to reduce the data to quantitative formulas along with a qualitative analysis.

#### Choice of the Method

The study of personality may be approached from two points of view, "global" or "atomistic." In the global approach, personality as a whole is studied qualitatively and intensively. In the atomistic approach, personality is analyzed into component traits which lend themselves to quantitative and objective study. Following the atomistic approach, particular traits have been isolated and examined by means of various techniques: questionnaires, rating scales, inventories, batteries of tests, and various instrumental procedures. But there are many who claim, however,

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<sup>1</sup>Burns Klopfer, Development in the Rorschach Technique (1954).

that such quantitative ratings give no real understanding of the whole personality. Allport,<sup>2</sup> Allport and Vernon,<sup>3</sup> and Wells<sup>4</sup> have pointed out the inadequacy of the atomistic approach. They have urged systematic inquiry into the nature of the whole personality with more emphasis on the qualitative approach.

Keeping in mind the importance of both the global and the atomistic approach, it appeared desirable to select the Rorschach test for this study. Since Herman Rorschach devised the Ink-Blot Test, great interest in the test has been expressed. It has been widely applied in the field of clinical psychology, psychiatry, psychology of perception, mental testing, and personality evaluation. According to Wells, ". . . despite the immaturity of the test, it surpasses all other techniques in directness of approach to temperamental qualities."<sup>5</sup> Those who have a more global or qualitative approach to the study of personality have been highly impressed with the technique. The technique is described by

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<sup>2</sup>G. W. Allport, "The Study of Undivided Personality," Journal of Abnormal and Social Psychology, 19:132-141, 1924.

<sup>3</sup>G. W. Allport and P. E. Vernon, "The Field of Personality," Psychological Bulletin, 27:677-730, 1930.

<sup>4</sup>F. L. Wells, Personality Traits, Appendix D. Report of the conference on individual differences in the character and rate of psychological development (Washington: National Research Council, 1931).

<sup>5</sup>F. L. Wells, Personality Traits, Appendix D. Report of the conference on individual differences in the character and rate of psychological development (Washington: National Research Council, 1930).

Hertz:

The Ink-Blot Test could probe the total personality revealing intellectual and nonintellectual traits and the reciprocal influence of the one upon the other. Traits such as emotional stability, adaptability, stereotype, and originality of thinking and of living and of others might be brought to light and studied in terms of the whole personality.<sup>6</sup>

In the last decades vast literature has appeared on the Rorschach method and its use for personality evaluation and diagnosis. This literature is still increasing at a rapid pace. It is not the purpose here to assimilate, summarize, and evaluate the vast literature. But all those clinicians who have used the test are highly impressed with it and feel that in spite of deficiencies of the method, the technique affords a combination of psychometry and observation, and gives a desirable balance of the qualitative and the quantitative approaches in the investigation of personality. Studies by Troup<sup>7</sup> have clearly demonstrated the usefulness of this technique for the study of personality.

It also seems desirable to discuss in brief the general principles which constitute the theoretical foundation of the Rorschach method. Perhaps no better justice can be done than to summarize the discussion of Piotrowski about the general

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<sup>6</sup>M. R. Hertz, "The Rorschach Ink-Blot Test, Historical Survey," Psychological Bulletin, 32:33-36, 1935.

<sup>7</sup>E. Troup, "A Comparative Study by Means of Rorschach Method of Personality Development in Twenty Pairs of Identical Twins," Genet. Psy. Monogr., 20, 1938.

principles underlying the Rorschach test. They are as follows:

Principle 1: Selectivity of Perception.<sup>18</sup> The broadest principle underlying perceptanalysis is that there is no perception without selection, and that the process of selection is a function of personality. Selection is not a simple, isolated, transitory, or unimportant process. It reflects the total personality, life interests, the intensity, quality, and variability of emotions and of anxiety, the physical and mental strength, and even the degree of activity. Only when we are active in the real world, can we discern objects and perceive their meaning. It is through action that we verify the existence of an object and discover its significance for us with the aid of the senses. The degree of activity determines both our perceptions and our attitudes toward the world. The desires, capabilities, experiences, and expectations of an individual influence both his perceptions and his action tendencies. Perceptions and action tendencies are linked in perceptanalytic responses. In other words, an individual's percepts disclose how social reality appears to him and how he habitually deals with it. The objective visual stimulus is merely a trigger which sets off the response. The stimulus does not contribute the energy essential for the development of the perception. The nervous system is active in receiving impressions as well as in reacting to them. "It is not only impressed but it perceives."<sup>54\*</sup> The objective and the subjective are intertwined in sensations. The share of the subjective is greater in images elicited by indeterminate and ambiguous stimuli, which we call percepts, than in observations of physical reality. Therefore percepts can disclose a great deal about the subject's relation to objective reality. If perceptions (sensations) are selected, percepts (images) are even more highly selected. In the last analysis, the selectivity of percepts is a result of the physical impossibility of the human being to react to all physical stimuli.

Principle 2: Superiority of Sight.<sup>20</sup> Rorschach's far-reaching implication was that the formal aspects of visual percepts correspond to significant personality traits. He carried this correspondence so far as to ascribe different psychological meanings to specific formal aspects. Can percepts of a single type--in this case visual--suffice for that purpose? This question may be answered by

pointing out that sight is the most active, most highly organized and most informative of all our senses. In the development of the embryo, the eye is the first part of the organism to be differentiated morphologically.

"From the intellectual standpoint it is man's most precious organ because through it reality is more comprehensively perceived. One glance of the eye can tell us more than hours of auditory or tactile description. Optical stimulation produces a change in electroencephalographic rhythm more readily than auditory stimulation, and as we take into consideration the fact that the eye is, embryologically, derived from the brain, the only part of the nervous system exposed to the outer world, we can appreciate its more direct intellectual significance. Social relations are made possible through the eye. The visual presentation of the movements of another is apt to evoke the representation of a similar movement in our own body."<sup>55</sup>

There is no doubt that visual imagery aids our understanding of reality more than does the imagery of any other sense.

#### Principle 3: Indeterminateness of Stimuli.<sup>18</sup>

The blots which the subject faces during the examination are ambiguous and indeterminate. Any definite reaction made by the subject is his own contribution. We, thus, obtain spontaneous reactions in the sense that nothing definite has been suggested by the test procedure. The point is crucial because no good predictions of future behavior can be made without a knowledge of the spontaneous and ever-pressing tendencies of the individual. By introducing definite and exact meanings into indeterminate situations, the individual reveals his habitual ways of looking at the world. Through the process of turning something that is not specific into something specific, the individual expresses his personality in the Rorschach responses. The freedom which the individual has in the selection of the areas and in the manner of reacting to them assures nearly complete spontaneity. The blots have a multitude of forms, colors, and shades, and the subject selects unwittingly the areas to which he reacts. The areas correspond to those aspects of the subject's environment regarding which he has established mental attitudes.

Principle 4: No Conscious Effort.<sup>18</sup> Nearly all blot interpretations are produced without any conscious effort. In fact, effortless and spontaneous responses are a condition of the Rorschach method's validity. The struggles which the subject may have with himself during the examination



pertain to whether or not to communicate all percepts to the examiner. The percepts themselves appear in the subject's consciousness without any exertion. The small minority of subjects who find it very difficult to interpret the blots, despite their willing cooperation, are seriously inhibited people who find any straight thinking and any free acting very difficult. If the subject is afraid that the test results may be used to his disadvantage, when he is tested in court, prison, in an employment agency, or in an admission office, the conscious effort may be marked and the test results are then of doubtful value. Only in the absence of conscious effort can freedom of association be great. Any definite rational and objective task, be it the smallest, places some limitation on self-expression.<sup>66</sup> During the individual Rorschach examination, it is the subject's role to look and speak while the examiner quietly records the responses.

Principle 5: No Directions.<sup>18</sup> The subject is given no specific directions. He is requested to tell what the blots look like but he may respond to any blot area he chooses at any speed he likes and in any manner he wishes. There is no need for consistency, objectivity, and rationality. Lack of specific directions adds to freedom of self-expression.

Principle 6: Ignorance of Traits Revealed. Unless a person has studied the Rorschach method and makes a deliberate effort to analyze the possible meaning of his responses to the ink-blots, he is unaware of what he is disclosing about himself. This ignorance frees him from potential anxiety and embarrassment. A subject making up stories about pictures is far more apt to guess what conclusions may be drawn from his stories. It does not take much psychological sophistication to realize that aggressive stories may be construed as evidence suggesting that the subject is aggressive, or that tales of family conflicts may reflect the subject's own family troubles. This principle of ignorance of revealed personality traits could be used in ranking the perceptanalytic techniques as to degree of validity.

Principle 7: Creativeness. The creative imagination necessary for producing percepts may rarely be high, but every subject must be at least a little creative to produce a structured percept from unstructured material. It is a clinical fact that patients display their

personality traits more readily and more clearly when they are engaged in some creative work than when they perform easy and unoriginal routine work.<sup>34</sup> The absence of standards of correctness of responses facilitates creativeness. The validity of any perceptanalytic technique increases in proportion to the degree to which the subject is unable to tell right responses from wrong ones, to differentiate between desirable and undesirable responses, between favorable and unfavorable self-revelations. On this score, too, the Rorschach technique is superior to other personality methods.

Principle 8: Individual vs. Group Variability.

Although many diverse reactions to the blots are possible and have been obtained, the fact that each individual limits his personal reactions to relatively few contributes greatly to the validity of the method. The Rorschach records of the same person are usually very similar regardless of the number of re-examinations. There is a close correlation between changes in the successive Rorschach records and the individual's personality changes. No Rorschach components change to the same degree or at the same rate. A comparison of the easily changeable components with those that change slowly and little is necessary before a decision can be reached as to whether or not the Rorschach record indicates a real personality change.

Principle 9: Anxiety Stimulates Imagination More Than Does Pleasure. All perceptanalytic procedures bring out anxious and troublesome perceptions and ideas more easily than they do happy and carefree thoughts. The sensitivity of the Rorschach method is so great that abnormal trends or weak points in the personality structure can be revealed long before the subject manifests any peculiarities in his outward behavior. The reason for this probably lies in the general tendency to prepare imaginary solutions for problems before these solutions actually are attempted in reality. Happiness and pleasure are states of relaxation, of diminished readiness for action. On the other hand, worries, frustrations, and personality weaknesses hurt more than objective reality problems. Consequently, people are more preoccupied with them, which in turn explains why they are expressed so faithfully in a perceptanalytic examination. Anxiety may not initiate more actions, but it seems to stimulate the imagination more than does contentment.

Principle 10: Parallelism between Handling of Blots and of Social Relations. The broadest and main assumption on which the logical structure of perceptanalysis rests states that the individual's sensory, intellectual, and motor handling, active and/or passive, of the blot stimuli corresponds closely to the habitual manner in which he handles, actively and/or passively, his interhuman relationships. The flexibility of response to inkblots lies in the multitude of forms, colors, and shades. The subject selects unwittingly the items to which he reacts. It is assumed that the selected areas correspond to situations in his sociophysical environment toward which the individual has established definite attitudes.<sup>18</sup> Thus, e.g., indifference toward color corresponds to emotional indifference toward others; and conversely, an intense and active reaction to color reveals an intense and active emotional involvement with others. A very even and rapid pace (with no initial delays, pauses, hesitations, or strain) of interpreting the blots parallels treatment of social relations. In mature and healthy people, this implies self-confident relations with others, free of conflict. In mental patients, it indicates an inappropriate lack of concern with one's serious and debilitating difficulties, a mental detachment from problems which should be faced and solved. Perceptanalysis is not the only method founded on the principle of parallelism. However, it requires a specific dictionary for translating the subject's manner of handling the blot stimuli into the way in which he deals with others.<sup>8</sup>

The scoring and interpretations of these cases were done by H. Zand and H. Tahriryan who have much experience in scoring and interpretation of the Rorschach Test. Also, they guided the researcher to journals and books about twins. Help from Zand and Tahriryan was sought because the researcher was not skilled enough to make correct interpretations of the Rorschach Test. It was believed that more skilled interpretations of the protocols would lend validity to this research.

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<sup>8</sup>Zygmunt A. Piotrowski, Perceptanalysis, 1957, pp. 37-42

## Chapter 4

### COMPARATIVE QUANTITATIVE AND QUALITATIVE ANALYSES

#### Mathematics and Findings

Keeping in view the complex and intricate nature of the problem it was thought advisable not to base the conclusions entirely on qualitative analysis. It seemed very necessary to submit the data to some type of analysis which might reveal in quantitative terms the amount of similarity in the personality development of fraternal and identical twins. Taking into consideration the type of data and nature of investigation, it was found useful to obtain an intraclass correlation.

Statistical procedure: To obtain an intraclass correlation with the product-moment correlation technique, the following procedure was used. In order to avoid arbitrarily placing the scores of one twin into group A and the other into group B, the score of each twin was represented twice: once in group A and once in group B. This provided an N of sixteen among the fraternal twins and fourteen among the identical twins. Thus, a true intraclass correlation could be obtained. The formula for computing  $r$  was as follows:

$$r = \frac{\sum xy - \frac{(\sum x)(\sum y)}{N}}{\sqrt{\left(\sum x^2 - \frac{(\sum x)^2}{N}\right) \left(\sum y^2 - \frac{(\sum y)^2}{N}\right)}} \quad 1$$

It should be noted that in certain categories the raw scores were so insignificant that it was thought useless to find the correlation for such Rorschach categories. (For separate Rorschach categories of fraternal and identical twins, see Tables 3 and 4.

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<sup>1</sup>Paul Blommers and E. F. Lindquist, Statistical Methods in Psychology and Education, 1960, p. 391.

Table 3

## Rorschach Scores of Eight Pairs of Fraternal Twins

No. of pairs	R	M	FM	m	F%	Fc+c	FC'	FC	CF+C	M:Sum	A.R.T.	A%	P.	W%	S	d+dd	
I Pair	A	26	1	10	1	46	0	0	0	1	1:2	17"	50	1	30	0	3
	B	24	5	7	0	16	1	1	3	2	5:4	19"	50	2	40	0	1
II Pair	C	37	6	5	0	54	0	0	2	1	6:2	3"	35	3	13	1	11
	D	29	1	18	0	16	0	1	0	2	1:2	10"	65	3	22	1	2
III Pair	E	14	0	2	0	57	0	2	2	0	0:1	5"	86	2	14	0	0
	F	15	1	0	0	73	0	1	1	0	1:.5	35"	47	3	27	0	0
IV Pair	G	59	6	7	0	53	2	3	0	2	6:1	27"	27	3	2	0	35
	H	20	3	6	3	40	0	0	0	0	3:0	30"	55	2	20	0	1
V Pair	I	17	7	4	0	12	0	1	0	1	7:1	18"	29	2	41	0	0
	J	22	7	6	3	14	1	0	1	0	7:.5	13"	36	4	40	0	0
VI Pair	K	32	2	10	2	25	1	1	1	2	2:1.5	17"	38	5	34	1	5
	L	32	12	6	2	19	0	1	2	1	12:2	17"	19	4	38	1	0
VII Pair	M	22	0	4	2	55	0	1	1	1	0:2	35"	64	0	9	2	1
	N	42	0	0	0	93	0	0	0	2	0:2	15"	33	1	9	11	4
VIII Pair	O	17	2	2	1	57	1	1	0	0	2:0	9"	35	3	24	0	0
	P	23	7	9	1	9	0	0	2	0	7:1	4"	35	1	17	0	1

Table 4

## Rorschach Scores of Seven Pairs of Identical Twins

No. of pairs	R	M	FM	m	F%	Fc+c	FC'	FC	CF+C	M:Sum	A.R.T.	A%	P	W%	S	d+dd	
I Pair	A	16	2	7	1	19	2	0	0	0	2:.5	12"	69	4	44	0	0
	B	15	3	6	0	13	0	1	0	2	3:2	15"	47	2	47	1	0
II Pair	C	12	1	0	0	92	0	0	0	0	1:0	15"	67	1	42	0	0
	D	14	0	3	0	71	0	0	0	0	0:0	18"	71	2	15	0	0
III Pair	E	20	2	5	0	40	1	1	3	0	2:1.5	9"	70	5	25	0	2
	F	22	1	2	2	50	2	0	3	0	1:1.5	9"	50	4	13	0	2
IV Pair	G	27	2	3	4	48	0	0	0	1	2:1	8"	26	4	67	0	0
	H	11	1	0	0	73	0	1	1	0	1:5	10"	45	0	55	1	0
V Pair	I	35	6	13	0	26	0	3	0	1	6:0	8"	43	0	28	1	2
	J	52	4	9	1	54	0	6	0	3	4:3	7"	33	4	8	1	7
VI Pair	K	23	2	4	0	52	1	1	1	2	2:2.5	5"	65	7	39	0	0
	L	16	1	5	0	38	0	0	1	1	1:1.5	6"	56	2	31	2	1
VII Pair	M	31	1	2	1	74	0	0	1	2	1:3.5	26"	39	3	3	2	7
	N	17	2	2	0	53	0	0	2	1	2:2	22"	35	0	24	0	1

## Results of the Quantitative Analysis

Table 5

Inter-twin Correlations of Rorschach Scores  
of Eight Pairs of Fraternal Twins

Category	r
R	- .005
M	.038
FM	.107
m	---
F%	.298
F <sub>o</sub> +C	---
FC'	.248
FC	- .406
CF+C	---
M: Sum C	---
A.R.T.	.091
A%	- .038
P	.534
W%	.687 *
S	---
d+dd	.111

\* Significant at the .05 level

\*\* Significant at the .01 level



Table 6

Inter-twin Correlations of Rorschach Scores  
of Seven Pairs of Identical Twins

Category	r
R	.526
M	.666 *
FM	.733 *
m	---
F%	.629 *
Fc+C	---
FC'	.648 *
FC	.920 **
CF+C	---
M: Sum C	---
A.R.T.	.922 **
A%	.518
P	-.266
W%	.538
S	---
d+dd	.199

\* Significant at the .05 level

\*\* Significant at the .01 level

In order to make an over-all comparative quantitative study of the Rorschach responses between the identical and fraternal twins, an average correlation of both sets of twins was obtained. The results are as follows:

Fraternal Twins	Identical Twins
Average r .151	Average r .548

#### DISCUSSION

The results of the inter-twin correlations on the various Rorschach categories for both fraternal and identical twins are striking. In the case of fraternal twins, out of eleven Rorschach categories there is a significant correlation in one category only. But for identical twins the result is quite different. Out of the eleven Rorschach categories there is a significant correlation in six categories. In two categories the correlation is significant even at the .01 level.

The different Rorschach categories where the correlation was found to be significant in the case of identical twins were M, FM, F, FC', FC, and Average Reaction Time. It is important to note that, except for Reaction Time, these separate Rorschach categories where significant correlations in identical twins were found belong to the major Rorschach category of "Determinants," Determinants are those perceptual qualities of the areas chosen which initiate and regulate the associative processes underlying the response, and justify

the assignation of a specific content to a specific area. These determinants have always been regarded as a good index of one's general behavior pattern, or in the words of Rapaport, "They are the test's most crucial indicators of personality characteristics."<sup>2</sup> For example, movement responses have been considered "indicators of introversive tendencies in the subject, and they have also been considered indicators of the subject's level of endowment and the amount of active systematized ideation characterizing his present conditions."<sup>3</sup> In the case of identical twins the correlation in the Rorschach category "M" is .666 and in the case of fraternal twins it is .038. In the Rorschach category "FM" the correlation is .733 in the case of identicals, and .107 in the case of the fraternal. In the case of category "F" the correlations are .629 for identicals, and .298 for fraternal twins. Form ("F") responses have been regarded as indications of the subject's formal reasoning and his adherence to the demands of reality. In addition to the Rorschach categories M, FM, and F, significant correlations were found in categories FC' and FC. In identicals the correlations: FC' .648, FC .920; and in the fraternal FC' .248, FC -.406. It is admitted by many that the color responses a subject gives constitute one of the most significant aspects of the entire Rorschach record.

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<sup>2</sup>D. Rapaport, Diagnostic Psychological Testing, Vol. II, 1945, p. 181.

<sup>3</sup>Ibid., p. 207.

Color responses are supposed to reflect the subject's handling of affects, impulses, and actions. On this basis it can be safely ascertained that such significant correlations in the color responses of the identical twins are not without meaning. In the case of Average Reaction Time it was also seen that the correlation is highly significant (.922) in identical twins but insignificant in fraternal twins.

This comparative study of the separate Rorschach categories of identical and fraternal twins suggests an almost complete absence of similarity or resemblance in fraternal twins, but a fairly substantial degree of similarity and resemblance in identical twins. This finding is further supported by the results obtained with an average correlation. The average correlation in the case of identical twins is .548 and .131 in the case of fraternal twins. Whereas the average correlation in the case of identical twins is significant, in the case of fraternal twins it is too low to be significant. On the basis of these results, it is evident that there is no inter-twin correlation between the fraternal twins. This is a clear indication that these fraternal twins do not show any degree of resemblance in their general personality make-up. But in the case of identical twins the results suggest a substantial degree of similarity in their general personality make-up.

However, in view of the small size of the sample

and because of the complexity of the material it cannot be claimed that these quantitative results are final and positive. Nevertheless, it can be said that the quantitative analysis did indicate some kind of similarity or resemblance in identical twins and that such similarity is lacking in the case of the fraternal twins.

### Comparative Qualitative Analysis of Fraternal and Identical Twins

In addition to the quantitative analysis which revealed in quantitative terms the amount of similarity or dissimilarity in the personality make-up of fraternal and identical twins, the qualitative analysis of each pair of fraternal and identical twins was done separately so as to facilitate the comparison of personality make-up of twins. It is important to know that this qualitative analysis is not only based on the psychogram, but is also based on all cues which throw light on the behavior of the subject, such as remarks about the test, hesitations, eagerness, and reaction times. But it should be kept in mind that the analysis of the protocols was independent of any knowledge of the social history of the subjects so that the interpretations were in no way biased by previous knowledge.

The qualitative analysis was not done in order to show any similarity or resemblance in only one or two particular personality traits. Rather, an attempt was made to build an over-all picture and find out whether the pairs

of twins showed any striking resemblances in their general personality make-up. It is further important to point out that an attempt was made to adopt a consistent scheme throughout, and the interpretation was not based on separate categories but on an over-all picture which was constructed by interrelating these categories.

No claim is made that this study is free from the defects inherent in the qualitative analysis. In the interpretation of the Rorschach one deals with the multitude of components and their corresponding personality traits. Attempts at validation have shown the confusion and lack of uniformity in the use of concepts and their empirical referents. However, much time will elapse before this confusion can be dissipated and one can convince himself of the purely objective and scientific value of the qualitative analysis. Although this qualitative analysis in a strict sense cannot be called "blind analysis" since the examiner was aware of the pairs of identical and fraternal twins, the examiner had no knowledge of the social history of the twins other than age and sex. However, every attempt was made by the examiner to be as objective as possible and to construct the personality make-up of the twins only on the basis of their Rorschach records. It is realized that the "interpretative hypotheses" using the Rorschach method are not complete and final. The Rorschach Technique has proved sufficiently useful in clinical work that the clinical examiner seems justified in using this body of interpretative

hypotheses pending the conclusion of the extensive investigations that will be necessary to evaluate their relative validity. The integrated picture of the personality make-up of the twins is based on the interpretative hypotheses that are generally used in the Rorschach method in formulating a dynamic picture of personality functioning of an individual. It should be pointed out that the examiner was more largely influenced by the viewpoints of Rapaport and Klopfer.

## Analysis of Fraternal Twins

## Case Study Number 1

Subjects "A" and "B" are fraternal twins eight years old. Their psychograms are presented below.

Table 7

Rorschach Category	A	B
R	26	24
W%	30	40
D	13	13
d+dd	3	1
S	0	0
F%	46	16
M	1	5
FM	10	7
m	1	0
k	0	0
K	0	0
FK	1	0
Fc	0	1
C	0	0
C'	0	2
FC	0	3
CF	0	2
C	1	0
H	0	5
Hd	0	0
A	14	12
Obj	3	3
Nature	4	1
Geog.	2	1
Architecture	0	0
Plant	3	1
P	1	2
O	0	0



## Analysis of Case Study Number 1

Both these fraternal twins seem to have broad interest and great curiosity about the world around them. Both seem to have organizational interest and ability (as indicated by W%) although this is more developed in "B" than in "A". But there seems to be some striking differences in their general personality make-up. Whereas "B" shows a highly personalized reaction to the world (F%--16%), "A" is able to be impersonal on many occasions (F%--46%) and can view the world sometimes in a matter-of-fact way. More striking is the difference in their control over their impulsive life. "A" is more driven by his impulse life (M:FM = 1:10) to immediate gratification than "B". "B" has rather achieved a greater control (M:FM = 5.7) over his impulse life and undue feelings of frustration do not exist. "B" seems to be warm in his interpersonal relations with others (presence of color and human responses in good number), and he can respond with both feeling and action to the emotional demands of the situation. The approach of "A" reflects not only lack of interest or contact with other people (almost complete absence of color and human responses), but an inability to respond with both feeling and action to emotional demand.

As the brief analysis indicates, these fraternal twins show one common trend, i. e., in their abstractive and integrative inclinations, but in all other respects

there are basic differences in their general approach. In their viewing the world in an impersonal and matter-of-fact way, in their response to the emotional impact from outside, in control over their impulse life, and in their ability to form interpersonal relations they show striking differences.

## Case Study Number 2

Subjects "C" and "D" are fraternal twins nine years old. Their psychograms are presented below.

Table 8

Rorschach Category	C	D
R	37	29
W%	13	22
D	19	16
d+dd	11	2
S	1	1
F%	54	16
M	6	1
FM	5	18
m	0	0
k	0	0
K	0	0
FK	0	0
Fc	0	0
c	0	0
C'	1	2
FC	2	0
CF	1	3
C	0	0
H	7	2
Hd	3	0
A	9	18
Ad	5	2
Obj.	8	2
Nature	4	3
Geog.	0	0
Architecture	1	0
Plant	0	2
P	3	3
O	0	0

## Analysis of Case Study Number 2

A first glance at the psychogram reveals striking differences between these children. Whereas "D" has some organizational interest and ability ( $W\% = 22\%$ ), "C" ( $W\% = 13\%$ ) makes little effort to organize experience and has very little interest in seeking relations between the separate facts of experience. There also seems to be a pedantic emphasis on accuracy and exactness ( $d\%$  more than 25%) in "C", and this perhaps reflects some kind of feelings of insecurity, which is not found in "D". More striking is the difference in their ability to maintain an impersonal matter-of-fact relation with their world. Whereas "C" ( $F\% = 54\%$ ) has the ability to view her world in an impersonal matter-of-fact way, "D" ( $F\% = 16\%$ ) seems to be lacking in this respect. The other striking difference is in control over their impulse life. "D" is very impulsive ( $M:FM = 1:18$ ) and desires immediate satisfaction of her needs, but "C" ( $M:FM = 6:5$ ) is likely to have better control and be less impulsive in seeking gratification. "D" also seems to have a sort of behavior which can be described as stereotyped and rigid (very high  $A\%$ ), and there is a lack of flexibility and richness in imagination which is not found in "C" ( $A\% = 35\%$ ).

On the whole, in their organizational interest and ability, in their control over impulse life, in their view of the world, and in their stereotype or rigidity these fraternal twins present different personality pictures, and it is hard to find anything that they have in common.

## Case Study Number 3

Subjects "E" and "F" are fraternal twins nine years old. Their psychograms are presented below.

Table 9

Rorschach Category	E	F
R	14	15
W%	14	27
D	12	11
d+dd	0	0
S	0	0
F%	57	73
M	0	1
FM	2	0
m	0	0
k	0	0
K	0	0
FK	0	0
Fc	0	0
c	0	0
C'	2	1
FC	2	1
CF	0	0
C	0	0
H	0	3
Hd	1	3
A	10	7
Ad	2	0
Obj.	1	1
Nature	0	0
Geog.	0	0
Architecture	0	0
Plant	0	0
P	2	3
O	0	0

## Analysis of Case Study Number 3

These children seem to be strikingly different in many ways. Although both of them have low organizational interest and ability, there is a marked degree of difference in both of them. "F" makes an effort to organize experience (W% = 27%), but "E" has very little interest in achieving an organized view of her world (W% = 14%). Rather, "E" sticks to the practical, everyday, commonsense view of things (D% = 75%) because she is not capable of a more integrated view. Predominant "F" responses, to some extent at the expense of movement and color responses, would surely indicate that twin "F" has a very limited view of her world, but this is not the case with "E" (F% = 54%) who does not have that limited kind of perception. There is one extreme tendency which is found in "E" but is not present in "F". "E" seems to be very stereotyped and rigid (A% = 86%), but "F" (A% = 47%) does not show this extreme tendency.

In short, it was found that in their level of endowment, organizational interest and ability, inhibition and constriction, and stereotype and productivity, both of these children have striking differences which are sufficient enough to mold their personality make-up in different ways.

## Case Study Number 4

Subjects "G" and "H" are fraternal twins eight years old. Their psychograms are presented below.

Table 10

Rorschach Category	G	H
R	59	20
W%	2	20
D	15	14
d+ dd	35	1
S	1	1
F%	53	40
M	6	3
FM	7	6
m	0	3
k	0	0
K	0	0
FK	4	0
Fc	2	0
c	0	0
C'	4	0
FC	0	0
CF	2	0
C	0	0
H	14	3
Hd	17	0
A	13	10
Ad	2	1
Obj.	6	2
Nature	0	0
Geog.	0	0
Architecture	0	0
Plant	2	2
P	2	2
O	0	0

## Analysis of Case Study Number 4

One is apt to note the striking differences between these children in their responsiveness to the test. "G" seems to be a lot more inquisitive and productive (high number of total responses and rich content) than "H". More striking is the difference in their organizational interest and ability. Whereas "H" seems to have developed some interest in seeking relationship between the separate facts of experience and achieving an organized view, "G" highly lacks in this respect ( $W\% = 2\%$ ). "G" seems to have a pedantic trend, an overemphasis on correctness and exactness (d+dd more than 50%) and his approach reflects a kind of defense against insecurity and uncertainty which is not found at all in "H". They also differ considerably in their control over impulse life. "G" has achieved a better control over impulse life ( $M:FM = 6:7$ ) than "H" ( $M:FM = 3:6$ ) who tends to act on impulse without much inhibition and is generally ruled by immediate needs for gratification. The extensive movement responses at the cost of color and surface shading responses in "H" would indicate a strong introversive tendency, but this is not the case with "G". It is also interesting to note that "G" has more interest in other people (presence of color and human responses) and can respond better with feeling and action to the emotional demands than "H", who is less concerned with the outside world. "H" also seems to be somewhat more stereotyped and rigid ( $A\% = 55\%$ ) than "G" ( $A\% = 27\%$ ), who seems to lack the capacity for thinking



in conventional and stereotyped terms (only two popular responses out of fifty-nine total responses).

In short, it appears that in their organizational interest and ability, in their feelings of security, in their control over impulse life, in their introversive and extratensive trends and in their stereotyped or unconventional thinking they are quite different.

## Case Study Number 5

Subjects "I" and "J" are fraternal twins nine years old. Their psychograms are presented below.

Table 11

Rorschach Category	I	J
R	17	22
W%	41	40
D	9	12
d+dd	0	0
S	0	0
F%	12	14
M	7	7
FM	4	6
m	0	3
k	0	0
K	1	0
FK	0	0
FC	0	1
c	0	0
C'	1	0
FC	0	1
CF	1	0
C	0	0
H	9	9
Hd	0	0
A	4	7
Ad	1	1
Obj.	1	2
Nature	1	1
Geog.	0	0
Architecture	0	0
Plant	0	0
P	2	4
O	0	0

## Analysis of Case Study Number 5

These twins seem to have something in common, although their differences are also quite striking. They both seem to be equally active, inquisitive and productive (as is partly indicated by the number of total responses). They both seem to have developed the capacity to relate the separate facts of their experience in an understandable whole ( $W\% = 41\%$  and  $40\%$ ). But as regards their control over impulse life they are somewhat different. "I" seems to have achieved a higher control over impulse life ( $M:FM = 7:4$ ) and can defer gratification without frustration. But in the case of "J" there is an easy acceptance of such impulses rather than rigid control and the impulse life has neither interfered with the development of his value system nor vice versa. There is a slight indication of awareness of anxiety and threat in the case of "J" ( $m = 3$ ), and this is almost absent in "I". Although there are a few color and surface shading responses in both, they represent different trends. "J" seems to be aware of affectional needs experienced in terms of desire for approval and can respond to the emotional demands of the situation (presence of  $F_c$  and  $FC$  responses), but "I" seems to be somewhat withdrawn in emotional responsiveness to outside stimulation (presence of  $C'$  response). Both of them represent a different emotional structure. Whereas both of them belong to the lower level of stereotypy and rigidity ( $A\%$  below  $40\%$ ) nonconventional thinking is more marked in "I" than in "J".

In short, it appears that in their organizational interest and ability and productivity these children have something in common, but in their control over impulse life, in their emotional structure and in their nonconventional thinking these children are quite different.

## Case Study Number 6

Subjects "K" and "L" are fraternal twins eleven years old. Their psychograms are presented below.

Table 12

Rorschach Category	K	L
R	32	32
W%	34	38
D	15	18
d+dd	5	0
S	1	1
F%	25	19
M	2	12
FM	10	6
m	2	2
k	0	0
K	0	0
FK	0	2
Fc	1	0
c	0	0
C'	5	0
FC	1	2
CF	1	1
C	1	0
H	3	11
Hd	0	2
A	12	5
Ad	0	1
Obj.	7	9
Nature	1	3
Geog.	0	0
Architecture	1	0
Plant	1	0
P	5	4
O	0	0

## Analysis of Case Study Number 6

Both children seem to be creative and sometimes original. Although quite young, both of them have developed some capacity to understand relations between their various experiences ( $W\% = 34\%$  and  $38\%$ ) and can make sense of their world. There seems to be a differentiated interest in factual things in the case of "K" ( $d+dd = 5$ ) and such tendencies are not at all prominent in "L". Whereas "K" is able to be impersonal and can establish a matter-of-fact relationship with the outside world ( $F\% = 25\%$ ), "L" conforms less to the demand of reality and has a personalized reaction ( $F\%$  less than  $20\%$ ). Most striking is the difference in their control over impulse life. "K" is more easily ruled by immediate needs for gratification ( $M:FM = 2:10$ ) and can hardly postpone them, but "L" possesses self-acceptance and has the capacity to defer gratification ( $M:FM = 12:6$ ) without undue frustration. In responsiveness to outside stimulations "K" seems to have a very toned down, hesitant way ( $C' = 5$ ), and this tendency is not found at all in "L" who is able to respond spontaneously to an emotional situation (presence of color and human responses) and appears to be more interested in other people than "K".

In short, it appears that these children have very much the same abstractive and integrative inclination, but in their relationship with the world, in their responsiveness to outside stimulation, in their control over impulse

life, and in their reaction to the emotional impact of the outside world they are quite different.

Case Study Number 7

Subjects "M" and "N" are fraternal twins ten years old. Their psychograms are presented below.

Table 13

Rorschach Category	M	N
R	22	42
W%	9	9
D	13	14
d+dd	1	4
S	2	11
F%	55	93
M	0	0
FM	4	0
m	2	0
k	0	0
K	0	0
FK	0	1
Fc	0	0
c	0	0
C'	1	0
FC	1	0
CF	0	2
C	1	0
H	0	0
Hd	1	5
A	4	6
Ad	10	8
Obj.	2	9
Nature	0	3
Geog.	1	0
Architecture	0	0
Plant	0	5
P	0	1
O	0	0

## Analysis of Case Study Number 7

A first glance at the psychogram reveals the striking differences between these two children. In their natural endowment and productivity they seem to be quite different (as is partly indicated by the difference in their total number of responses). Although both of them have a very low organizational interest and ability ( $W\%$  less than 10% in both) they present a contrasting picture in many respects. "M" seems to have a very practical, everyday, commonsense approach (stress on D responses), but "N" has a strong intellectual kind of opposition (S responses = 11), an assertive stubbornness at the cost of her own balanced perception of reality. The other striking difference is in the way they react to their world. "N" does not seem to be sufficiently differentiated in her intellectual functions ( $F\% = 93\%$ ); rather, she responds to the bare outlines of reality structure, and is imperceptive of the nuances of her emotional surroundings. But "M" seems to be responsive to his own needs and reacts ( $F\% = 55\%$ ) to emotional impact from outside. Predominant F responses at the expense of movement and color responses in the case of "N" would further indicate that she has a very limited kind of perception. There also seems to be a strong emphasis on repressing instinctual life in "N" (absence of M and FM responses), but "M" does not show this extreme tendency. It seems evident that "M" is more stereotyped (high  $A\%$ ) than "N" ( $A\% = 33\%$ ). As regards their capacity for thinking



in conventional and stereotyped terms both demonstrate a similar approach (very few popular responses), but this nonconventional type of thinking has been carried to an extreme in "N" (only one popular response in total responses of forty-two).

Striking differences in their general personality make-up are thus quite evident. In their perception of reality, in their reaction to the outside world, in their control over impulse life, in their nonconventional type of thinking they present quite a different picture.

## Case Study Number 8

Subjects "O" and "P" are fraternal twins ten years old. Their psychograms are presented below.

Table 14

Rorschach Category	O	P
R	17	23
W%	24	17
D	12	18
d+dd	0	1
S	0	0
F%	57	9
M	2	7
FM	2	9
m	1	1
k	0	0
K	1	1
FK	0	0
Fc	1	0
c	0	0
C'	1	0
FC	0	0
CF	0	0
C	0	0
H	3	7
Hd	0	0
A	6	7
Ad	0	0
Obj.	2	5
Nature	3	3
Geog.	0	0
Architecture	0	0
Plant	3	0
P	3	1
O	0	0

## Analysis of Case Study Number 8

Both these fraternal twins seem to be eager and curious but in many respects they are strikingly different. "O" seems to have more organizational interest and ability (W% = 24%) than "P" who shows little interest in seeking relationships between the separate facts of experience (3%, less than 20%). Rather in contrast to an abstractive and integrative inclination, "P" seems interested in and is responsive to the obvious, the practical, and the concrete (D% more than 70%). "P" also places little emphasis (F% less than 10%) on maintaining an impersonal matter-of-fact relation with his world. But "O" is able to be impersonal on many occasions and can respond to her own needs and react to emotional impact from outside. "P" seems to have an easy acceptance of his own impulses (M and FM both well represented) but "O" has a strong repressive tendency (M and FM both few). The exclusive movement responses in the case of "P", to some extent at the expense of color responses, would indicate an introversive balance which is not found in "O". "P" also seems to be less conventional and stereotyped in his thinking (only one popular response out of twenty-three responses) than "O" (three popular responses out of seventeen responses) which indicates to some extent a capacity for thinking in conventional terms.

It appears that these fraternal twins, in their organizational interest and ability, in their responsiveness to the emotional impact from outside, in their handling of

impulse life, in their conventional or nonconventional type of thinking, have different personality make-ups.

### Analysis of Identical Twins

#### Case Study Number 1

Subjects "A" and "B" are identical twins thirteen years old. Their psychograms are presented below.

Table 15

Rorschach Category	A	B
R	16	15
W%	44	47
D	9	7
d+dd	0	0
S	0	0
F%	19	13
M	2	3
FM	7	6
m	1	0
k	0	0
K	0	0
KF	0	1
Fc	0	0
c	0	0
C'	0	0
FC	0	1
CF	0	2
C	0	0
H	2	3
Hd	0	0
A	10	7
Ad	1	0
Obj.	2	1
Nature	0	0
Geog.	0	2
Architecture	0	0
Plant	0	0
P	4	2
O	0	0

## Analysis of Case Study Number 1

A first glance at the psychogram indicates some of the striking similarities between these children. Both seem to be equally eager, imaginative and productive (as is partly indicated by the total number of responses which is almost the same in both cases). Both have organizational interest and ability ( $W\% = 40\%$ ) and have achieved to some extent the capacity to interrelate the separate facts of experience in one whole. Besides this abstractive and integrative inclination both of them seem to have almost the same interest in, and responsiveness to the obvious and practical (as indicated by D responses). It is striking to note that these boys place little emphasis on maintaining an impersonal matter-of-fact relationship with their world ( $F\% > 20\%$  in both). They both seem to have somewhat personalized reaction. The extensive movement responses given by both seem to indicate an introversive trend. Further, both of them are generally ruled by immediate needs for gratification and have little control over their impulse life ( $FM > 2M$  in both). But as regards their sensitivity to the emotional impact of the outer world, these children seem to be somewhat different. Twin "A" appears to be relatively insensitive (absence of color and surface shading responses) to the emotional impact of the outer world although he is aware of his inner needs and impulses. Twin "B" seems to be able to respond to the emotional demands of the situation (presence of color responses).

These children, though not similar in respect to sensitiveness to the emotional impact of the outer world, in other respects such as productivity, organizational interest and ability, introversive trend, control over the impulse life, show a great deal of similarity in their personality make-up.

## Case Study Number 2

Subjects "C" and "D" are identical twins eight years old. Their psychograms are presented below.

Table 16

Rorschach Category	C	D
R	12	14
W%	42	15
D	7	7
d+dd	0	0
S	0	0
F%	92	71
M	1	0
FM	0	3
m	0	0
k	0	0
K	0	0
FK	0	1
Fc	0	0
c	0	0
C'	0	0
FC	0	0
CF	0	0
C	0	0
H	1	2
Hd	0	0
A	7	8
Ad	1	2
Obj.	1	1
Nature	0	0
Geog.	0	0
Architecture	0	0
Plant	2	1
P	1	2
O	0	0

## Analysis of Case Study Number 2

These identical twins present striking similarities on their basic approach and mental make-up, although one difference is evident.

Their productivity and level of endowment seems to be very much alike. This is further confirmed by the total number of responses which is almost the same for both. But in regards to the organizational and integrative ability, they do not seem to be much alike. "D" appears to have less interest (W% less than 20%) in seeking relations between separate facts of experience than "C", who (W% = 42%) shows considerable abstractive and integrative inclination. But besides this difference, in all other respects, they seem to be much alike. Both of them (very high F%) are unable to respond to anything but the bare outlines of reality structures and seem to be imperceptive to the nuances of their emotional surroundings. F responses predominate in both, to some extent at the expense of color and movement responses, which would indicate that both of them have very limited perception of their world and are relatively insensitive to the emotional impact of the outer world. This also implies a strong repressive emphasis and constriction. Associated with this constriction is the stereotypy and rigidity which is found in both of them. Both of them represent the upper level of stereotypy (A% > 65% in both) and thus show an extreme tendency towards rigidity and stereotypy.



In summary, these children differ in one respect, i.e., in their organizational interest and ability, but in other respects they show striking resemblances. Both of them respond to the bare outline of reality, have limited perception, are imperceptive to their emotional surroundings, are inhibited and constricted and show stereotypy and rigidity.

## Case Study Number 3

Subjects "E" and "F" are identical twins thirteen years old. Their psychograms are presented below.

Table 17

Rorschach Category	E	F
R	20	22
W%	25	13
D	12	17
d+dd	2	2
S	0	0
F%	40	50
M	2	1
FM	5	2
m	0	2
k	0	0
K	0	0
FK	0	0
Fc	1	2
c	0	0
C'	1	0
FC	3	3
CF	0	0
C	0	0
H	2	2
Hd	1	2
A	12	8
Ad	2	2
Obj.	2	5
Nature	0	0
Geog.	0	0
Architecture	0	0
Plant	1	1
P	5	4
O	0	0

## Analysis of Case Study Number 3

A first glance at the psychograms indicates some very striking similarity in their general mental make-up. If "R" is accepted to roughly represent the subject's productivity, both of the children are equally productive, as the total number of responses is almost the same in both. Both of them have low organizational interest and ability (as indicated by the low W%). Although this tendency is more marked in "F" than in "E", both of them seem to stick to the practical, everyday common sense view of things (high D%), and this is in contrast to their low abstraction and integrative inclinations. Both of them seem to have developed the capacity to be impersonal on many occasions (as indicated by the F%) and can react to strong emotional impact from outside. Their ability to control their impulse life is not very strong, and both are ruled by immediate needs for gratification (Fm 2M in both). Both girls show a balance in regard to introversive and extratensive tendency (movement and color responses both well represented). There are also evidences to believe that both girls indicate an awareness of and acceptance of affectional needs (as indicated by Fc responses) experienced in terms of desire for approval and belongingness. These girls have also the ability to respond with both feeling and action (3 FC response in both) to the emotional demands of a situation.

In brief, these children have a lot in common. In their low abstractive and integrative inclination, in their

responsiveness to the obvious and practical, in their emotional structure, in their lack of control over impulse life, in their balanced development and belongingness, these girls show striking similarities.

#### Case Study Number 4

Subjects "G" and "H" are identical twins ten years old. Their psychograms are presented below.

Table 18

Rorschach Category	G	H
R	27	11
W%	67	55
D	3	4
d+dd	0	0
S	0	1
F%	48	73
M	2	1
FM	3	0
m	4	0
k	0	0
K	0	0
FK	3	0
Fc	0	0
c	0	0
C'	0	1
FC	0	1
CF	1	0
C	0	0
H	2	2
Hd	4	0
A	7	5
Ad	0	0
Obj.	7	1
Nature	0	0
Geog.	2	0
Architecture	0	0
Plant	0	0
P	4	0
O	0	0

## Analysis of Case Study Number 4

The basic approach of these identical twins is qualitatively much alike, but they also show some interesting quantitative differences. The number of total responses in "G" is more than twice that of "H" which might indicate more inquisitiveness and productivity on the part of "G". Both of them show similar interest (as indicated by W%) in seeking relationships between the separate facts of experience as an interrelated whole. Although both of them have the ability to view their world in an impersonal matter-of-fact way, "H" (F% = 73%) seems to be somewhat constricted and inhibited. Another important thing to note is that although there is some acceptance and acknowledgement of impulses, the presence of 4m responses in "G" reflects a kind of fear and helplessness in the face of threatening environmental forces. Associated with this fear of helplessness is some kind of affectional anxiety (as indicated by 4FK responses) which "G" is trying to cover up. It is interesting to note that both of them have little interest in reacting to the emotional impact of the relationships with other people (few color responses). Further, it is important to note that both of them belong to the lower level of stereotypy (A% less than 50%) and, thus, show that they have no tendency towards stereotypy and rigidity. This is further confirmed by their lack of capacity for thinking in conventional terms (indicated by absence of popular responses).

In summary, one can state that "G" sometimes feels helpless and threatened by environmental forces and he is also facing some affectional anxiety. This is not found in "H". However, in their abstractive and integrative inclinations, in viewing the world in a matter-of-fact way, in their relative insensitiveness to emotional impacts from outside, in their nonconventional type of thinking, they show a great deal of similarity.

## Case Study Number 5

Subjects "I" and "J" are identical twins twelve years old. Their psychograms are presented below.

Table 19

Rorschach Category	I	J
R	35	52
W%	28	2
D	20	35
d+dd	2	7
S	1	1
F%	26	54
M	6	6
FM	13	9
m	0	1
k	0	0
K	3	0
FK	0	1
Fc	0	0
c	0	0
C'	3	6
FC	0	0
CF	1	3
C	0	0
H	8	4
Hd	0	10
A	14	12
Ad	0	3
Obj.	3	8
Nature	0	2
Geog.	1	2
Architecture	0	0
Plant	1	0
P	0	4
O	0	0

## Analysis of Case Study Number 5

A first glance at the psychogram reveals some apparent quantitative differences, but behind these differences there are certain strong, basic similarities.

"J" is a lot more productive than "I" (as indicated by the difference in the total number of responses). The twins also differ in their organizational interest and ability. "J" has almost no interest ( $W\% = 2\%$ ) in seeking relationships between the separate facets of experience, but "I" seems to have a sufficient interest in this respect. There is a stress on the production of "D" in the case of "J" and this may imply that in contrast to abstraction and integrative inclinations she sticks to the practical, everyday, common sense view of things. But besides these differences, there are definite similarities, too. Both of them have the ability (as indicated by  $F\%$ ) to view their world in an impersonal matter-of-fact way. The consciousness and acknowledgement of impulses is equally strong in both of them (as shown by high FM responses). It is interesting to note that both of them act on impulse without much inhibition ( $FM > 2M$  in both) and have little capacity for postponement of gratification. Further, both of them seem to have toned down their overt reaction to others (Achromatic twice chromatic in both) for fear of being hurt and there is a resulting overcautiousness in emotional contacts. Neither of them show stereotypy or rigidity ( $A\%$  less than 50%); rather, they lack the capacity for thinking in



conventional terms (as indicated by the few popular responses in both, although "R" is quite high). There seems to be no emphasis upon the conventional view, and this may imply a degree of lack of understanding the simple and common routes of thinking.

In short, it appears that in productivity and organizational interest and ability these children differ, but in their ability to view the world in a matter-of-fact way, in their little control over impulse life and lack of capacity for postponement, in their overcautiousness in emotional contacts, in their nonconventional way of thinking, they resemble each other to a great extent.

## Case Study Number 6

Subjects "K" and "L", are identical twins thirteen years old. Their psychograms are presented below.

Table 20

Rorschach Category	K	L
R	23	16
W%	39	31
D	12	7
d+dd	0	1
S	0	2
F%	52	38
M	2	1
FM	4	5
m	0	0
k	0	0
K	0	0
FK	0	2
Fc	1	0
c	0	0
C'	1	0
FC	1	1
CF	2	1
C	0	0
H	2	1
Hd	0	1
A	11	6
Ad	2	2
Obj.	3	4
Nature	0	0
Geog.	0	0
Architecture	0	0
Plant	0	0
P	7	2
O	0	0

## Analysis of Case Study Number 6

Both of these identical twins seem to be eager and inquisitive, and have some basic similarity in their mental make-up. It is interesting to note that both have sufficient organizational interest and ability ( $W\% = 39\%$  and  $31\%$ ) and are capable of viewing the separate facts of their experiences in an inter-related whole. But this does not deprive them of their ability to differentiate perceptually (as indicated by  $D\%$ ). There seems to be a slight tendency in "L" toward a competitive or self-assertive aspect of intellectuality ( $S=2$ ) which is not found in "K". It is also evident (as indicated by  $F\%$ ) that both of them place adequate emphasis on viewing their world in an impersonal matter-of-fact way and have the ability to react to the emotional impact from outside. They both seem to act on their impulses (as evident by  $M$  and  $FM$  ratio) and have little capacity for postponement. The extensive movement responses given by both of them would seem to indicate that they are somewhat more introversive than extratensive. However, a few color responses ( $FC$  and  $CF$ ) in both of them implies that they can respond to some extent with both feeling and action to the emotional demands of the situation and in this respect they have similar emotional structures. In regards to stereotypy and rigidity, both of them range in the upper level, although not to the extreme.

In summary, it seems that in the matter of competitive spirit "L" differs with "K", but in other respects of

organizational interest and ability, perceptual differentiation, viewing the world in a matter-of-fact way, introversive trend, emotional structure, they have quite a similar personality make-up.

### Case Study Number 7

Subjects "M" and "N" are identical twins eight years old. Their psychograms are presented below.

Table 21

Rorschach Category	M	N
R	31	17
W%	3	24
D	17	11
d+dd	7	1
S	2	0
F%	76	53
M	1	2
FM	2	2
m	1	0
k	0	0
K	0	0
FK	0	0
Fc	0	0
c	0	0
C'	1	0
FC	1	2
CF	2	1
C	0	0
H	1	5
Hd	3	2
A	7	4
Ad	5	2
Obj.	6	1
Nature	0	0
Geog.	0	0
Architecture	0	0
Plant	1	0
P	3	0
O	0	0

## Analysis of Case Study Number 7

Although these children have some basic similarities in their mental make-up, they show some interesting differences. The big difference in total number of responses would indicate the relative difference in their organizational interest and ability. Whereas "N" (W% = 24%) seems to have some interest and makes an effort to organize her experience, "M" (W% = 3%) seems to have very little interest in seeking relationships between the separate facts of experience. "N" not only seems to have a differentiated interest in factual things, but she also shows some feelings of insecurity against which she defends herself by clinging to limited areas of certainty (D% > 15%). But similarities are not lacking. Both of them have limited perception (predominant F responses) and seem to be inhibited in their responses, but this inhibition seems to be more marked in "M" (F% = 76%) than in "N". There is some conscious awareness of impulses, but the movement responses are so few that it is difficult to ascertain how far they are able to control their impulses and defer gratification without undue frustration. The ability to respond occasionally to emotional demands of the situations (as indicated by a few color responses) is present in both children. In regards to stereotypy and rigidity, both of them belong to a lower level (A% < 40%). The few popular responses further confirm the idea that they do not have a conventional and stereotyped view of the world.

In summary, these children show differences in

their organizational interest and ability, and in their feelings of security. However, they are similar in their limited view of the world, in their conscious awareness of impulses, in their responses to emotional impact, and in their nonconventional view of the world.

### Discussion

The results of the qualitative analysis of fraternal and identical twins reveal quite clearly that fraternal twins have very little in common as regards their general personality make-up. But quite contrary to this, identical twins, though not similar in all respects, show a great deal of similarity in their general personality make-up.

Out of eight fraternal twins, five of them were found showing almost complete dissimilarity in their general mental make-up. The other three fraternal twins, though they differed in every other respect, showed some similarity in respect to their organizational interest and ability. In the case of identical twins some of them differed in either their organizational interest and ability, or in their competitive spirit, but in other respects all of them showed a great deal of similarity in their general personality make-up. Of course it would be absurd to expect that all identical twins would show a striking similarity in all respects. The point is that the degree of similarity in the personality make-up of identical twins is very great, particularly in contrast to fraternal twins where few close resemblances

were found. It is also important to note that the striking similarities found in the general personality make-up of identical twins relate to the important traits of personality and not to its superficial aspects. For example, all the identical twins showed a great deal of similarity in productivity, reaction to the outside world, emotional structure, control over impulse life, introversive and extratensive balance, and stereotypy or rigidity. It is interesting to note that in all these respects the fraternal twins showed very few resemblances. In fact, it was hard to find any similarity in fraternal twins except in three cases where the only point of similarity was organizational interest and ability.

It can be stated that the qualitative analysis indicates clearly that the identical twins studied showed a substantial resemblance in their general personality make-up, and no such basic similarity or resemblance was found for the fraternal twins.

In addition, the results of the qualitative analyses are supported by the quantitative analyses reported in Chapter 4. A complete discussion based on the result of both quantitative and qualitative analyses appears in the next chapter where conclusions based on the total study are drawn.

## Chapter 5

### DISCUSSION AND CONCLUSIONS

Before trying to evaluate the results and examining some of the questions that might be raised regarding the results of this study, a brief summary of the conclusions reached during the course of the study will be given.

The purpose of the study was to determine whether identical twins show greater resemblances in their general personality make-up than fraternal twins. Since identical twins have similar hereditary factors, it was expected that if personality is largely determined by hereditary factors they would show greater resemblances than fraternal twins. To determine this, the Rorschach Technique was administered to eight pairs of fraternal twins and seven pairs of identical twins. The Rorschach protocols were evaluated quantitatively and qualitatively.

The quantitative analysis indicated that fraternal twins show no similar personality make-up. Of the eleven Rorschach categories analyzed, only one significant correlation was found. In the remaining ten Rorschach categories there were some negative correlations. The qualitative analysis confirmed the results of the quantitative analysis



in that no basic similarity in their general personality make-up was found. Of the eight pairs of fraternal twins, five did not show any resemblance in any respect. The other three showed similarity in their organizational interest and ability, although they showed differences in all other respects. As regards level of endowment, emotional structure, control of impulse life, stereotypy, or productivity, flexibility or rigidity, and introversive or extratensive balance, all fraternal twins were found to be quite different from each other. The differences between fraternal twins appeared to be as great as might be expected between any randomly selected pair of children of comparable age.

In the case of identical twins, quantitative analysis revealed that in certain respects these identical twins possessed significant resemblances. Out of eleven Rorschach categories, significant correlations were found for six. The Rorschach categories where significant correlations were found are generally accepted as important determinants. This result of the quantitative analysis indicated that identical twins do show some basic resemblance in their personality make-up on the Rorschach Technique. Qualitative analysis provided further support to the results obtained by quantitative analysis. The seven identical twin pairs again showed striking similarity in many respects in their general personality make-up. A few identical pairs revealed some difference in organizational interests and ability or competitive spirit, but in emotional structure, control of impulse

life, introversive or extratensive balance, productivity or stereotypy, and flexibility or rigidity they showed very similar make-up. On the whole, it was ascertained that both quantitative and qualitative analyses indicated that identical twins have striking similarity and resemblances in their general personality make-up when compared to the fraternal twins.

An important question can be raised regarding the validity of the results of this study. Granting that the study showed greater resemblances in identical twins than fraternal twins, would it be valid to infer that these differences are due to hereditary factors? Another explanation can be given to the results without accepting that the greater resemblances in identical twins as being due to similar hereditary factors. Such an explanation could be that since all identical twins are of the same sex, greater similarity in personality make-up could be due to this factor. There is no denying that sex does make a difference. Family members and other people do not react to a boy and a girl in the same way. The role of a girl and that of a boy is quite different in the family structure, and this no doubt does influence the personality. There are several reasons why such an explanation does not seem to be valid for this study. Out of eight pairs of fraternal twins only three pairs were of the unlike sex, and the remaining five were of the same sex. It should be borne in mind that most of the personality traits usually detected

by the Rorschach Technique are general, and are not very much influenced by sex. For example, the level of endowment, emotional structure, control of impulse life, stereotypy and rigidity, and introversive and extratensive balance are not much influenced by difference in sex, and there seems to be no reason why at such an early age sex should play such a differentiating role that the fraternal twins were found to be more dissimilar than similar. However, even if one accepts the proposition that the personality traits detected by the Rorschach test are influenced by sex, one should expect to find significant similarity in those five pairs of fraternal twins who were of the same sex. But qualitative analyses of fraternal twins in the case of studies number 1, 2, 3, 4, and 5 (same sex fraternal twins) completely failed to reveal any striking resemblances in these pairs of fraternal twins. This would certainly suggest that the personality traits detected by the Rorschach test have not been influenced by differences in sex. This would also indicate that the findings of this study cannot be explained by suggesting that greater similarity found among identical twins was due to the same sex factor. It seems evident that the results of this study clearly demonstrate that the greater resemblance and similarity found in the identical twins is due to similar hereditary factors.

Thus, it is concluded that the hypothesis formulated in the beginning that identical twins, due to similar hereditary factors, should have greater resemblances in

their general personality make-up has been supported to a very great extent by this study.

It may be helpful to see the implications of this study on the general problem of the relative effect of environmental factors on personality development. This study suggests that identical twins show greater similarity in their general personality make-up than fraternal twins. Since identical twins have the same heredity, it seems evident that this greater degree of resemblance is due to common hereditary factors. But even if it is accepted that personality make-up is determined to a great extent by hereditary factors, the next question that seems important is in what respects does heredity influence personality? Does it provide the kind of basic structure on which environmental factors interact? Perhaps it will be true that heredity only provides the basic structure, a kind of predisposition in the human organism. If this basic structure or predisposition is identical in two individuals even though they may differ in many other superficial respects, the basic make-up of the personality will be very much the same. It is important to realize that personality make-up cannot be explained adequately if only heredity or environment are considered, or both factors taken separately. The interaction of heredity and environment is one important consideration in the study of personality development. To quote Woodworth:

To the degree that the family heredity and family environment are positively correlated, the children of the community will differ more than can be accounted for by heredity and environment considered separately. It must be equally true that children in the same family develop differently because of the interaction of heredity and environment, rather than because of either factor or even because of the two factors taken separately. The children differ by heredity to start with, and because they differ in native capacities and propensities they are treated differently and respond differently to the opportunities offered by the environment.<sup>1</sup>

Since it is hard to separate the factors of heredity and environment, one can never be sure what kind of predisposition was in the organism and what has been furnished by the environment. It is not claimed that this humble study can provide an answer to this nature-nurture riddle. In fact, any definite answer to this controversial issue is not possible at this stage since our knowledge of the human organism and personality development is so limited. There are serious difficulties in the way of separating the factors of heredity and environment when interest lies in the study of personality. In spite of all the advancement in biology, sociology, psychology, and personology it is not possible to draw positive conclusions. The deeper one probes into the depth of human behavior and the more one studies the personality development, the more complicated becomes the issue. It is not to be wondered at when the results of elaborately planned investigations leave us unsatisfied and uncertain.

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<sup>1</sup>R. S. Woodworth, "A Critical Survey of Recently Published Material on Twins and Foster Children," Heredity and Environment, 47:12-13, 1941.

One important question may be raised to the findings of this study. If the identical twins were found showing greater similarity in their general personality make-up, can it be ascertained that with increasing age no basic dissimilarity would occur? Most of the identical twins were from the age of eight to thirteen. It should be pointed out that the period between eight and thirteen years is the particular stage when personality is in the process of rapid development. Thus, will further development of personality bring significant changes or will it go on growing in the same direction? As a matter of fact, an answer to this question would only be possible with a follow-up study to determine whether these identical twins with increasing age have changed considerably or still exhibit the basic similarity of their general personality make-up.

The experimental instrument for this study was the Rorschach test. A very basic question can be asked. What personality factors are measured by the Rorschach test? Or, what kind of personality is accessible to percept-analysis? Perhaps the simplest answer is that:

The perceptanalytic method reveals and measures psychological traits, feelings, thoughts, and actions, concerning those psychosocial interactions between the individual and his environment which require some time and imagination to develop and to become habits.<sup>2</sup>

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<sup>2</sup>Zygmunt A. Piotrowski, Perceptanalysis, 1957, pp. 6-7

During the course of this study it was found that on the basis of the study of protocols, one can generally assess an individual's level of endowment, integrative and abstractive ability, emotional structure, control of impulse life, stereotypy and productivity, and introversive and extroversive balance. Identical twins were found exhibiting greater similarity in these respects than fraternal twins. Although these are not the only basic traits of personality, it can be safely ascertained that these above-mentioned personality traits are quite significant in the general personality make-up. It may further be asked whether these personality factors detected by the Rorschach test are congenital or acquired. Perhaps the answer to this question is beyond the scope of this study since the Rorschach test only indicates what personality factors are there and how strong they are, and how they form a part of the total personality. It might be interesting to point out that whereas the Rorschach test detects and reveals personality traits, the theory of perceptanalysis is logically different and independent of the theory of personality. The theory of personality provides the frame of reference for the understanding of the structure of personality. It concerns itself with the question: Why is the individual the way he is? But perceptanalysis is not directly involved with any particular theory of personality. It can be best described in the words of Piotrowski:

Perceptanalysis does not throw light on the theory of personality . . . Perceptanalysis can ascertain whether or not the trait is present and how strong it is; but it cannot--with its own method--determine the origin of the trait, ascertain to what degree if any the trait is congenital or acquired, organic or psychogenic, etc. . . .<sup>3</sup>

However, it may be pointed out that during the course of this study the Rorschach test was found to be very significant and effective as a tool to make a comparative study of identical and fraternal twins. The richness of the test and wealth of data that the test provides, and the way the test results can be put to both quantitative and qualitative treatment may be regarded as some of the chief characteristics of the Rorschach test, and in this respect it surpasses many other tests of personality.

Another important thing which may be regarded as the outcome of this study is a new idea. The quantitative analysis shown, has revealed significant correlations in the Rorschach categories M, FM, F, FC', and FC in the case of identical twins. These Rorschach categories are generally accepted as major Rorschach categories of "determinants." A suggestion which may be made, although wild at this stage, until further research is done and sufficient data is gathered, is that perhaps some of the Rorschach categories are determined more by hereditary factors than by environment. If this is true, the Rorschach categories

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<sup>3</sup>Zygmunt A. Piotrowski, Perceptanalysis, 1957, p. 36.



M and FM, which to some extent indicate introversive tendencies and the subject's level of endowment, can be regarded as determined more by hereditary or biological factors. Similarly, Rorschach categories F and FC which are accepted as the test's most crucial indicators of personality can also be regarded as not very much affected by environmental factors. As suggested before, this is just a wild idea which occurred in the course of this study. Further study and research in this respect would reveal how far this is true. But if it can be found whether and which Rorschach categories are determined more by heredity than by environment, this will be of immense help in clinical use. In evaluating the assets and liabilities of a patient for psychotherapy this valuable information obtained by Rorschach tests could define very clearly the work and role of the therapist.

It may be emphasized at the end that the results obtained by this study have one serious limitation. It was a very small sample of eight pairs of fraternal twins and seven pairs of identical twins. Therefore, the findings of this study, due to this smallness, do not warrant positive assertions that this study has proven the hypothesis formulated in the beginning. Nevertheless, on the basis of the Rorschach test it was found that to a great extent identical twins have greater resemblance in their general personality make-up than fraternal twins. However, there is room and need for additional research in this area. Further

study with large samples is required to clarify some of the findings of this study and the other studies done by the research workers in this field. Follow-up studies could throw light on whether the common trends among the identical twins remain consistent or go on growing in different directions.

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