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**RORSCHACH PERSONALITY PATTERN DIFFERENCES BETWEEN OVER-ACHIEVERS,  
NORMALS, AND UNDER-ACHIEVERS AT THE FIFTH GRADE LEVEL**

by

**Joan Carroll Baldwin**

**A Dissertation Submitted to the Faculty of the Graduate School  
of Loyola University in Partial Fulfillment of  
the Requirements for the Degree of  
Doctor of Philosophy**

**February**

**1962**

## LIFE

Joan Carroll Baldwin was born in Philadelphia, Pennsylvania, on August 16, 1930.

After graduation from the Convent of the Sacred Heart High School, Lake Forest, Illinois, she attended Manhattanville College of the Sacred Heart, New York, and received the degree of Bachelor of Arts in May, 1952.

The writer began graduate studies at Loyola University in September, 1952. She was employed at the Loyola Guidance Center under the supervision of Rev. Charles I. Doyle, S.J. In June, 1954, she received the Master of Arts degree in Psychology. In April, 1956, the writer having completed a year's internship at Mercy Hospital became a full-time member of the staff of Mercy Hospital Psychiatric Clinic under the direction and supervision of Dr. Robert M. Zirpoli. In September, 1958, she became employed in the Special Services Department of the Evanston Public Schools, District #65, and Evanston Township High School, District #202, under the director, Hester C. Burbridge. She received the State approval as "Qualified Psychological Examiner", and in November, 1960, was certified by the Board of Examiners, Illinois Psychological Association.

The author contributed in the publication: "Rorschach Experiment

with Six, Seven, and Eight Year Old Children", J. Proj. Tech., 1957, 21,  
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## CHAPTER I

### INTRODUCTION

In the past ten years there has been increasing interest in the field of psychology and education in dealing with the complex factors involved in academic achievement. This is partly shown by the expansion of the nationwide program for exceptional children, the addition of the clinical psychologist to the school staff, and the increase of counseling services offered the child and parent. A recent survey of referrals made to school counselors in a suburban district indicated that the preponderance of children seen were classified as presenting learning difficulties (Alderson, 1959). The specific problem was under-achievement. School personnel are becoming more aware that the learning process is easily affected by emotional upset.

A majority of these cases are seen by the psychologist for assessment of the child's potential ability and present functioning. Personality is evaluated in order to determine possible emotional factors which may reduce learning efficiency. This has created a demand for more tools of measurement and for better understanding of the dynamics involved in academic achievement.

Early studies (Stagner, 1933) revealed that intelligence alone does not insure academic success. Rather, scholastic achievement depends upon complex interrelationships of intelligence, personality, identification with

social class values, peer relationships, parental environment, and social milieu. The possible results of these interrelationships have spurred continued research in the direction of isolating various factors which might be involved in achievement. Some of these investigations will be discussed in Chapter II.

There appeared to be a relationship between socio-economic conditions and achievement (Haggard, 1957). Vocational and social interests have been found to correlate with achievement (Armstrong, 1955). Several investigations have centered on study habits (O'Leary, 1955). Parental pressures have been found to result in children becoming dissatisfied with school and themselves. As a result, achievement suffered (Fair, 1959). The majority of investigations have used high school and college sample populations but recent study concluded that patterns of under-achievement are apparent by grade five, and research has been encouraged at this level (Barrett, 1957).

Achievement groups have been generally classified as high, low, normal; successful, or unsuccessful. Descriptive terms such as over-achievement and under-achievement are appearing more in the literature.

The term over-achievement is used in this study to designate those children who appear on the basis of standardized measures to be working and learning beyond their normal rate. Selection of this group was derived from quantitatively computing standard scores for grade achievement and intelligence. When achievement standard scores surpasses intelligence scores, there is suggestion that too much energy is expended in this direction. These children are working and learning beyond their normal rate. Contrariwise, the

under-achievers are not using their potential in learning situations. The normal, or expected level of achievers, are those who are learning and producing at a rate commensurate with their ability. Standard scores on both indices are equivalent.

The Problem. Primarily, the present investigation seeks an answer to the question: "What is the difference between the personality of over-, under-, and normal achieving fifth grade children as demonstrated by Rorschach performance?"

If there is a difference and it can be described, teachers may be able to encourage development of personality characteristics associated with fuller realization of a student's intellectual potential. The school social worker, knowing the personality patterns, may be in a better position to help low achievers attain academic success and guide over-achievers towards more diversified interests and favorable personality balance.

This study is not primarily interested in the prediction of academic success nor in the evaluation of personality adjustment, though such aspects will be investigated. If under-achievement is considered a symptom associated with an underlying cause -- frequently a reaction to some emotional disturbance -- then over-achievement too might be considered in this light, as being a behavioral reaction to internal or external stress.

The present study relies on the Rorschach test. This instrument is used to demonstrate the technique of description and comparison of response patterns between the three groups of achievers.

## CHAPTER II

### REVIEW OF THE LITERATURE

Growing interest in emotional factors and their relation to success in academic achievement is attested by the numerous research studies and surveys pertaining to this topic. Sociological studies, teachers' ratings, standardized inventories, general surveys, and projective techniques have been various means to assess psychological and educational factors involved in achievement.

#### Sociological and Case Work Studies

Bishton (1957) sought to determine the relative importance of social and psychological factors that might account for differences in academic achievement in a group of ninety-nine high achieving eighth graders of above average socio-economic background. These adolescents were found to be submissive, conforming in their behavior, and lagging in emotional maturation. Bishton based his results largely on observations and interview material. He concluded that the attention parents and adults give children who are achieving at a level advanced for their age may provide them with the emotional security and social maturity that might enable them to make friends more easily.

Passow and Goldberg (1958) undertook to determine social and personal factors associated with under-achievement and to try to evaluate school procedures which would attend to the problem of under-achievement.

A "control" and a "special" group with IQ's of 120 and ninth grade averages below 80 were paired on ninth grade marks and IQ scores, reading, and arithmetic scores. Members of a third "high" group, with ninth grade averages of 85 or more, had higher IQ's and received more positive ratings by their peers. Though the under-achievers made low grades, their performance on standardized measures differed little from that of the high group. High and low achievers did not differ (Passow & Goldberg, 1958) in appraisal of abilities, occupational aspirations, interests, occupational status of parents, number of working mothers, number of children per family, problem areas, or grade expectations. Goldberg concluded that under-achievement is a symptom of diverse basic personal and social problems and that some individuals are probably beyond help by high-school age. To effect improvement, two conditions were deemed necessary: 1) identification with a teacher who is consistently supportive and accepts the child as a bright pupil with a need for special help, and, 2) assistance in mastering skills of learning not previously acquired.

Kimball (1953) explored groups of 20 under-, over-, and normal achieving high-school boys in an attempt to determine different personality characteristics. She used the case study method consisting of developmental histories, interviews with parents, and teachers' reports. She found that the major features of the personality most susceptible to scholastic disability were poor father-son relationship, primary feminine identification, and tendency towards passivity. This group was less able to express their strong underlying aggressive feelings. They had a marked degree of inferiority

feelings, were defensive about their abilities, and were anxious to maintain a belief in their own superiority. They tended to use physical aggression towards objects to relieve guilt feelings. The history revealed a pattern of early violent temper tantrums. An unusually high number of cases had a history of asthma or hay fever. The over- and under-achievers tended to make greater female identification than the normal group.

Walsh (1948) using a doll play technique with a group of fifth grade normal and under-achieving boys attempted to ascertain differences in self-concepts. The under-achievers were more restrictive, demonstrated less freedom of action, expressed emotion in inadequate and exaggerated fashion, and were more negative and defensive. They appeared to feel less accepted by the family. There were no significant differences in sex identification within the two groups.

Haggard (1957) studies the relationship of academic learning to the totality of personality and experience among 45 third through seventh grade high achieving children from homes with strong intellectual orientation. He collected information yearly regarding parental attitudes, family background, and measure of parental pressures exerted on the child. Behavioral observations were made of the child in and out of classrooms, and level of intellectual ability and academic achievement were evaluated. He found that when strong pressures were exerted some children responded in a desired manner but not all were high achievers. Only a small number did so with ease. Others became tense, anxious, guilty and rebellious and performed less well. Others became academic casualties as a reaction to their parents' excessive ambitions for

them. At grade three the high achievers were responsive to socialization pressures and had accepted adult values. They demonstrated a high degree of balance in emotional control. In behavior they were competitive and aggressive, showed good work habits, and maintained positive relationships with parents, teachers, and peers. At grade seven subjects continued to strive toward adult standards but perceived adults as ineffective individuals. They displayed increased anxiety, appeared over-intellectualized to the exclusion of other interests and activities. Increased hostility and competition towards peers was apparent. Haggard raised the question whether pressures the child absorbs from the parents have detrimental effects on the personality adjustment. Analysis of various academic areas suggested that children similar in patterns of academic achievement tended to be similar in personality and other nonintellectual characteristics.

In the past both case studies and sociological studies have been primarily based on interview material from parents, observations of the child, and information obtained from school personnel. The material gathered is from a variety of sources which may have their own personal bias. Interpretation and statement of conclusions is also affected by the social workers' own orientation. This presents a number of uncontrolled variables which might easily influence objectivity of results. More standardized methods might have been utilized. More conclusive cross validation needs to be carried out in order to obtain an adequate psycho-socio-educational picture. Psychological testing combined with the already obtained information may have strengthened the conclusions. However, studies conducted by this method provide hypotheses to be

tested and opens avenues for further research.

Haggard (1957) was most concerned with determining the effect parental pressure and expectations had upon the child. He relied largely on his own rating scale for this measure, supplementing it with interview material. The validity of this rating scale may be questionable. Possibly a more dynamic interpretation could have been arrived at through standardized tests. Nonetheless, this comprehensive study appears to be a valuable contribution. It is the first investigation which used a longitudinal approach. Haggard's conclusions and questions regarding what possible detrimental effects parental pressures for achievement might have upon the child in part provided questions for the present study.

#### Rating Scales and Objective Tests

The validity of ratings and rating scales may be questionable because of errors that arise from inadequate definition and quantification of traits. Teachers' ratings have frequently been used. Errors are likely to occur because of influence by halo effect and stereotypes.

Armstrong (1955) investigating vocational and social interests and adjustment of under-achievers in grades 9 and 11, found that they tended to choose future occupations because of the influence by others rather than their own dominant interests; to receive low ratings by teachers on cooperation, dependability, and judgment scales; to prefer outdoor activity; to prefer older companions and to be chosen for fewer positions of responsibility.

O'Leary (1955) found that all items of the Work Habits Rating Scale differentiated between over- and under-achieving ninth graders. Under-achiev-

ers were consistently inadequate in concentration, seeking advice, industry, organization of material, research skills, and completion of tasks.

There are two contradictory viewpoints regarding the type of home atmosphere which is most conducive to achievement; the free permissive type of environment and the more authoritarian or restrictive home setting. The relationship of mothers' attitudes towards academic achievement was investigated by Drews and Teahan (1957). A group of 40 mothers of bright high achieving junior high school students and 28 mothers of average achievers were chosen. A parental attitude scale was constructed. Mothers of high achievers were found to be more authoritarian, restrictive, and seemed to have more punitive attitudes with respect to child rearing than those of the low achievers.

Gebhart (1958) assessed the personality needs of under- and over-achieving male freshmen. The sample included 430 students and the groups were divided into under- and over-achievers based on whether the students' obtained first semester grades were higher or lower than those predicated as measured by intelligence. The Edwards Personal Preference Schedule was collected from all the subjects, and scores on the 16 variables were reported. The over-achievers scored significantly higher on the following scales: Achievement (drive to complete), Order (drive to organize and play), Intracception (intellectual curiosity), and Consistency. The under-achievers scored higher on Nurture (associated with social motives wherein friendship may be placed above scholarship), Affiliation, and Change (need for variety).

McQuary and Truax (1955) developed a 24-item scale, derived from the

Minnesota Multiphasic Personality Inventory, to locate potential under-achievers. The group consisted of 76 freshmen males at the University of Wisconsin. The scale was scored for 76 first semester males in the next freshman class. A high score was in the direction of under-achievement and low score, over-achievement. Two extreme groups of under- and overachievers were obtained and their achievement scale scores studied. The procedure was reversed in a third sample. Two extreme groups on the achievement scale scores were selected and studied as to the discrepancy between expected and earned grade averages. There was overlap between over- and under-achievers, but the scale was believed useful for early identification if statistical control of scholastic ability was maintained.

#### General Surveys

Barrett (1957) reported a survey designed to disclose reasons for under-achievement. His data indicated that under-achievers: a) can be recognized by grade 5, b) are less capable of numerical and abstract reasoning, c) have over-solicitous parents lacking in cooperative spirit, d) are negative towards school and are less accepted by classmates.

Gowan (1957) conducted a survey of four groups of 25 students each in a metropolitan senior high school. All were scored on the California Test of Mental Maturity. Group I consisted of high achievers with IQ's ranging from 125 to 150 with a median of 131. Group II consisted of under-achievers ranging similarly from 125 to 150 in IQ with a median of 130. Group III consisted of over-achieving students whose school marks matched those for Group I but whose IQ's ranged from 86 to 112 with a median at 103. General biograph-

ical data, including material concerning home relationships, were then secured for each individual. The high achievers and under-achievers differed significantly at the five per cent level of confidence or better, in that the under-achievers were predominantly boys, had parents who took little part in church activities, had fewer books in their homes, had less often received private lessons, and that they expressed a desire in choosing a vocation for working away from the parental family. In general, the pattern that emerges was one of indifference and rejection on the part of the parent, or at least of behavior which is significantly more often interpreted in this manner by the under-achiever. In an earlier study Gowan (1955) found that when a secondary school population of 485 boys was analyzed for under-achievement and over-achievement, 16 per cent of the total group were under-achievers, and 11 per cent were over-achievers. The over-achievers were significantly less sociable as measured by the sociability scale of the Bernreuter. The conclusion was that the genesis of under-achievement lay in a low score in self-sufficiency, and that in general, under-achievement in academic work and under-achievement in leadership tended to appear together and to be connected with high unsociability ratings.

Gowan stressed common theoretical statements concerning the dynamics associated with under-achievement. His survey proposed the following factors: under-achievers show a) lack of academic and occupational choice; b) misuse of time and money; c) weak ego controls; d) withdrawal and self-sufficiency; e) lack of competency in arithmetic and reading; f) psychotic or neurotic tendencies; g) authoritarianism in the home or in the individual himself.

h) dominant, autocratic, or laissez-faire parents; i) no goals or impossible ones in meeting task demands in childhood; j) lack of maturity, responsibility, and seriousness of interests; k) disinterest in others; l) lack of dominance, persuasiveness, and self-confidence; and m) apathetic withdrawal from a socially oriented perspective of life.

### Projective Techniques

A number of studies have approached the problem under investigation by using the projective techniques. Of these various tests, the Rorschach (both in its group and individual administration) has been primarily used in the investigation of the relationship between personality and academic achievement.

Munroe (1945) devised a special technique for analysis and interpretation of group Rorschach protocols. She used a check list to rate 348 college girls in reference to emotional factors determined from Rorschach records. Adjustment ratings of A, B, C, or D predicted academic success better than the ACE percentile scores. However, results indicated that ACE scores above the 80th percentile were more successful than the Rorschach adjustment ratings of A in predicting superior academic work. Rorschach adjustment rating was much more successful than the ACE in predicting academic failure. Nevertheless, Munroe admits that these findings had little value for practical problems of prediction. For every student that she rated as C or D who failed, a number with similar ratings were outstanding students. Munroe observed that failure however was due largely to personality factors rather than lack of ability.

Munroe's method tries to keep the "holistic" character of the Ror-

schach. Each protocol is evaluated as a whole and the subject is classified according to emotional factors derived from a consideration of interacting Rorschach categories. However, difficulties would arise in arriving at objective standards for classification of personality traits in terms of A, B, C, and D.

Thompson (1952) used the Group Rorschach in an attempt to predict academic success. She used 128 students from a psychology class at Santa Barbara College. Achievers and non-achievers were differentiated on the basis of the final grade received in this one class. The two extreme quartiles were compared on the basis of 52 Rorschach categories. If the number of students in one of these quartiles exceeded the number in the other quartile by four or more on any of the 52 categories tested, that category was selected as having possible value for discriminating the personality of the groups. Rorschach categories decreased to 34. Each item or category was given a weight of one and the Rorschach protocols were scored on the basis of the number of items contained. These were correlated with her criterion of achievement. Thompson found that achievers gave fewer responses, fewer content categories, less D, used shading more than non-achievers, and were less inclined to respond to color. Achievers' Erlebnistyp showed an introverted pattern.

The major criticism of this study is the advisability of considering one class grade as a criterion of academic success. The variable of intelligence was inadequately controlled.

Margulies (1942) administered Rorschachs individually to a group of 69 academically successful boys and girls and to a group of 38 unsuccessful

boys and girls aged 13. Groups were equated for IQ, age, socio-economic status, birthplace of parents, birthplace and residence of subjects, religion, and language in the home. The mean IQ for the successful group was 122.50 and for the unsuccessful group 125. School success was measured by teachers' ratings and grades. The aim of this study was two-fold. First; "to investigate experimentally the validity of the claims made by Rorschach workers on the basis of clinical experience that certain Rorschach responses show the efficient or inefficient use of mental capacities, and secondly, to investigate whether children successful and unsuccessful in school differ in their Rorschach records (1942, p. 9).

The W:M ratio, color shock, and shading shock were particularly studied. No difference was found between the groups in the distribution of the raw W:M ratio. However, significant differences were found in the other two indices. The unsuccessful group of children showed more signs of shading and color shock which differentiated achievers from nonachievers.

These groups were not equated for sex. Consequently, the disproportionate number of boys and girls might be considered a weakness in Margulies' study, especially in the adolescent age. Sex differences have been found in Rorschach responses at this age. More reliable results might be obtained if boys and girls were studied independently.

A controlled study of students at Ohio State University was made by Steinzor (1944). The groups comprised 15 male high achievers and 15 male low achievers. Selection was on the basis of intelligence and grade point averages. The groups were equated for income and occupation of the father, hours

of study each week, birthplace of parents, religion, and population of the home city residence.

Steinzor administered individual Rorschachs to 15 non-achieving and 15 high achieving college students. They were scored according to Klopfer. Differences were found in the number of responses and in Fc at or below the one per cent level of confidence. Between the two and five per cent level of confidence differences occurred in d, Dds, F, Sum C, and the number of content categories. All these were in favor of the high achievers. Steinzor concluded that the high achievers were better adjusted, more productive, practical, critical, and sensitive to environment. They were found to be more reactive to external emotional stimulation, showed a more favorable social adjustment, better use of intellectual control, had a wider range of interests, and showed greater originality and freedom of thought.

Regarding the degree of adjustment and maladjustment between these two groups, Steinzor states: "On the whole, non-achievers gave indications, as measured by the Rorschach test, of being a less well-adjusted group. Though there were individuals in the successful group who showed Rorschach signs of severe maladjustment, it is expected that the personally and socially better adjusted individual will do more satisfactory school work (1944, p. 504). Despite significant differences found, the reliability of these findings may be questionable in view of the limited number of subjects.

Passow and Goldberg are presently working on a "Talented Youth" project with bright under-achieving high school students. Numerous schools were chosen throughout the country. The author participated in the testing of some

of these children. Tests included in the project were the Wechsler Adult Intelligence Scale, Rorschach, Thematic Apperception Test, and Sentence Completion Tests. Results are to be published in the near future.

The major uncontrolled variable in this study appeared to be the intelligence factor. Students were chosen who obtained high scores on group aptitude and intelligence tests. However, the population selected from the high school in which the author tested, were youngsters not generally considered in the upper range of intelligence. They were under-achievers but not necessarily talented youngsters. The study will have worthwhile merit in contributing further understanding to the problem of under-achievement.

Rust and Ryan (1953) studies the relationship of some Rorschach variables to academic behavior with a group of 40 college students. The mean IQ for Group I was 125 with corresponding low grades. The high achievers had a mean IQ of 124. Students with mean IQ's of 112 with corresponding high grades were matched with students having mean IQ's of 112 with low grades. Results were as follows. There was found a significant difference among the number of under-achievers revealing an essentially negative relationship with the father figure. The under-achievers were less able to give direct effective expression to their negative feelings and showed marked feelings of inadequacy. The over-achievers revealed a greater amount of anxiety.

The sample used in each of the four groups consisted of 10 subjects. This seems hardly sufficient to obtain statistically reliable results. Achievement level was determined on the basis of high and low grades. The variable could have been more tightly controlled.

Snider (1953) sought to determine personality differences between 20 high-achieving and 20 low-achieving senior high school boys. The selection of groups was made on the basis of actual success throughout six semesters of high school as measured by grades. An index of achievement was established by comparing differences between the intelligence standard score and achievement standard score. The mean standard score (T) for intelligence of the high achievers was 57.18; of the low achievers, 57.30. The mean standard score for achievement was 63.70 for high achievers and 44.35 for low achievers. Each subject was individually administered the Rorschach and Thematic Apperception Test. The Rorschach protocols were compared and tested for differences which have been found to have psychological meaning. Snider's results are as follows:

- 1) With the exception of  $F_c$ , none of the raw scores revealed a difference between high and low achievers significantly better than chance expectancy. For  $F_c$ , however, the difference between groups was significant at the two per cent level of confidence, in favor of the high achievers.
- 2) Various Rorschach elements clinically associated with mental efficiency were analyzed. In terms of statistical significance, the results were uniformly negative. However, an analysis of human movement responses revealed that high achievers responded more frequently with extensor M. The difference between groups is significant at the five per cent level.
- 3) In the area of emotions, high achievers surpassed low achievers in k responses and in numerical superiority of achromatic responses over chromatic responses. Both of these Rorschach elements yield differences between groups at the five per cent level of confidence.
- 4) An analysis of Erlebnistyp revealed no significant differences in the major categories of introversive and extratensive types. Analysis of several indices of conflict in the area of Erlebnistyp revealed no significant differences between groups.
- 5) "Signs" of adjustment and maladjustment devised by Davidson, Miale,

Narrower Erickson, and Munroe failed to differentiate high and low academic achievers (1953, p. 108).

Snider concludes that the Rorschach findings of his investigation are considered negative. However, he does note trends revealed from his data. They are as follows:

- 1) Low achievers show a tendency toward a higher FC% and a Sum C%, but not in absolute values for these scores.
- 2) Low achievers surpassed high achievers in an extratensive pattern in which "Sum S if greater than M by less than 3.0, but the formula is not constrictive." High achievers excelled in giving an ambiequal pattern of Erlebnistyp in which "M and Sum C are approximately equal and have values of 1.5 to 2.5." (1953, p. 68).

From these findings, Snider makes some general interpretations and suggestions about the personality structure of high and low achievers. High achievers tend to produce more d and Dds, which suggests greater awareness of details and tendency to be more critical than the low achievers. High achievers also appeared to be more aware of anxiety and depression. They face their tensions and anxieties more realistically. High achievers may be more self-assertive and dominant, with higher level of aspirations. Low achievers tend to be more adaptable socially and look for expression of their personality outside of themselves. High achievers, in their awareness of the world about them, may perhaps be more fearful of external dangers and their own conflicting impulses. Consequently, they react with caution and are less apt to show actual feelings.

Snider criticizes his own study for the unavoidable limitation of subjects. Though the present investigation does not appreciably increase the

population under study, it is hoped that the proposed statistical handling of the data may bring forth greater differences.

In general there has been inconsistency in the personality descriptions of over- and under-achievers. Some studies have indicated that over-achievers are lagging in emotional maturation, come from high socio-economic background, are self-assertive, critical of themselves and others. Question has been raised regarding the possible detrimental effect parental pressure and achievement expectation may have upon the child (Haggard, 1957). Other studies (Drews & Teahan, 1957) have described the high achiever as better adjusted, responsible, and self-directive. However, the distinction here is in the meaning of high achievement and over-achievement. Only recently has this difference been made. High achievement generally refers to students having above average to superior intelligence and who are achieving at this level. Over-achievers are those who achieve beyond what is predicted on the basis of their IQ. These students may have below average to superior intelligence. However, achievement groups in the reported studies appear to have been inadequately distinguished and defined, particularly in determining over-achievement. A number of writers have used in their studies groups of over-achieving students but their criterion for over-achievement does not appear adequately controlled. Gebhart's (1958) sample of over-achievers consisted of students whose first semester grades were higher than the grades predicted they would earn according to their IQ scores. Prediction of grades expected seems to have been concluded by subjective opinion.

Gowan's (1957) group of over-achievers was more carefully determined.

However, the variable of intelligence was not controlled. The over-achievers' intelligence quotient ranged from 86 to 112. These students had received comparable achievement scores with those selected as high achievers. However, the latter group's intelligence quotient ranged from 125 to 150.

Under-achievement has been considered as a symptom of diverse forms of personal and social maladjustment. The under-achiever may be more unsociable, less accepted by classmates, less able to handle and express underlying aggressive feelings and inclined to respond in a negative fashion. Other studies have described the under-achievers as outgoing and more sociable than over-achievers.

Snider's (1953) procedure of converting grade and IQ scores into standard scores was followed in the selection of the groups for this study. This provides a more objective and reliable differentiation and criterion of academic success.

The majority of previous studies reported have concentrated on high school and college populations. Several studies have noted that under-achievers may be beyond help by high school age (Passow & Goldberg, 1957) and writers encouraged early recognition of the problem. Achievement patterns have been found to be recognized by grade 5 (Barratt, 1957). This has been considered among school personnel as a crucial year in the educational curriculum. Work and study habits have become fairly well established. These reported conclusions influenced the author of this study to choose fifth grade children as the sample population.

Some studies which approached the problem under investigation using

the Rorschach technique have furnished quantitative Rorschach findings. While this is a valuable contribution, attempt has been made in this study to provide personality descriptions, interpreted from the quantitative results. This is similar to Snider's (1953) design. However, the number of subjects, and statistical analysis of the data used by Snider did not provide significant results. This defect is also found in Margulies' (1942) study. He used a disproportionate number of boys and girls within groups and between achievement groups. There appears a need to increase the number of subjects and match groups for sex.

A major departure from previous studies is the statistical treatment of the data. The pattern-analysis technique has been used in this study as an attempt to demonstrate a new approach in the interpretation of Rorschach quantitative scores.

## CHAPTER III

### METHODS AND PROCEDURE

The review of previous studies in the area of academic achievement indicates that attention has been largely focused on high-school and college populations. There has, however, been a growing interest in recognizing achievement patterns in the elementary school years. Moreover, research has shown that many factors affect academic success. It is not possible to isolate and control all these factors. In the present investigation there is an attempt to exercise control over the variable of intelligence in hopes of finding some measurable or descriptive personality pattern which may show differences between over-achievers, under-achievers, and children who are performing at a level commensurate with their ability.

The sample used in this study were children selected from the total fifth grade population in a suburban public school district. A variable which may be operating is the possible difference in socio-economic level. However, this factor in itself has significance which will be discussed in Chapter V.

Differentiation of the three groups was made on the basis of scores derived from the Metropolitan Achievement test and the Kuhlmann-Anderson Intelligence test. Both tests were administered at the termination of fourth grade. An index of achievement was established by converting the pupils'

grade scores into standard scores. The calculation of the standard score for intelligence included the same population. The mean IQ for this class was 114, and standard deviation 12.7. The mean grade equivalent score was 5.8, and standard deviation 1.0. The difference between the standard score of the grades and the standard score of intelligence constituted an index of how far above or below expectancy each child was achieving. On the basis of this index, three groups were selected. Children whose standard scores for both intelligence and achievement are equivalent, that is the same or not more than a plus one or minus one difference comprised the group of children who are achieving at their expected rate. Units of difference constitutes months. The group of over-achievers are those who show a conspicuous difference between achievement and intelligence. The difference is better than a half year to year achievement advance. Positive indices are evidence that they are achieving beyond expectancy as measured by intelligence scores, i.e., when achievement standard score is higher than intelligence standard score. Contrariwise, the under-achieving group is made up of children whose standard achievement scores are conspicuously below their standard IQ scores. From the total 873 fifth grade children, 30 children in each achievement group were selected. The results of these calculations are shown in Table 1.

The groups have been matched for sex, age, and intelligence. Table 2 presents this data. The mean standard score for intelligence of the over-achievers is 50.78, of the under-achievers 51.98. The difference between groups, tested by the standard error of difference between means, is represented by a  $t$  of 1.0. Since there are 58 degrees of freedom, the five per

Table 1

Standard Scores for Metropolitan Achievement Grades, Kuhlmann-Anderson Intelligence, and Index of Achievement (Difference Between Standard Scores for Intelligence and Grades) of Thirty Over-Achievers, Under-, and Normal Achieving Fifth Grade Children

Subjects (N= 90) <sup>a</sup>	Intelligence Standard Scores			Achievement Standard Scores			Index of Achievement		
	Over	Under	Normal	Over	Under	Normal	Over	Under	Normal
1	40	42	40	50	33	40	10	-9	0
2	46	42	44	56	32	43	10	-10	-1
3	47	47	44	57	33	44	10	-14	0
4	47	50	47	58	40	46	11	-10	-1
5	47	50	47	56	36	47	9	-12	0
6	47	50	47	56	39	47	9	-11	0
7	47	50	47	56	39	47	9	-11	0
8	47	50	47	56	35	47	9	-15	0
9	48	50	48	56	37	47	8	-13	-1
10	48	50	48	58	34	47	10	-16	-1
11	50	51	49	60	41	48	10	-10	-1
12	50	51	50	60	41	50	10	-10	0
13	50	51	50	60	41	50	10	-10	0
14	50	52	50	59	39	50	9	-13	0
15	50	52	50	60	39	50	10	-13	0
16	50	54	50	62	43	50	12	-11	0
17	50	54	50	61	44	50	11	-10	0
18	50	54	51	60	45	52	10	-9	1
19	51	54	51	61	44	50	10	-10	-1
20	51	54	51	59	47	50	8	-7	-1
21	51	55	52	61	45	52	10	-10	0
22	52	55	53	60	45	53	8	-10	0
23	54	55	55	62	42	56	8	-13	1
24	55	55	56	61	45	56	6	-10	0
25	55	55	56	64	32	56	9	-23	0
26	55	55	56	64	38	56	9	-17	0
27	59	55	59	64	45	58	5	-10	-1
28	59	55	59	64	46	58	5	-9	-1
29	59	55	59	66	48	58	7	-9	-1
30	59	57	59	66	45	58	7	-12	-1

<sup>a</sup>30 in each group. Individuals are matched across the rows.

cent for  $t$  is 2.011. The mean standard score for intelligence of the normal group is 50.78. The difference between this group and the under-achievers is represented by a  $t$  of 1.01, and between the normals and the over-achievers .00. At the one per cent level of confidence a  $t$  of 2.683 is required for statistical significance. The three groups thus appear to be equivalently matched for intelligence.

Table 2

Means and Standard Deviations for Intelligence, Grade Scores and Age of  
Thirty Over-Achievers, Under-Achievers, and Normal Achievers

Variable	Over-Achievers (N 30)		Under-Achievers (N 30)		Normal-Achievers (N 30)	
	Mean	S.D.	Mean	S.D.	Mean	S.D.
Kuhlmann-Anderson	115.02	1.86	115.91	1.70	115.64	2.07
Metropolitan Grade	6.9	1.08	4.9	2.06	5.9	3.27
Standard Score of IQ	50.78	4.41	51.98	4.52	50.78	3.75
Standard Score of Grades	58.91	3.15	50.49	5.61	50.81	3.81
Chronological Age (Months)	122.4	2.06	122.1	1.91	122.0	1.89

The mean standard scores of grades for the under-achievers is 40.59 and 58.91 for the over-achievers. This difference is represented by a  $t$  of 14.68. The mean standard score for achievement of the normal group is 50.31. The difference between this group and the under-achievers is represented by a  $t$  of 8.18; between these normals and the over-achievers, 6.05. Hence, the conclusion warranted by the data is that the three groups are heterogeneous on the basis of academic success.

At the fifth grade level, reading deficiency sometimes renders group intelligence tests invalid. Attempt was made to control this variable by calculating the mean mental age, of the verbal and nonverbal tests in the group of under-achievers. The mean mental age for the verbal tests is 136.5 months, for the nonverbal, 137.0 months. An additional check on this factor was made. The median mental age for total Kuhlmann-Anderson subtests was 135.92 months and median mental age for sub-tests excluding reading was 136.31. The difference between the median mental age for the total Kuhlmann-Anderson score and the median mental age excluding the reading tests as tested by the standard error of difference is represented by a  $t$  of .08. A  $t$  of 2.76 is required for the one per cent level of significance. This indicates a consistency among reading sub-tests scores and nonverbal sub-test scores. Hence, there is high probability that reading deficiency has not significantly influenced the intelligence score in the selected group of under-achievers.

The 90 subjects constituting the three groups according to the criteria described were individually administered the Rorschach Ink Blot Test by the investigator. Numbers were assigned at random to each subject and scoring

was done without knowledge of name, sex, or achievement group. Klopfer's method of administration and scoring was followed. References were made to Beck (1946) and Hertz (1946). When there was question of scoring, the protocol was submitted to three clinical psychologists for their objective opinion and the consensus of agreement was followed.

The statistical treatment of the data, and various patterns and categories analyzed are presented in Chapter IV.

## CHAPTER IV

### STATISTICAL ANALYSIS OF THE RORSCHACH DATA

A statistical analysis of Rorschach data, particularly when applied to sums of individual scores within groups, presents difficulties. This method neglects the interrelationships of scores and consequently loses the "holistic" character implicit in Rorschach interpretation (Chronbach, 1949; Davidson & Klopfer, 1938). Rorschach scores are not absolute values independent of each other. Rather, each scoring symbol must be taken in the pattern of the whole record before it yields its full meaning. Rimoldi and Grib (1959) have devised a method for objectively characterizing and quantitatively comparing patterns of responses. It is possible to establish a model or "ideal" pattern of item selection based on the performance of a group of subjects. Items selected as well as items disregarded are considered in the determination of an index of agreement. This technique involves the subtraction of an observed pattern of item selection from a model pattern through a system of weights. Given a set of  $n$  stimuli and analyzing how subjects respond in relation to one or several properties of these stimuli, a pattern of responses are defined for the whole group of subjects and items. Any type of response can be handled by the method provided that it can be dichotomized. The data are arranged in a two-dimensional matrix. The columns represent stimuli and rows the subjects. The

term stimulus is understood here as the Rorschach cards and specifically the child's scored response. In characterizing the response pattern, each cell of the matrix is assigned a numerical weight based on the contribution of both subject and stimulus to the over-all pattern. The observed pattern, that is, the actual responses are evaluated against a hypothetical model or "ideal" pattern by comparing the congruence of cells in both patterns. The model or "ideal" pattern is based on the frequency configuration of responses for the total group. In this case, children's response selection of Rorschach determinants are ranked in order of frequency. Numerical weights are then assigned to each cell of the matrix. These weights are based on the contribution of both subject (rows) and stimulus (columns) to the over-all pattern. Once the model pattern has been set up and weights calculated, the observed pattern, that is the actual responses of each subject are evaluated against the model by comparing the congruence of cells in both patterns. Ideally, the subject would have achieved the most efficient selection of responses if his pattern conformed to the response pattern of the model. However, since the model pattern is hypothetical, in the present investigation based on the frequency response of Rorschach categories, it does not necessarily follow that it is the most desirable response pattern. Rather, the pattern analysis technique is applied in this study for the purpose of assessing the relationships and discrepancies between the three groups in terms of the total pattern and Rorschach scoring categories. This assessment is based on the weighted cells and expressed in an Index of Agreement (Ia) which varies from 1.00 (perfect agreement) to .0 (minimum possible agreement). If the weights of the subjects con-

formed completely to those of the model weights, the observed pattern would be identical with the model and the Index of Agreement would be equal to 1.00. If, on the other hand, there were a minimum possible agreement between the observed and model pattern, the Index of Agreement would be .0.

The weights assigned to each cell are a function of the product of the number of filled-in rows, filled-in column values, and total number of filled-in cells in the pattern.<sup>1</sup> Similarly, since the filled in and empty cells represent respectively the presence or absence of the particular Rorschach category, the determinants and location areas were considered separately for purposes of characterizing the pattern more accurately. In this way, the pattern of weights is defined not only by the Rorschach determinants used by each subject but also by the determinants not selected.<sup>2</sup>

The present investigation attempts to delineate personality differences between the three groups of achievers by the pattern analysis technique. The first step involved calculation of median values for each determinant and location area for the three groups combined. Responses were then dichotomized as being above or below the median and patterns for each group set up on this basis. Median values are shown in Table 3.

<sup>1</sup> For nomenclature purposes, the pattern analysis technique designates each filled in cell as  $a_{ij}$  ( $i$  indicates row and  $j$  column) and empty cell as  $\bar{a}_{ij}$ . For each row, the sum of  $a_{ij}$  cells is  $R_i$  and sum of all  $\bar{a}_{ij}$  is  $\bar{R}_i$ . For the columns the sums are  $C_j$  and  $\bar{C}_j$ .

<sup>2</sup> For all  $a_{ij}$  cells the weight ( $w$ ) is defined as  $w_{a_{ij}} = \frac{R_i C_j}{\sum R_i}$  and similarly for all  $\bar{a}_{ij}$  cells  $w_{\bar{a}_{ij}} = \frac{\bar{R}_i \bar{C}_j}{\sum \bar{R}_i}$

Table 3

Median Values of Various Rorschach Variables for Total Three Groups

Variable	Median	Variable	Median	Variable	Median
M	1.52	Fc	.54	W	8.92
FM	2.51	c	.50	D	7.08
m	.67	C'	.56	d	.57
k	.50	FC	.52	Dd	.54
K	.52	CF	1.52	S	.53
FK	.59	C	.50		
F	9.52	N	16.84		

The first model pattern chosen for purposes of comparing the observed responses was the location areas of the normal achieving group. Table 4 presents this data. The columns (Rorschach categories) and rows (subjects) were ranked in order of frequency and weights assigned.<sup>3</sup>

The response sequence for the model pattern was d, W, D, S, Dd as shown in Table 4. In order to conform to the model, subjects having one response above the median would be d. Two scored responses above the median

<sup>3</sup> Tabular presentation made it necessary to reverse the rows and columns. The tables have been arranged with Rorschach categories representing the columns and weights assigned for subjects are found in the rows. Ri indicates the frequency of filled in cells in the model and Ri empty cells.

would be d and W. Three scored responses above the median would be d, W, and D. When the child's protocol did not conform to the model, either in regard to the presence or absence, the weighted cell was encircled indicating a misplacement or error. In order to get a measure of consistency, that is to determine how closely the observed responses compared with the model, the discrepancy and similarity was accounted for by dividing the difference between the total non-misplaced cells and total minimum possible values by the difference between the total weights of the pattern and total minimum possible values.<sup>4</sup> This yielded an index of agreement of .50 which indicates that the normal achievers tend to vary somewhat in their patterns.

Keeping the model pattern weights constant, the over-achievers were then compared to the normal group. These patterns of responses yielded a .31 index of agreement. The same procedure was followed for the under-achievers.

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<sup>4</sup> A minimum value is defined for each pattern so that the final similarity ratio will be equal to zero (difference between sum of the non-misplaced cells and total sum) when the observed pattern is the most deviant from the model pattern. Every misplacement implies that a filled in cell in the observed pattern becomes an empty cell in the model pattern, and vice versa. If in a given row the number of filled in and empty cells is the same, then every cell can be misplaced. The number of misplacements is limited by the number of filled in or empty cells, which ever is smaller. This gives the number of unchanged (non-misplaced) cells under the most deviant conditions. The weights of those that have the lowest values are summed. The result of this operation gives the minimum possible number of non-misplaced cells in relation to the model.

The equation for Ia (Index of Agreement) is as follows:

$$Ia = \frac{At - mAt}{T - mAt}$$

Index of agreement was .19. These calculations not only show that differences exist between the three groups but also indicate that the most deviant patterns were the under-achievers.

For further basis of comparison, the over-achievers' response pattern was arbitrarily chosen as a new model. The same procedures outlined above were followed. Table 5 indicates the ranking order of location areas and weights assigned. The index of agreement for the over-achievers compared with their own model was .63 which revealed a relatively high degree of consistency.<sup>5</sup> The under-achievers response patterns were compared to this model. Index of agreement was .36 which indicates conspicuous differences between these two groups.

Analysis of the differences and similarities presents a picture of the varying manner of approach as between the three groups of achievers.

The main function of the location components is to show how the subject makes use of his available mental and physical energy. This energy may be distributed in excessive attention to inconsequential and petty issues. Attention may be directed to practical, concrete, obvious aspects, or concern with an abstract, and comprehensive intellectual approach.

The distribution frequency of location areas among the three groups revealed several conspicuous trends. The normal achievers showed a greater preoccupation with small details. Their approach is a meticulous one. The

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<sup>5</sup> It is possible to describe an exact test of significance for the index of agreement. The development of such a test will be available in the future (1959, p. 19).

usual psychological correlate of numerous d is anxiety and possible reflects a need for certainty. However Piotronski (1957) places little significance on this, as d varies in number most frequently and changes from one testing session to another. Klopfer (1954) also states that a lack of d is not particularly significant. However, a count of misplaced cells show that the groups differ markedly with respect to this category. The under-achievers have 20 misplacements and over-achievers 17 misplacements. Normal achievers compared to their model group pattern had only five misplacements.

Table 4

Matrix of Weights for Normal Achievers Model Pattern for Location Areas<sup>a</sup>

Category	Cell Weights			
d	.31	.66	1.31	1.97
W	.85	.66	.63	.94
D	1.26	1.01	.76	.09
S	1.30	1.04	.79	.52
Dd	1.30	1.04	.79	.52
Ri	0	1	2	3
$\bar{Ri}$	5	4	3	2

<sup>a</sup>To avoid repetition only single frequencies for each row are reported in the tables.

Whole responses reflects efforts towards organization, depending upon other determinant constellations. A preponderance of W may indicate a level of aspiration reaching beyond the productive resources of the personality. While the under-achievers demonstrated a high frequency of W responses, this loses significance in light of the fact that children of this age tend to produce more whole responses. The observed patterns showed 11 misplacements for the over-achievers and 15 misplacements for the under-achievers. Normal achievers had six misplacements.

Table 5

## Matrix of Weights for Over-Achievers Model Pattern Location Areas

Category	Cell Weights			
D, S <sup>a</sup>	.30	.49	.98	1.47
D, S	.69	.55	.65	.98
W	1.04	.83	.62	.55
d, Dd	1.49	1.19	.89	.59
d, Dd	1.49	1.19	.89	.59
Ri	0	1	2	3
R $\bar{i}$	5	4	3	2

<sup>a</sup>Combined location scores have equal frequency in the selection of this category.

Rorschach interprets large details as reflecting practical, everyday, and commonsense application of intelligence. The pattern for the normal achievers reveals an underemphasis of D at the expense of d. In this column the over-achievers had ten misplacements and under-achievers nine misplacements. Normal achievers had four misplacements.

Comparison of the under-achievers with the model pattern of over-achievers revealed conspicuous differences. The protocol conformed to the model if one response above the median was D. Two responses above median values would be D and S. A convention here was introduced in view of equal frequency of responses found in the over-achievers, and in order to fulfill the conditions for the model pattern. If one response above the median occurred, even though it be an S, the weight assigned was the same for D. Other than this exception the same procedure was followed as before. The under-achievers preferred whole responses over white space and large details.

The most marked pattern disagreement between the three groups in location areas occurred in the S column. Comparison of over-achievers response pattern with the normal group as the model showed 13 misplaced cells. The under-achievers had only one misplaced cell. The preponderance of white space responses lends itself to interpretative significance. Rorschach thought that S responses were signs of "habitual oppositional tendencies." White space responses reflect energy and can be desirable aspects of the intellectual kind. Piotrowski (1957) describes an S type of person as one who feels he must defend himself by exerting influence. S responses reveal an energetic, active and critical mental attitude. Klopfer (1954) has modified Rorschach's original

interpretation. White space responses may reflect oppositional tendencies in the intellectual sphere. This kind of opposition involves the competitive or self-assertive aspect of intellectuality. When there is an exaggerated emphasis he hypothesizes that the subject is too absorbed in doing things differently and asserting himself competitively. This may become detrimental to his own personality balance and channelization of energy. When there is an introversial trend, the intellectual opposition is turned against the self. The competitive person drives himself and because his own expectations for achievement are too high, the consequent reaction is increased feelings of inadequacy and self criticism. If there is also an emphasis on FK the implication of inadequate feelings is reinforced.

The three groups used in this study have revealed differences in their manner of approach to like problems, academic tasks, and sustained efficiency in various situations. The normal achievers are preoccupied with small, possibly insignificant aspects of experience. They exercise a meticulous and compulsive approach. The over-achievers use a more practical and common sense approach. They are competitive, self assertive, and stimulated by intellectual challenge. Over-achievers have been found in this study to be intellectually aggressive. They are apt to be critical of others. Under-achievers have shown a spontaneous and impulsive approach. They are inclined to first draw generalised conclusions, then reason and tackle the problem piece by piece. However, in this process they tend to loose sight of the important and obvious aspects. The impulsive spurt of energy thus becomes channelised into a compulsive type of approach.

The location components disclose the scope of tasks the individual is ready actively to tackle and the efficiency with which he solves problems. Determinant components reveal the manner in which the individual relates to the world. Analysis of them discloses how individuals differ from others; the psychological mechanisms regulating the subject's significant relationships. The determinants aid in a descriptive analysis of the emotional aspects of the personality.

In order to determine if different patterns exist between the three groups of achievers the normal group was arbitrarily chosen as the model for basis of comparison. Table 3 indicates the median value for each determinant for the three groups. These figures served as cutting points. A model pattern was set up.

The pattern weights and rank order of determinants for the normal achievers is shown in Table 6. In comparison with the observed pattern, the actual responses of this group with their model yielded a .64 index of agreement. This indicates a relatively high measure of consistency. The over-achievers' observed pattern when compared to the established model produced a .56 index of agreement, the under-achievers only .33. The three groups conspicuously differ from each other in their patterns. In order to further substantiate that differences have occurred, a new model was chosen on the basis of frequency of determinants found in the over-achieving group. Table 7 shows the rank order of the determinants, subjects and weights assigned. A .65 index of agreement was found between the observed over-achievers' responses and their own model pattern. While this shows individual differences, the measure of

consistency for the whole group is high.

Table 6

Matrix of Weights for Normal Achievers Model Pattern for Determinants

Category	Cell Weights								
FC	.09	.25	.51	.76	1.01	1.27	1.52	1.78	2.03
FK	.22	.21	.45	.68	.90	1.13	1.36	1.59	1.82
Fc	.36	.33	.24	.60	.80	1.00	1.20	1.40	1.60
M	.67	.63	.58	.53	.55	.68	.82	.95	1.09
F, C'	.86	.79	.73	.67	.61	.50	.60	.70	.80
F, C'	1.08	1.00	.93	.85	.77	.69	.33	.38	.43
FM, CF	1.26	1.17	1.08	.99	.90	.81	.72	.13	.14
FM, CF	1.30	1.22	1.12	1.02	.93	.84	.74	.66	.07
m	1.35	1.25	1.16	1.06	.97	.87	.77	.68	.58
M	1.35	1.25	1.16	1.06	.97	.87	.77	.68	.58
K	1.35	1.25	1.16	1.06	.97	.87	.77	.68	.58
k	1.35	1.25	1.16	1.06	.97	.87	.77	.68	.58
c, C	1.35	1.25	1.16	1.06	.97	.87	.77	.68	.58
c, C	1.35	1.25	1.16	1.06	.97	.87	.77	.63	.58
R1	0	1	2	3	4	5	6	7	8
RI	14	13	12	11	10	9	8	7	6

Positive discrepancies of patterns were found between the under-achievers and over-achievers model pattern. The index of agreement was .28. This indicates a large deviation and substantiates the conclusion that differences have been found between the three groups. The largest discrepancy was found between the patterns of over-achievers and under-achievers.

In order to determine what these differences were and how they contribute in Rorschach interpretation to the personality picture, an analysis of errors was made by examining presence and absence of determinants used.

Twenty four over-achievers and an equal number of under-achievers failed to conform to the model pattern of the normal group in the production of FC responses. Ten normal achievers did not conform to their model. While this shows decided differences in patterns of the three groups, just where these differences occurred was determined by examining categories which showed the largest positive figures. Over-achievers produced more human and inanimate movement responses. Over-achievers differ most markedly from the normal achievers in the absence of FC and presence of M and m. Under-achievers emphasized CF and FM over FC.

Over-achievers and normal achievers favored FK. However, 23 misplacements occurred in this column for the under-achievers: C' and M took priority.

An equal number of over- and under-achievers failed to yield to the model sequence in producing shading responses. The over-achievers favored K and F whereas under-achievers' errors were consistently spread in the remaining determinants. The presence of two C responses in the under-achieving group may be significant in view of the fact that among the three groups these were the

Table 7

Matrix of Weights for Over-Achievers Model Pattern for Determinants

Category	Cell Weights							
FK	.24	.47	.72	.95	1.19	1.43	1.67	1.90
N	.09	.44	.67	.89	1.11	1.33	1.56	1.78
Fc	.31	.29	.55	.73	.91	1.09	1.28	1.46
F	.53	.49	.45	.57	.71	.85	1.00	1.14
M	.71	.65	.60	.54	.56	.67	.78	.89
FM, C'	1.02	.94	.86	.78	.70	.33	.39	.44
FM, C'	1.11	1.09	.94	.85	.76	.68	.28	.32
m	1.28	1.18	1.08	.99	.89	.78	.67	.06
K	1.33	1.22	1.12	1.02	.92	.82	.71	.61
FC	1.33	1.22	1.12	1.02	.92	.82	.71	.61
CF	1.33	1.22	1.12	1.02	.92	.82	.71	.61
c	1.33	1.22	1.12	1.02	.92	.82	.71	.61
k, C	1.33	1.22	1.12	1.02	.92	.82	.71	.61
k, C	1.33	1.22	1.12	1.02	.92	.82	.71	.61
R1	1	2	3	4	5	6	7	8
R1	13	12	11	10	9	8	7	6

only pure color responses.

Evidence that the three groups produced differences in their pattern of responses was more clearly born out when the under-achievers were compared with the model pattern of the over-achievers. Table 7 indicates that FK is the leading determinant. Twenty five under-achievers failed to follow this pattern. Six over-achievers had misplaced cells. The bulk of errors showed preponderance of CF. Under-achievers are not as productive as over-achievers in number of responses. While over-achievers tend to give more shading responses, the under-achievers characteristically prefer color and animal movement. There were no noticeable differences between the groups in either human or inanimate movement.

In general, the over-achievers' pattern was in closer agreement with that of the normal achievers. The greatest similarity was found in the production of vista responses. Interpretatively, this implies that these two groups may tend to become engaged in self appraisal. Beck (1946, p. 33) associates feelings of inferiority with vista responses. The more one is prone to self-appraisal the more self-depreciating he may become. However, in view of the fact that over-achievers are more inclined to use this determinant with concurrent emphasis on white space, it appears that they cover up anxiety with an intellectual cloak and attempt to handle anxiety through introspective efforts. The relative absence of FK in the under-achievers and emphasis on color responses suggests that they are not only more socially oriented, but more self-regulative and expressive. In a child a preponderance of CF is expected, showing a freedom of expression and spontaneity. Similarly, CF is

expected to out number FC. Piotrowski (1957, p. 281) states that pre-adolescent children, below the age of 11, are emotionally freer under these conditions. These children's personal relationships are tense, formal, and though in actuality not well integrated, give the behavior impression of being over compliant.

The normal achievers show greater similarity of patterns with the under-achievers in the ratio of animal and human movement.

Snider used the chi square test of significance to demonstrate differences between his two groups of achievers. Significant differences were relatively few. However, this same measure of differences has been applied in this investigation to various Rorschach scoring symbols deemed psychologically significant. Only the over-achievers and under-achievers have been compared as the pattern analysis has shown that the normal achievers generally show characteristics of both groups. The scoring symbols have been dichotimized as either above or below the median, or for the sake of consistency, Klopfer's ratios have been used.

Assuming that differences in academic achievement are associated with differences in mental efficiency, Rorschach categories related with this index were investigated. They are: F (form response); P (popular responses); O (original responses); H (human content); M (human movement responses).

Klopfer (1956) maintains that a subject whose F responses exceed 50 per cent of the total number of responses in a record is likely to suffer from "neurotic constriction", and inclined to be inhibited in his response to the world. F percentages above 80 generally indicate a pathological condition, or

the subject is so poorly integrated in personality organization that he is only able to respond to the bare outlines of reality. Since these same conclusions have been found to be valid for children of school age (Klopfer, 1956, p. 234), an F% of 50 was taken as a cutting point to dichotomize the groups and another made at 80 per cent. A significantly greater number of over-achievers had an F% exceeding 50% of the total number of responses. This difference is reliable at the five per cent level of confidence as shown in Table 8.

The percentage of sharply perceived from responses (F+%) evaluates the degree which the individual habitually masters voluntary attention. The greater the F%, the more uniform and consciously controlled is the rational behavior. Piotrowski maintains that an F% of 90 indicates an exaggerated conscious control over attention; 70-90 about average; less than 70, questionable control and usually characteristic of illiterates without intellectual discipline (1957, p. 104). Three ranges used as cutting points were above 90%; 70% - 90%; less than 70%. Results are reported in Table 8. More under-achievers than over-achievers fell in the below 70% range. This difference was significant at the one per cent level of confidence.

Klopfer's norms were followed in scoring of popular concepts. Cutting points were less than five; five to nine; and more than nine. While these ranges may be applicable to adults, they should not be applied rigidly to children. Various workers have enumerated additional popular responses in view of the frequency of occurrence in children's records. No significant differences were found between the groups in this study.

Since subjectivity also enters into the scoring of children's

original responses, the norms published by Hertz (1946) were used as reference and when responses were questionable, the opinions of other psychologists were followed. No differences were found between the groups.

Table 8

Thirty Over- and Thirty Under-Achievers Compared According to Norms for Some Rorschach Categories Associated with Intellectual Efficiency:  $F\%$ ,  $F+\%$ ,  $P$ ,  $O$ ,  $A\%$  and the Ratio  $Hd+Ad : H+A$

Categories	Over (N=30)	Under (N=30)	Chi square	P
$F\%$ (50% - 80%)	26	13	2.420	< .05
$F\%$ (<80%)	1	1	.517	
$F+\%$ (90% or more)	1	1	.510	
$F+\%$ (70% - 90%)	27	21	1.160	< .01
$F+\%$ (>70%)	2	8	3.000	
$P$ (>5)	17	20	.280	
$P$ (5 - 9)	13	10	.280	
$P$ (<9)	0	0	.000	
$O$ (<or= $P$ )	3	0	1.403	
$A\%$ (<50%)	8	14	1.793	
$Hd+Ad : H+A$ (<1 : 2	4	1	.872	

Klopfer states that the optimum number for A% is considered to be from 20 to 35. Children are inclined to use this content more frequently. Ames (1952, p. 264) found in her group of ten year olds the mean A% to be 49. In order to determine differences a cutting point of 50 was used in this study. No differences were found to exist between the two groups in this category.

The proportion of Hd+Ad : H+A were calculated using Klopfer's ratio. Chi square analysis yielded no significant differences.

The only criteria which differentiated the present group of over-achievers from under-achievers in relation to intellectual efficiency were the F and F+% categories. Interpretatively this suggests that over-achievers may have a more constricted personality structure and tend to inhibit their responsiveness to the world. They exercise more conscious control over attention which however, is working in the service of the ego in regard to learning and intellectual efficiency.

Positive results as shown in Table 9 were found to exist between the two groups when compared for differences in intellectual control. Over-achievers favored FK and responses to the center area, (FK, F, FC) exceeded 20 per cent of the total number of responses. These results were significant at the one per cent level of confidence. When responses pile up in the center of the psychogram, Klopfer calls it a limited type of perception. He hypothesizes that such a person characteristically has a narrow view of the world. The over production of FK is interpreted as indication of self-consciousness. Over-achievers emphasize control of affectional anxiety, rather than stressing the awareness and acceptance of affectional needs. These results were previously

substantiated in the pattern analysis.

The two groups were tested for differences according to Rorschach scores associated with "outer control." These included the following ratios;  $CF > FC$  and  $FM > M$ ;  $M > FC+CF$ ;  $FC$ -or  $CF+C$ ; achromatic chromatic. The over-achievers demonstrated a preponderance of  $M$  over  $FC$  and  $CF$ . Achromatic responses outnumbered chromatic responses. The under-achievers favored color responses. These differences were significant at the one per cent level of confidence as shown in Table 10.

Table 9

Rorschach Responses of Thirty Over- and Thirty Under-Achievers Compared  
According to Various Criteria of Intellectual Control

Categories	Over (N=30)	Under (N=30)	Chi square	P
FK, F, Fc (>20%)	15	5	3.213	< .01
Absence of FK	10	23	9.690	< .01
Absence of FK & Fc	16	20	.624	
FK (3 or more)	5	1	1.666	
FK+Fc = $\frac{1}{2}$ F	5	0	3.490	< .01

In general, the bright colors are interpreted as a stimulus similar to that of the outer environment. How a person accepts the bright colors, whether he is shocked by them or avoids their use, and whether he uses them

with form quality are significant in determining how an individual reacts to the world around him. The over-achievers demonstrated excessive cautiousness in emotional contacts and inhibition. They tend to be over controlled in their expression of emotionality. Under-achievers tend more to respond and act out in overt behavioral expression. Although CF responses indicate a more impulsive reaction to emotional stimuli, in itself this is not an adverse sign with children.

Table 10

Thirty Over- and Thirty Under-Achievers Compared According to Various Criteria for Some Rorschach Scores Associated with "Outer Control"

Categories	Over (N=30)	Under (N=30)	Chi square	P
CF > FC and FM > M	9	13	.642	
M > FC+CF	15	7	3.516	< .01
FC-or > CF+C	8	3	1.783	
Achromatic > Chromatic	8	2	3.000	< .01

Differences between groups for Erlebnistyp were tested by chi square. Groups were dichotimized into extratensive (Sum C greater than M by 2.5 or more); ambiequal (M and Sum C are equal and have values of at least 1.5 to 3.0); constricted (no movement or color given); and introversive (M greater than Sum C by 2.5 or more). Under-achievers were found to be extratensive but

changing towards an introversial pattern as evidenced by the  $FM+m$  and  $Fa+c+C'$  ratio. Over-achievers presented a consistent introversial picture. Table 11 presents results which were significant beyond the one per cent level of confidence. No differences were found in the percentage of responses to the last three cards. The changing balance found in the under-achievers group may be indicative of conflict. However, Ames et al (1952) reported that 10 year old children characteristically present an introversial pattern. Possibly, results of the present under-achievers reflect a developmental lag and unrealized potential.

In order to determine the presence of anxiety, Rorschach categories generally associated with this aspect in the personality were examined. K or k (shading as a three dimensional expanse projected on a two dimensional plane) expresses some anxiety in the subject.

The obtained chi square of 3.000 suggests that over-achievers tend to produce more K responses. This difference is significant beyond the one per cent level of confidence. Klopfer interprets K as reflecting a frustration of affectional satisfaction (1954, p. 123). It may be that over-achievers tend to cover up their feelings of insecurity and anxiety by seeking satisfaction in academic success. However, since K also reflects anxiety of a diffuse free floating nature, one questions if such achievement is truly rewarding and successfully serving to channelize energy.

#### Summary of the Statistical Analysis.

The three groups of Rorschach protocols were evaluated according to the pattern analysis and the over- and under-achievers were compared and tested

for differences in various psychological meaningful areas. The results are the following:

1. Normal achievers rank order of location area was d, W, D, S and Dd which served as the model for basis of comparing the observed response patterns for the other two groups of achievers. The most marked difference in the over-achievers was in the presence of white space. Little details and whole responses were under-emphasized. Index of agreement was .31.

Compared to the model sequence of normal achievers, the under-achievers preferred D, Dd, and W responses at the expense of d. Index of agreement was .19.

The over-achievers' manner of approach was as follows: D, S, W, d and Dd. This became the basis of a new model and the under-achievers' observed response pattern compared. Index of agreement was .36. The most conspicuous difference was the presence of W and Dd, and absence of D and S.

The groups have revealed differences in their use of available mental energy. Normal achievers have shown a meticulous approach to problems and greater need for certainty. Over-achievers were found to exercise a more practical and concrete approach. They are intellectually aggressive and competitive with their peers. There is strong motivation for highly successful achievement. Under-achievers do not show this drive. They are inclined to first draw general conclusions and then approach problems and learning in a piecemeal fashion. In this process the important and obvious facts are poorly integrated.

2. The normal achievers choice of determinant sequence that served

as a model was compared to the observed over-achievers responses. A .56 was the index of agreement. The largest deviation was found in the absence of FC and presence of M, m, FM and K in the group of over-achievers.

Index of agreement for the under-achievers was .33. Determinants which least conformed to the normal model pattern were the absence of FC, dominance of C and FM; absence of FK and dominance of M.

The three groups have shown differences in personality structure and responsiveness to the world. Over-achievers are more similar to the picture presented by normal achievers. Both groups have shown inferiority characteristics and are prone to engage in self-appraisal. Over-achievers appeared to handle their anxiety through an intellectualized defense. Normal achievers show greater similarity to under-achievers' patterns in their degree of socialization and responsiveness to emotional stimulation. Under-achievers are inclined to be more impulsive and exhibit a spontaneous freedom of action. Over-achievers appeared restrictive and inhibited in their expression of emotionality. These children's personal relationships are tense and formal.

The over-achievers' model was compared to the under-achievers' observed responses. Only a .28 index of agreement was found. The determinants least conforming to the model was the absence of FK in the under-achievers, the predominance of CF and FM. The under-achievers are less productive than the over-achievers. C' was preferred over Fc.

3. Various Rorschach elements clinically associated with mental efficiency were analyzed and differences between the over- and under-achievers were tested by chi square. Results substantiate what was found in the patterns

evaluation. In terms of statistical significance, F% and F+% revealed a difference beyond the one and five per cent level of confidence in favor of the over-achievers. Over-achievers may have a more constricted personality structure and exercise more conscious control over attention. This is not presently reducing intellectual efficiency.

4. The type of control exercised within over emotional forces and the environment was investigated. Statistical differences beyond the one per cent level of confidence were found. Over-achievers far surpassed under-achievers in the production of FK and Fc. Over-achievers emphasized control and repress anxiety associated with affectional needs.

5. In the area of emotions, over-achievers surpassed under-achievers in K responses and the proportion of achromatic over chromatic responses. The statistical difference is significant at the one per cent level of confidence.

6. The two groups were compared for differences according to various Rorschach criteria associated with outer control. Results are significant at the one per cent level of confidence. Under-achievers showed a clear excess of color dominated responses. For the over-achievers, M out numbers FC and CF. Under-achievers demonstrated excessive emotional ability compared to over-achievers. They look for satisfaction outside of themselves. They are more externally bound rather than introspectively oriented.

7. An analysis of Erlebnistyp revealed clear differences between the two groups. Over-achievers characteristically gave an introversive pattern with M greater than Sum C; the under-achievers, extratensive. Analysis of

several indices of conflict in the area of Erlepnistyp revealed a significant change in this latter group with the under-achievers tending towards an intro-versial adjustment.

Table 11

Thirty Over- and Thirty Under-Achievers Compared for Erlebnistyp and  
Changes in Patterns

Categories	Over (N=30)	Under (N=30)	Chi square	P
Extratensive	7	20	9.610	$< .01$
Introversive	17	5	9.044	$< .01$
Changing <u>Erlepnistyp</u>				
Introversive	10	4	2.365	$< .05$
Extratensive	0	3	1.400	
Change towards Introversive		.		
From Extratensive	5	14	4.926	$< .01$

## CHAPTER V

### SUMMARY AND CONCLUSIONS

The primary purpose of this investigation has been to determine personality differences of over-achieving, normal, and under-achieving fifth grade children as demonstrated by Rorschach performance. Research workers (Ames, 1959, Barrett, 1957) with children generally agree that ten years of age can be viewed as a turning point in the growth of personality. Similarly, educators have found fifth grade to be a focal year when the child is beginning to expand study habits and patterns of achievement can be recognized.

The sample used in this study was selected from a total fifth grade class consisting of 887 children. The Kuhlmann-Anderson Intelligence test and Metropolitan Achievement tests had been administered. The IQ and total grade equivalents were converted into standard scores and an index of achievement was computed by comparing the child's intelligence standard score with his grade equivalent standard score. The difference between the standard score of the grade and standard score of intelligence constituted an index of how far above or below expectancy the child was achieving. On this basis, the children were classified into three major groups, under-achievers, over-achievers, and normal achievers. Thirty children in each group were selected. Over-achievers' standard scores for grades surpassed their standard IQ scores. Under-

achievers' intelligence standard scores were higher than their grade scores. Both indices were equivalent for the normal achievers.

Since intelligence is a factor in academic achievement, it was important to control this variable. Subjects were selected whose intelligence quotients ranged from 104 to 124. The groups were equated for IQ and matched for age and sex. The Rorschach test was administered individually to each child.

A secondary aim of this study was to study the usefulness of the statistical technique of patterns analysis. It was hoped to determine if different patterns were revealed between the three groups and significant personality traits.

The three groups in this study intellectually belong to the same population. However, the manner of approach to problems, academic tasks, and sustained efficiency in learning situations reveals differences. The normal group has shown a greater preoccupation with small insignificant aspects of experience. They exercise caution before drawing general conclusions. Theirs is a rather meticulous and compulsive approach. Attention holds up and the mental energy invested in learning processes is successful. The over-achievers use a more practical and common sense approach. They are competitive, self-assertive and stimulated by intellectual challenge. Their energies become absorbed in learning processes. Channelization of energy in this direction serves as a defense against feelings of inferiority, a binding of anxiety, and outlet for aggression. Over-achievers are intellectually aggressive, and because of underlying insecurity and inadequacy they are apt to be critical of

their peers.

Under-achievers have demonstrated tendencies towards a more spontaneous and impulsive approach. They are apt to draw quick generalized conclusions. They are less productive and less efficient in concentration.

The foregoing analysis reveals that differences have occurred between the three groups in the emotional aspects of the personality. Over-achievers are more constrictive and inhibited than either normal or under-achievers. They are less spontaneous and responsive to external stimulation. While the three groups did not show any conspicuous differences in the degree of tensions and anxieties, there are differences in the means adopted for handling these feelings. The over-achievers use an intellectualized mechanism. Their over-control enables them to learn under stress conditions. Competitive spirit and self-assertion enables them to call forth the necessary effort for success. Over-achievers are prone to become too absorbed in self-appraisal which may lead to self-depreciation. However, in the present study, the latter tendency has not produced a depressing effect. Rather, continued effort is generated for even greater success. They look for satisfaction within themselves in intellectual pursuits and academic accomplishments.

The under-achievers are found to be more free, as found in the lability of emotional expression, and in their responsiveness to external stimulation. They are more socially oriented and have a greater need for acceptance from their peer group. Their spontaneity and impulsiveness makes for less efficiency in regulated tasks in contrast to the task oriented over-achievers. The normal achievers show this characteristic to a lesser degree.

They appear to have more awareness of anxieties, depression and handle them more realistically. This may enable them to cope more effectively with learning. They react with caution and tact. Normal achievers are less inclined to show their feelings openly than under-achievers, but do not exercise the control characteristic of over-achievers who are inclined to be tense, formal and impersonal in social relationships.

Under-achievers show a decided extratensive pattern while the over-achievers lean in a marked and consistent introversial direction. The under-achievers are presently heading towards an introversial trend. This may be indicative of conflict or a factor involved in their impulsivity and flux. However, previous studies (Ames, 1952) have found an introversial trend characteristic of ten year old children. The normal achievers also show a more consistent extratensive pattern.

On the basis of these findings several conclusions can be made. These are purely speculative and only further research may prove or nullify the validity. Having found personality differences to exist between the three groups of achievers, the question is raised regarding the effectiveness in the regulation of emotional energies. The normal achievers have shown a more healthy balance between control and spontaneity. The over-achievers present a constrictive pattern. Their efforts at control to maintain adjustment not only suppresses spontaneity but signs of generalized anxiety appear indicating limitations in adaptation. The under-achievers show dominance of emotional surges. Anxiety may lessen sustained attention and intellectual efficiency. However, these children show a flexibility and freedom of expression. They are

more concerned with what is going on in the environment and are reactive to socialization. Group acceptance is important to them. They are less inclined to reason out their behavior and action. Being less inhibited than the over-achievers and being prone to impulsive acting out, these children are the ones whom teachers are apt to refer to as "problems" in the class room. Whereas, the over-achievers, in their compliancy are more teachable and their academic success may be a rewarding experience for the teacher. However, if over-achievement and under-achievement are both considered as symptoms, it appears from the groups studies that the over-achievers may experience an eventual explosion of action. They have a limited view of the world, as too much energy is channeled and invested in one direction. How long will they be able to maintain this rigidity and control without experiencing a disruptive effect? A follow up study of these children five years hence, when they are confronted with the conflicts of mid-adolescence, may show if this exertion has had detrimental effects on the personality. Is academic achievement rewarding for them and successfully serving as a channelization of energy?

Several speculations can be made regarding the causative factors related to these three groups of achievers. Previous studies mentioned in Chapter II have attached importance to family, social and economic status in the determination of achievement. The sample used in the present study were children selected from 16 elementary schools within one district. The area consists of varying social economic levels and standards of living. The bulk of over-achievers came from schools in higher class neighborhoods. The under-achievers came largely from areas considered in the middle or lower economic

level. Normal achievers did not follow any consistent pattern. Among the first parents to respond to the author's request for permission to test their child were the families of over-achievers. These parents, too, have sought to learn results of their child's performance. This survey suggests that environmental pressures and parental concern with achievement may be apt to foster a child's need to over-achieve. This may imply that there is no directional relationship between personality structure and achievement, but rather that both are products of parental class orientation. These are influencing factors but difficult to isolate. The environment in part molds the child's structural development and achievement has been found in this study to be related to personality structural differences. Nonetheless, inability to control the effect of class differences is a recognizable defect in this study.

As mentioned previously, over-achievers approach problems and learning tasks in a practical manner. They are concerned with the obvious aspects of experience. Does today's teaching in the elementary years tend to reward this limitation and narrowing of thought activity? Perhaps concrete and practical aspects of knowledge are emphasized and children lack opportunities to develop higher reasoning and problem solving abilities. Much of today's teaching may be geared towards learning and mastering concrete facts. The child's range of information is broadened but memorizing ability may be overly emphasized. It may be that too little emphasis is placed on problem solving, critical thinking, generalization, and insight. If this is so, then a child's curiosity and expansion of original thinking may be inhibited.

Results of this study have indicated that normal and over-achievers

are inclined to approach problems and learning tasks in a concrete practical manner. Under-achievers appeared more oriented towards grasping facts in a total but less organized way. They seem to integrate knowledge in a piece meal, repetitive fashion. Neither approach stimulates creative or logical abstract thinking. What kind of programming and new techniques can best realize the child's potential? Research in this area seems warranted in order to apply the most appropriate practices for optimum achievement and adjustment.

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APPROVAL SHEET

The dissertation submitted by Joan Carroll Baldwin has been read and approved by five members of the Department of Psychology.

The final copies have been examined by the director of the dissertation and the signature which appears below verifies the fact that any necessary changes have been incorporated, and that the dissertation is now given final approval with reference to content, form, and mechanical accuracy.

The dissertation is therefore accepted in partial fulfillment of the requirements for the Degree of Doctor of Philosophy.

December 1961  
Date

Frank H. Ober  
Signature of Adviser