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I hereby recommend that the thesis prepared under my supervision by Rose Zeligs

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A dissertation submitted to

The Graduate Faculty of the Teachers College
of the University of Cincinnati

in partial fulfillment of the
requirements for the degree of

DOCTOR OF EDUCATION

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Rose Zeligs

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CHAPTER I

INTRODUCTION AND PROBLEM

The Problem.- The aim of this investigation is to gain some insight into the personality and emotional characteristics of sixth grade children and to note the influence of these factors upon the children's school achievement and their solution of problems. Two approaches have been made in this study. The first is through a general survey of the children's personality and emotional attitudes and their relation to school achievement. The second is through an experimental study of a more specific problem solving situation together with its emotional setting.

The General Procedure.- The general procedure accordingly consisted, first, in the development and administration of a series of group tests, and second, in an intensive study of children's behavior during the process of solving puzzles, with particular attention to factors of personality and emotions.

The present report will include a survey of the recent literature touching closely upon the material of the present problem. This will be followed by a detailed description of the tests developed for the purpose of this

study and the methods used to check their validity and reliability.

Methods Used.- In order to gain a comprehensive understanding of the problem a variety of methods was used in analyzing the data. The methods include:

1. Extensive comparisons of ability groups in regard to emotional and personality traits, educational factors, and social background.

2. A study of the relationships of these factors by the use of the correlation technique.

3. An analysis of children's learning and behavior as exhibited while working puzzles with special attention to:
   (a) The general nature of the learning involved;
   (b) Individual differences in ability to solve puzzles and in time spent before giving up;
   (c) A comparison of the personality, emotional, educational, and social traits of the group that worked longest before giving up a puzzle with the group that gave up most quickly;
   (d) The nature of their remarks and behavior;
   (e) The actual remarks and behavior of the children;
   (f) The expression of nervousness.

Because little conclusive evidence concerning the relation of emotions to learning is found in the literature, it was felt that a variety of approaches to the problem would supplement each other and make the picture more complete. An approach by means of group comparisons in personality and emotional traits involved ability groups that differed in intelligence and scholarship, and also groups classified

on the basis of the length of time they stayed with a problem. A more rigid statistical approach was the study of relationships of the different factors by the use of the Pearson product-moment correlation technique. Other approaches involved the actual conduct expressed while solving puzzles and the learning that took place.

Importance of Personality Factors to Learning.- This investigation is the result of a felt need for a better understanding of the emotional nature of the child and its effect upon his learning. The philosophy underlying it is in keeping with the newer trend in education which stresses the necessity of "teaching the whole child," and demonstrates the complexity of the learning process and its dependency upon concomitant social and personality factors in addition to intelligence. Educators are realizing more and more that sheer intelligence can not be used to predict the success of an individual either in school or life and they are becoming increasingly aware of the important contribution of non-intellectual factors to the more complete and satisfactory development of the individual.

The Emotional Setting of the Learning Situation.- In the study of the learning process psychologists have focused their attention on the logical steps involved in learning without giving adequate consideration to the emotional setting of the learning situation. Very few

studies of learning have been made for the direct purpose of evaluating the place of emotions in the learning process. Yet the fact that it exists is so obvious that it has been mentioned in a number of ways. Dewey (84) has most clearly demonstrated the emotional setting in which a problem originates and the emotional tension that exists until the problem is solved, in his famous five steps involved in problem solving. There the first step is described as "a felt difficulty."

The importance of motivation to learning, Thorndike's law of effect, animal experiments in learning based on emotional drives such as hunger and sex, the place of approval and punishment in learning, and many other factors involved in experiments on learning and in actual teaching, indicate a tacit acceptance of the feeling aspect of learning.

How do the emotions actually participate in learning? It is the emotional will to do that is strong enough to gather all forces external to the actual thought process and hold them in the background, to exclude all extraneous matter and enable the learner to concentrate on the thing at hand. Emotion, then, is essential to learning yet it may not be in the foreground to becloud the actual analysis but must rather be the drive that urges, stimulates, and prepares the way for the thought process. So it is

said that it is intense effort that educates, for concentration means keeping everything else out while new organizations of thought are taking place. It is the job of emotional and personality factors to keep guard. The famous statue of "The Thinker" is a concrete demonstration of the theory here presented. It pictures most realistically the emotional background and intense nature of the thinking process.

It seems plausible to assume some relationship between the general emotional and personality make-up of an individual and his more specific emotional behavior in problem-solving situations. Both factors must be considered by the educator. A study of the relation of personality factors to school success together with a more specific analysis of a problem solving situation in its emotional setting should bring more concrete evidence to bear on emotional and personality factors as they are related to learning.

Need for Research in Emotions.- Very little research of practical use to the educator has been done so far in the field of children's emotions. Although most educators are beginning to realize the importance of directing the emotional education as well as the academic training of the child, yet practically no school for normal children includes in its curriculum a specific

course for emotional or personality training. The writer knows of no school where children are grouped, graded, and promoted according to their emotional or personality quotient. And what is a personality or an emotional quotient? Of course, very little is knownabout that so far. In comparison with work in intelligence tests and in other phases of education, little research has been done in this field, because of the difficulties involved in research in the social sciences. Perhaps too much stress has been given to the term "scientific method," in its narrower sense, as applied to the physical sciences, without the realization that it is scientific to broaden and develop method to include urgent problems. It is not always advisable to delimit the problem to fit the method at hand for the problem may be destroyed by the effort to over-simplify setting and situation. The social aspect is too vital to be set aside. Students must be encouraged to work in this pioneer field of education. By continuous effort and by new approaches which seem fruitful, techniques may be developed and a body of knowledge organized which will enable parents and teachers to help children grow into happy, adjusted citizens.

Aim of Training for Emotional Growth.- Not complete inhibition, not complete license and primitive, uncontrolled expression of every affect, but wisely directed

and guided expression leading to the growth and achievement of the individual in a socially acceptable environment should be the goal. Though the method of achieving this objective is but vaguely outlined, requiring groping in the darkness and much stumbling, yet there is hope that a greater understanding of the child's emotional life will come. The efforts of those who have struggled to understand this vast, complex, yet tremendously vital phase of child psychology may yet be rewarded by a more definite knowledge which will lead to finer development of the individual's latent potentialities, his better adjustment to the social group, and happier human relationships.

The Specific Problems of This Investigation

In this study of the emotional and personality factors of sixth grade children and their relation to school success and problem solving ability, data will be presented on the following specific questions.

Questions Relative to the Survey of Personality and Emotional Attitudes

1. How do children classified into ability groups compare in emotional and personality traits, educational factors, and social background?

2. What are the intercorrelations of intelligence, emotional and personality traits, educational achievement, and social background of sixth grade children?

Questions Relative to the Experimental Work

The specific questions to which the experimentation is directed are as follows:

1. What picture of the learning process is presented by the solving of puzzles?

2. What individual and sex differences are found in ability to solve puzzles and in patience to work at difficult puzzles?

3. Of the children who attempted to solve the T puzzle, how do these children who worked on it the longest before giving up compare in intelligence, emotional and personality traits, and educational achievement with those who gave up most quickly?

4. What is the nature of the remarks and behavior of sixth grade children expressed while solving puzzles?

5. What actual behavior do sixth grade children exhibit in a problem solving situation, as expressed by their remarks and actions while working puzzles?

6. What comparisons can be made between the children who were successful on the boot puzzle and those who failed, and between the group that worked on the T puzzle a long time and the group that gave up in a short time, in regard to nervousness?

CHAPTER II

REVIEW OF THE LITERATURE

Importance of Personality to Learning.- Psychologists and educators have been concerned with the problem of learning as it is affected by personality traits. In recent years, the importance to learning of personality, attitudes, and emotions has found expression in two forms, through educational philosophy and through research. The first of these approaches is found in the progressive school which stresses the need for teaching the whole child. The second approach has been through various attempts to gain insight into the problem by the use of tests and experiments. The present study is concerned with the latter method.

Basis of Selecting Studies for Review.- In the review of the literature, here presented, only those recent investigations which closely touch the present problem will be given. The first part will deal with the relation of school achievement to personality factors. The second will consider learning experiments with special analysis of the subjects' emotional conduct while learning. The third part will consist of studies pertaining to the testing material used in the present study.

Approaches to Personality Study

Introversion-Extroversion.- In the study of personality and emotional traits attention has been focused in many directions. Jung (125), was first to point out that some individuals tend to make adjustments by turning inward, to their thoughts and feelings, whereas others have a greater tendency to react to their objective environment of things and people. This idea, termed introversion-extroversion, has caught the imagination of many psychologists who have attempted to create measuring tools and to find relationships between this character quality and other personality, social, and educational factors. Such studies are reported by Hendrickson and Huskey (119), Paterson (56), Young (77), and McGeoch and Whitely (67).

Emotional Instability.- Beers' (3) vivid description of "A Mind That Found Itself", and Woodworth's work during the time of the World War, when he developed the psycho-neurotic questionnaire, were influential in the mental hygiene movement. Emotional instability and psychoneurotic traits received the attention of psychologists and psychiatrists. Investigations dealing with this trait are reported by Keys and Whiteside (62), Everett (55),

Rosen (73), Oates (68) Faterson (56), Young (77), Flemming (58), Chambers (53), Olson (139), Bond (51), and Bridges and Bridges (52).

Inferiority Feeling.- The influence of Alfred Adler, with his idea on the inferiority complex, is seen in the interest that has been shown in inferiority feeling. Faterson (56), Sweet (151), and Heidbreder (115), have published works on this subject.

Introversion-extroversion, emotional instability, inferiority feeling, mood, temperament, as they are related to learning, are discussed in the reports presented in the first part of the review of the literature. Most of these investigations are surveys requiring the testing or rating techniques.

Learning Experiments.- What actually happens during the process of learning something; what is thought; how do we solve a problem? This question has fascinated many psychologists. Most descriptions and experiments in learning mention the emotional conduct of the subject while in the process of solving a problem, but few give it real consideration in their discussion of the learning process. Little effort has been made to train children to attack problems in an emotionally controlled, analytical manner.

The second part of this literature survey presents several experimental studies in problem solving.

Emotional Attitudes While Solving Problems.- A variety of subjects, including gorillas, chimpanzees, pre-school children, elementary school children, college students, and college professors, were used in the different experiments reported. In all cases the subjects displayed emotional attitudes which often interfered with their learning. The attitudes are mentioned yet no cognizance is taken of them in educational theory or practice. Since one approach to the present problem is through the analysis of emotional attitudes while working puzzles, some experimental studies will be reviewed which describe the conduct of the subjects while in the process of solving problems. The experiments of Brown (83), Alpert (79), and Ruger (94), will be analyzed from that point of view.

More closely related to the experimental study made by the present writer are investigations made for the purpose of noting emotional conduct while in the process of learning. Ball (80), and Morgan and Hull (137), compared the reaction on maze problems of their subjects who were highest in certain emotional or personality traits with those who were lowest. McKinney (91) noted the effect of

emotional upset on learning. Eng (85), who was interested in the same problem, made a laboratory study of the child's emotions by means of physiological measures.

Studies Dealing with Test Materials.- Theories of personality traits and emotions have been followed by attempts to measure them quantitatively. In the present investigations it was found necessary to use certain existing tests and to devise others. Studies pertaining to the test materials will be reviewed.

Nervousness and Emotional Instability.- Nervousness and emotional instability have been measured in a variety of ways, such as by the check list, paper and pencil tests, and diaries. Introversion-extroversion was measured by the use of Freyd's list of those traits. Persistence was measured experimentally by the amount of time spent on problems and puzzles.

Detailed summaries of the literature pertinent to the relation of personality factors to learning, emotional reactions of subjects during a learning process, and techniques used to measure personality traits and emotions will now be given.

Studies Dealing With the Relation of School Achievement to Personality

Emotional Instability as Related to Scholarship.-

Keys and Whiteside (62) studied the relation of nervous-emotional stability to educational achievement of 182 sixth, seventh, and eighth grade children. Their criterion of nervous-emotional stability was a composite of teachers' ratings and the pupils' scores on the Woodworth-Cady Questionnaire. The teacher's rating scale considered the amount of laughter, tendency to moodiness, timidity and fearfulness, restlessness, control of speech, and a tendency to daydream. A comparison was made of the thirty pupils who were most emotionally unstable with the thirty who were most stable. The authors found a "well marked and reliable tendency" for the emotionally unstable group to fall far below the other group in intelligence and school standing. They found a correlation of .53 $\pm$ .036 between children's scores on the Woodworth-Cady Questionnaire and an average of three teachers' ratings in nervous traits.

Sex Differences in Emotional Instability.- Everett (55) studied sex differences in emotional instability among high school students. He used the Woodworth Psychoneurotic inventory. He found that the girls have higher medians and are more variable than the boys. There was no correlation between scores on the psychoneurotic inventory and school marks.

The Relation of Reading to Socio-Economic Factors.- The problem of Ladd's (64) study was to examine the relationship between reading ability and factors of personality and socio-economic status of the home, of 315 children from the third to the fifth grades. The testing method was used. Scores were obtained on Gates Reading test, the Haggerty and Pintner Non-language Mental Test, Sims Socio-Economic Score Card, the Lehman Play Quiz, an abbreviated form of Maller Character Sketches, questions on school attitude, and teachers' ratings on personality characteristics.

Ladd found a correlation of .71 between reading age and mental age; of .16 between reading age and scores on the Sims Socio-Economic Status Score Card; low negative correlations between reading age and play interests and sociability in play; and low positive correlations between reading age and score on character sketches. A correlation of .27 was obtained between reading age and a short test of school attitudes. A comparison of good with poor readers showed a greater number of foreign speaking children among the poor readers, while the good readers scored higher in intelligence, socio-economic status, and school attitudes.

A comparison of the best dozen readers with the worst dozen readers showed a larger number of play interests among the poor readers, while the good readers obtained higher scores on school attitude, teachers' rating in

selfconfidence, concentration of attention, and persistence.

Comparison of Normal with Neurotic Children.- Rosen (73) desired to compare the intellectual and educational status of fifty neurotic children with fifty normal children of the same grade, age, sex, and race. She used intelligence, educational, and performance tests. She found that neurotics and normals are not differentiated by failures and successes on the various tests used. A serious criticism of this study is that the non-neurotic children who were paired with the neurotic were retarded in age-grade status and were below par in intelligence. Such a comparison does not show how neurotic children compare with normal children. Unfavorable differences in intelligence are found when the neurotic children are compared with Terman's unselected group of 905 children.

Relation of Extroversion to School Success.- Hendrickson and Huskey (119) studied the relationship of extroversion to school success of 120 fifth and sixth grade public school pupils, by the rating method, using the Marston rating scale. They found a positive relation of extroversion with achievement and a negative relation of extroversion with intelligence, for the boys, with no relation of these factors for the girls. The ambiverts scored highest in intelligence and achievement.

Temperament and Scholastic Ability.- The problem

of Oates' (68) study was to find the part played by temperament in scholastic ability. Data were obtained for 297 secondary school boys, on school terminal examinations, work done during study periods or at home, intelligence tests, and ratings by fourteen members of the school staff for such non-intelligence traits as persistence, control of attention, drive or impulse, and speed. Persistence is defined as, "The tendency to continue tasks in the face of obstacles". The results show a low correlation between intelligence and temperament, a higher relationship between intelligence and scholastic ability, and a much higher (68:583) correlation between temperament traits and scholastic ability. Persistence, which is closely related to control of attention, is found to be the most important factor in determining school success.

Inferiority Feeling.- Paterson (56) asked 268 college men and women to rate themselves and secure ratings of two other persons, on 137 traits which were characteristic of the inferiority attitude. The scores on this Inferiority Attitude Self-Rating Scale were correlated with scores on the Woodworth Questionnaire, students' interests, social-economic status, and college ability. The results show that women tend to feel more inferior than men. A positive correlation is found with emotional instability, as measured by the Woodworth Questionnaire, with introversion,

and with worries about possessing inferiority traits. Those who feel inferior express extreme attitudes of liking or disliking items on a given interest blank. There is a high correlation between inferiority feeling and low social-economic status. The relationship with intelligence is slight and negative. No significant relationship was found with college ability.

Emotional Traits and Achievement in College.- Young (77) was interested in how emotional traits predispose students to failure in college. He found a zero relationship between intelligence and introversion and intelligence and psycho-neurotic traits. Twice as many emotionally stable as unstable students leave college because of failure. There is a tendency for increasing failures among among the extroverts as their psycho-neurotic traits decrease. Almost half of the failures fall in the emotionally stable and extroverted group.

Personality Traits and Learning.- McGeoch and Whitely (67) wished to determine the relationship between personality traits and learning. They found that the Colgate B2 and C2 Tests and the Pressey X-O Tests are not related to immediate and delayed recalls of poetry, words, and syllables. The Allport A-S Test and the Conklin I-E Test are slightly related to the learning factors studied.

There is a tendency for submissiveness and introversion to be related to learning. Zero relationships are found between personality scores and intelligence.

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Mood and Performance.- The problem of this study by Sullivan (40) was to gain some insight into the relation of mood to physical and mental performance. The subjects were thirty-eight men and women ranging in age from twenty to fifty-one years. Tests used consisted of a self rating scale whereby the subject indicated his degree of cheerfulness at the time of the test, pulse rate, blood pressure, two point threshold, muscular strength, a line drawn to equal in length a remembered standard, tapping test, color naming test, addition test and free association test.

Sullivan found very low coefficients of correlation between mood and performance tests. She concludes that, "Extremes of mood act as distractions, the absence of any demonstrable effect on performance being due to the tendency of the individual to overcome resistance by increasing the output of energy." (40:19).

The Predictive Value of Emotional Instability Tests.- The problem of Flemming's (58) study was to see what relations could be found between the scores on the Woodworth Personal Data Sheet, the Laird Personal Inventory - Schedule B2, the Pressey X-O Test, and the

objective behavior of Columbia University freshmen as shown by data in the dean's office.

Flemming reviews the development of these tests and the literature on the subject. Woodworth's Personal Data Sheet was devised during the World War. The questions were based on symptoms given by men who had developed some war neurosis. The Laird Test was developed from Woodworth's Psychoneurotic Inventory. It is made up of three sections each of which contains questions which are presumably symptoms of psychasthenic, schizophrenic, or neurasthenic neurosis.

The Pressey Cross-Out Test, used for investigating the emotions, consists of four parts. In the first part there are twenty-five lines, each containing five words. The subject is asked to cross out every word that is unpleasant and to encircle one word in each line which is the most unpleasant. Part Two is like Part One except that each line is preceded by a word in large type. The subject is asked to cross out all the words associated with the word at the beginning of each line and to encircle the word most associated with the word at the head of each line. The arrangement in the other two parts is the same as in part one except that in part three the subject crosses out words representing things he thinks wrong and encircles the thing in each line which is most wrong. He does the same to words in part four except that they deal with things

the subject has worried about or dreaded.

Chambers (105) devised a differential score on the Pressey Test, by comparing the reactions of the upper quarter with the lower quarter of two hundred college students. He correlated the scores with grades. Checking his results with fifty-seven additional cases gave him a correlation coefficient of .46 with grades and .53 with intelligence.

Olson (68) tested twenty-four men and women psychopaths on the Pressey Test and found that they were less emotional than normal college students.

After using the Pressey X-O Tests on 170 Negro adults, Bond (51) concludes that standard intelligence tests are a more satisfactory measure of personality than any of the tests of non-intellectual traits.

Bridges and Bridges (52) used Pressey C-O Test, Form B, in a study of delinquent children. These boys consider fewer things wrong but have more worries than normal boys.

Flemming found the reliability of the Woodworth Test to be .80 by the use of the split half technique. He used 341 subjects. For the Laird Test, using the same technique and corrected by Brown's formula, the reliability was .78. He found the reliability of the Pressey X-O Test to be .94 for the total scores and .34 for the deviation

scores. Flemming concludes, after his review of the literature, that the studies made were attempts to measure emotions or emotional stability, but "enough exhaustive studies have not yet been made with any of the tests to warrant a conclusion about their value." (58:19)

In his own study, in which he searched for some relationship between the Woodworth, Laird, and Pressey Tests, and other factors, Flemming used both the correlation techniques and the comparison of the upper and lower quarters in the distributions of the test scores. He concludes that prediction of behavior on the basis of his material is not possible because his correlations are very low. Group comparisons reveal only two reliable differences between the high and low score groups. The group making the high scores on the Woodworth Personal Data test took three and one half hours less sleep than the group making the low scores. Students belonging to scholarship clubs and those receiving scholastic honors in high school make a higher score on the Pressey X-O Test. He states, however, that certain tendencies towards relationships of some significance are found. The Pressey deviation score seems to differ from the other test scores but it is the least reliable of all. There is a negative association between factors measured by the Woodworth and Laird tests, and motor activity such as exercise and high school activities,

and sleep. Both tests show positive associations with studious activities. The Woodworth test shows negative associations with such social activities as time spent in social recreations, belonging to a fraternity, to a high school club, or participating in extra-curricular activities. The X-O scores show positive associations. The Woodworth and the Laird tests measure the same things since one is based on the other. The Laird and X-O tests probably measure different things.

Of course, it must be remembered that the relationships in either direction are very slight. The most baffling thing about Flemming's study is that practically no significant relationships and no predictive values result from the use of the three tests mentioned. Is this elusiveness due to the very nature of emotional and personality characteristics that psychologists desire to measure or is failure due to the poor testing techniques employed? Acceptance of the first cause would be an expression of surrender. An effort must then be made to refine techniques of testing and interpreting of results or to build up new techniques.

Table I gives a summary of the studies just reviewed.

TABLE I

SUMMARY OF STUDIES ON THE RELATION OF SCHOOL ACHIEVEMENT TO PERSONALITY FACTORS

Author	Factors Studied	Subjects Grades	Method Used	Relationship Between Factors
Keys and Whiteside	Instability Scholarship	Children 6, 7, 8	Rating, Testing, Group Comparison	Slight Positive
Everett	Sex differences in instability	High School Students	Testing	Girls more variable
Ladd	Reading Personality Economic	Children 3, 4, 5	Testing, Rating	Positive
Rosen	Intellectual Educational	Neurotic and Normal Children	Testing, Group Comparison	None
Hendrickson and Huskey	Extroversion Scholarship	Children 5, 6	Rating, Testing	Positive, boys- None, girls
Oates	Temperament Scholarship	High School Students	Testing, Rating, Examinations	Positive - Persistance most important

TABLE I (Continued)

Author	Factors Studied	Subjects Grades	Method Used	Relationship Between Factors
Paterson	Inferiority Instability Economic Scholarship Introversion	College Students	Rating, Testing	Inferiority positive with personality and economic factors - None with scholarship
Young	Intelligence Introversion Instability	College Students	Testing	None
McGeoch and Whitely	Personality Learning Introversion	College Students	Testing	None - Slight between submission and learning
Sullivan	Mood Performance	Adults	Testing Rating Pulse rate Blood pressure	None
Flemming	Woodworth Personal Data - Laird Personal Inventory B2 - Pressey X-O Other factors	College Students	Testing, Group Comparisons	Slight, positive between Pressey and scholarship - Negative between sleep and instability

TABLE I (Continued)

Author	Factors Studied	Subjects Grades	Method Used	Relationship Between Factors
Chambers	Instability Scholarship	College Students	Testing Group Comparisons	Slight positive

Analysis of the Studies on the Relation of School Achievement to Personality Factors

The foregoing studies show disagreement in their findings concerning the relationship of school achievement to personality factors. Keys and Whiteside (62) found a "well marked and reliable tendency" for emotional stability to be associated with school success. Everett (55) found no such relationship. Rosen (73) also found no such relationship but her method of selecting her subjects was unfortunate and makes her findings questionable. Hendrickson and Huskey (119) report a positive relation between ambiversion and achievement. Oates (68) found persistence to be the most important factor in determining school success. Paterson's (56) study shows no significant relationship between inferiority attitude and college ability. Young (77) concludes that half of the failures in college are in the emotionally stable and extroverted group. McGeoch and Whitely (67) found no relationship between scores in emotional stability and memorizing ability. Sullivan (40) states that mood does not affect performance. Flemming (58) found only slight correlations between tests of emotional stability and scholastic success. The evidence so far does not seem to be very conclusive.

Emotional Conduct Expressed in Learning Experiments.

In this section an attempt will be made to present learning experiments with special analysis of the emotional conduct of the subject, during the learning process.

An Experimental Analysis of Learning.- Brown, (83) presenting the hypothesis that insight learning does not exist as a separate type but that all so-called insight learning, both in animals and humans, consists of trial and error plus the transfer of past experience, made a critical analysis of the experimental literature and an experimental analysis of the criteria of insight learning. His experimental work is of special interest and is a real contribution to the study of learning in both animals and humans.

Brown used as subjects a female gorilla, named Susie, a male chimpanzee named Romeo, and eight children ranging from two years and six months to seven years and three months of age. The problems were similar to those used by Köhler (89) and Alpert (79) but were adapted to the subjects used by Brown. The first problem involved the use of one or two joined sticks to be used to rake in food that was out of reach. This problem was presented to the apes only. The second problem consisted of a puzzle box with bars across. A ball was placed inside the box and

the apes or the children could get the ball by solving the problem of moving from one to three inter-locking bars that held down the lid to the box. Of special interest is the behavior report of the subjects. Brown found that his subjects reacted emotionally when unable to master the situation. He says of Susie:

> Being unable to get the stick through the bars this way she drops it and beats upon her chest angrily. (83:64).
>
> There are signs of anger as she grits her teeth and beats her chest. (83:100).

He says of a child subject:

> There is evidence that he is almost ready to cry. (83:122).

These quotations are evidence of the emotional conduct that often accompanies a problem solving situation.

The Solving of Problem Situations.- Alpert (79), stimulated by Köhler's experiments of learning in apes, made a similar study with forty-four pre-school children. She adapted her experiments to the interests and abilities of little children. She was interested in the solving behavior and especially the solving methods used by young children.

The test situations were made up of two series. The first consisted of a toy suspended from the ceiling beyond the reach of the subject. In different situations

such objects as a hollow block, a small chair, and a wooden grocery box, were provided for use in reaching the object. The problem was to get the object and the solution depended upon the use of the tools provided. The second series consisted of a play pen in which the subject was placed, and an attractive toy set outside of the pen beyond the child's reach. The solution to this problem depended upon the use of a stick, a small broom, or a long stick made by joining two short sticks.

Alpert's statement that, "The children's responses to the problem-situations varied widely, as widely as their personalities," (79:28) indicates the influence of personality on problem solving ability. She classifies the children's attempts at solution into four responses. They are: the primitive response, which is the act of reaching for the objective with the hand; the random response, which is the desire to escape confinement; exploration and elimination, which refers to a deliberate trying out of one possibility after another; and the immediate solution, which means that no problem exists for the subject.

Alpert concludes that the solution is without doubt the result of insight. She believes that varying degrees of insight accompany a solution. The degree to which insight is present is shown by the subjects retention

of the solution and his ability to transfer it to similar situations. Of special interest are Alpert's data showing a correlation of only .266 between mental age and achievement on the problem tests and her conclusion of the importance of favorable emotional and temperamental factors to the arousal of insight.

Efficiency in Solving Problems.- Ruger (94), who was interested in efficiency as expressed by the methods used in problem solving, used mechanical wire puzzles. Most of his twenty-seven subjects were instructors or graduate students in psychology. The experimenter recorded movements and remarks of subjects while they were working and the subjects wrote their own account after each trial. Ruger analyzes the different methods of attack from the point of view of their efficiency. He describes the solution of his puzzles as due to insight. He says, "In many cases it came as an extremely sudden transformation, a 'flash' experience."

To the present writer the most interesting phase of Ruger' study is his description of the emotional and temperamental attitudes of his subjects and the effect of those attitudes on the learning process. He points out that two attitudes were especially noticable. The first was the "submissive attitude" where the subject watched

the experimenter for approval or disapproval in the hope of getting suggestions for the solution of the problem. The second was the "self attentive" attitude where the self is felt to be on trial. This reaction is accompanied by a state of worry and emotional tension. Ruger states that these two attitudes arise from a lack of self confidence which causes the subject to focus his attention on the self instead of on the problem, thereby lowering the efficiency of the learner. Often, with the first success, the learner completely changed his attitude towards the puzzle. In many cases this reversal is a change from an emotional, flustered approach to a cool, objective, scientific one.

The conduct of the subjects and their change in attitude is of great significance to educators. It shows the importance of teaching people to approach problems of all kinds in an objective manner, and it shows that such learning is possible. It is interesting to note that although Ruger's subjects were graduate students and college instructors, trained in the scientific approach in their own field, they had not transferred this method towards problems outside their own work. It indicates the necessity of early and continuous training in emotional control and suggests an inverse relationship between that

factor and learning.

An Objective Measure of Emotional Instability.- Ball (80) used twenty boys who were committed to the Jesse W. Lilienthal School by the juvenile courts. Ten of these boys were selected on the basis of maladjustment and ten on the basis of adjustment to the group. The subjects were required to learn a relief finger maze when blindfolded. Ball found noticeable differences of performance between the two groups. The unstable individuals gave a very erratic and irregular performance when new obstructions and false leads were experienced, whereas the normal, stable individuals did not allow these factors to influence their learning processes. Ball believes that the use of the finger maze is advantageous in the study of differences in stability between individuals because it is not related to intelligence and is affected by emotional reactions.

The Measurement of Persistence.- Morgan and Hull (137) wished to measure persistence. Three judges rated one hundred pupils in persistence. The twenty highest and twenty lowest were asked to work an alley maze whose problems increased in difficulty and finally ended with one which was impossible of solution. The pupils were rated while working and were placed in one of the following nine groups:

1. careless
2. anxious to quit a task
3. fiddling plodder
4. intermittent worker
5. works hard but has little insight
6. persistent worker with some method
7. persistent worker with some attempt at insight
8. tenacious, obstinate type
9. analytical type

Emotional Factors Related to Learning.- McKinney's (91) purpose was to note the effect of emotional upset on learning. A maze, a list of twelve non-sense syllables, a motor task, and a group of multiplication problems were learned by 135 subjects divided into three groups. One group worked under normal laboratory conditions, another group was disturbed by the buzzing of an automatic clock each minute, while the third group was told that the average person could perform the task in six minutes, and at the end of that time an automatic interval timer rang. The second group made more errors than the first, and the third group made the most errors. "The experimental results evince that emotion affects learning and that a strong emotion cannot act as a motive in an intellectual task or skill." McKinney states that "The set-up suggests a method of measuring emotion and of studying personality under a problem situation." (91:114-115).

An Experimental Study of Children's Emotions.- Eng (86) studied the emotional life of the child by using

laboratory experiments in which the child's reactions were recorded on the plethysmograph. Her problem was to find out whether psychical (thought) experiences of a definite character were accompanied by definite changes in the volume-pulse curve and in the respiratory curve, and also to find out whether the vasomotor and respiratory changes which were found in adults were also exhibited in children. The subjects were eleven children and fourteen adults.

Various taste and smell stimuli, such as weak solutions of muriate of quinine or citric acid, were used to test displeasure reactions. Simple arithmetic problems were used to investigate expression changes during psychical work (thought). As a means of inflicting pain, a thumbscrew was fixed on the terminal point of the little finger of the adult subjects and tightened until the subject gave a sign to stop. Fright was produced by throwing a heavy bar into a zinc tub where it shattered some bits of glass. Oil of roses, eau de Cologne and other pleasant odors were used as pleasurable stimuli, while pleasurable taste sensations were evoked by the use of sugar, chocolate, raspberry, and other similar substances. Stimuli used to arouse esthetic emotions were colors, sounds, pictures, songs, music, and reading from the classics.

The author comes to the following conclusions: 1: All processes of attention result in a falling volume curve, decrease in pulse height, retarded pulse and retarded respiration. 2. Psychical work results in rising volume curve, increase in pulse height, accelerated pulse, and accelerated respiration. These are also found along with spontaneous psychical work. Working problems requiring mental effort gives the same result as found in psychical work.. "This is the case in sums, in learning matter by heart, in arranging a group of haphazardly chosen words, and in the reading of scientific literature." 3. Displeasure Stimuli, such as unpleasant taste and smell stimuli, result in a fall in volume curve, decrease in pulse height, accelerated pulse rate, and retarded, deepened, and irregular breathing. Pain is expressed by fall in volume curve, decrease in pulse height, accelerated pulse, accelerated respiration. Fright results in rise in volume curve, unchanged or increasing pulse height, accelerated pulse, momentary inhibition of respiration followed by accelerated respiration; after a short time all of these phenomena are reversed. 4. Spontaneous Displeasure Emotions, due to sensory impressions, are often expressed through changes in the pulse height and have only a small effect on the pulse rate and respiration. Psychical displeasure has a low volume curve, an unsteady

and often lowpulse height, with ordinary pulse rate and respiration. 5. Displeasure and Excitement often go together and result in high volume curve, high pulse which is accelerated and occasionally irregular, with respiration which is sometimes accelerated or irregular. 6. Depression is indicated by a slowing down of all processes measured. 7. Spontaneous Pleasure Emotions show a heightened pulse and a heightened volume. 8. Intellectual Emotions give the same reactions as pleasure emotions. Unpleasant or difficult intellectual work evokes the phenomena of displeasure. 9. Esthetic Emotions evoke the concomitant phenomena of attention, of psychical work, or of pleasure, or of displeasure. Eng concludes that different psychical processes are accompanied, according to a definite rule, by definite changes in the volume pulse and respiration curve.

In comparing the effect of the stimuli used on children with that of adults, Eng found no difference existed except that spontaneous displeasure curves occur less frequently with children; are with them mostly related to sensory impressions while in adults they are more often of greater personal psychical content; do not last very long with children, and are weaker in children. The spontaneous pleasure emotions are in children more bound

up with sensory impressions, are greater in number and more easily aroused, and are longer in duration than displeasure emotions.

Value of Eng's Study.- Eng's study is of interest because it shows that definite physiological processes accompany emotional reactions. It shows also that the responses to most stimuli are colored by some emotion. The book is rather wordy and is more like a laboratory report of what happened than an organized arrangement of findings. No tables appear in the body of the text although the complete records and graphs of each subject are found in the appendix.

Table II gives a summary of the learning experiments.

Analysis of the Studies of Emotional Conduct Expressed in Learning Experiments

Most descriptions of learning experiments, both in animals and men, show that the subject is emotionally affected by the difficulties of the problem he is asked to solve. Brown (83) tells how his gorilla subject expressed signs of anger and how his children subjects were close to tears when they were unable to solve the problems before them. Alpert (79), working with pre-school children, stresses the importance of favorable emotional and temperamental factors to the arousal of insight. It is of

TABLE II

SUMMARY OF LEARNING EXPERIMENTS REVIEWED

Author	Factors Studied	Subjects Grade	Problem	Results
Brown	Alleged insight learning	Gorilla Chimpanzee Pre-school children	Reaching with sticks -Opening puzzle box	Emotional conduct - Trial and error learning
Alpert	Insight learning	Pre-school children	Reaching suspended object - Reaching distant object	Emotional reaction - Insight learning
Ruger	Efficiency in problem solving	College instructors - Graduate students	Solving wire puzzles	Emotional reaction - Insight learning
Ball	Instability	Adjusted and maladjusted boys	Learning relief finger maze blind-folded	Unstable subjects show erratic performance
Morgan and Hull	Persistence	School children	Rated while learning alley maze	Nine types of learners found
McKinney	The effect of emotional upset on learning	Students	Maze - Non-sense syllables Multiplication problems	Emotions affect learning

TABLE II (Continued)

Author	Factors Studied	Subjects Grade	Problem	Results
Eng	Physiological reactions	Adults and children	Variety of simple problems under emotional stimulation	Physiological processes accompany emotional reactions

interest to note that Ruger (94), who worked with adults, most of whom were graduate students or instructors, also finds that problem solving is greatly influenced by the emotional attitude of his subjects. Ball (80) found that unstable individuals gave a more erratic and irregular performance on a relief finger maze than did the more stable subjects. Morgan and Hull (137) found that persistence was related to success in working mazes. McKinney (91) concludes that emotion affects learning.

Although the objective of most of the experiments in learning was to understand the learning process, and the activities of experimenters were therefore focused on that phase of the problem, yet the emotional element was so noticeable that experimenters found it necessary to comment on those facts. Still, little effort has been made to use that knowledge and to train for emotional control as an aid to learning.

Studies Pertaining to Test Materials

Various tests have been devised to study emotional instability and nervousness. Personality characteristics dealing with introversion-extroversion and with persistence have been given some attention. Tests and techniques that are related to the methods used in the present study will be reviewed here.

A. Material Dealing with Nervousness and Emotional Instability

Nervous Habits in Children.- Olson (139) devised an objective method of measuring nervous habits which yields reliable data. The score consists of the number of specified overt reactions per a stated unit of time. Scores on oral nervous habits yield reliability coefficients of about .87 ± .01 for elementary school children. He found that the number of nervous habits of a group takes the form of a continuous distribution. Age is not a factor in determining the number of nervous habits. Relationships were found between nervous habits and sex, familial resemblance, family history, imitation, habit, fatigue, and nutritional status.

A Personality Adjustment Test.- Rogers (146) wished to build a test of children's attitudes that would measure their personality adjustment. He developed a paper and pencil test based on the technique of interviewing. The test shows the degree of the child's Personal Inferiority, Social Maladjustment, Family Maladjustment, and Daydreaming. Scoring was based on responses of maladjusted children. The various groups were selected on the basis of clinician's ratings. In most cases there was little discrepancy between test scores and such ratings. The correlation between the two was .48. The author finds that maladjusted children make

higher scores than those who are normally well adjusted. Roger states that as shown by his test scores there are many maladjusted school children. The test tended to select the same children who had been chosen by principal and teachers as problem cases. This was especially true for the boys. The author believes that shy children were able to express their attitudes on this paper and pencil test better than in personal interviews. In many cases the use of this test yielded an accurate picture of the children's personalities.

Rogers' study shows an effort to develop an objective test in a difficult but very important field. Although, as he states, "The test itself falls short of the standards of reliability and validity set in the older fields of psychological measurement," yet it has been helpful in diagnosing the problems of maladjusted children.

A Method of Measuring Emotional Maturity.- Chambers (105) used the Pressey X-O Form B to measure the emotional maturity of boys in grades, 4, 6, 8, 10, and 12 and for freshmen and sophomores in college. He compared the words crossed out by the children of the different grades. Wherever there was a difference between groups, of fifteen per cent or more, for any word crossed out, that word was listed in the differential unit, which consisted of ninety-four words. Rough norms were established showing

differentiation from grade to grade. The author states that these norms proved helpful in selecting immature students.

The Diary Method of Measuring Emotions.- Flügel (109) had nine subjects keep a detailed record of their affective life for thirty days. He found that every subject recorded a predominance of pleasure over displeasure. His data seems to suggest that those who experience most often the extreme degrees of feeling are usually less happy than those whose feelings are not so intense. The most important states of pleasure are found to be interest, joy, contentment, pleasant sensations, positive functional feeling, and food. The unpleasant states are anxiety, worry, anger, fatigue, boredom, and depression.

A Test of Common Annoyances.- Cason (102) had 659 subjects collect as many common annoyances as they could find. Of these he selected 507 statements. He was interested in a comparison of the reaction towards various annoyances by the two sexes and people of different age levels. The list of annoyances were presented to about one thousand subjects and they were asked to state whether they were annoyed by those items and the degree of their annoyance.

The average annoyance scores were 16.3 for males and 18.8 for females, showing that men are somewhat less annoyed than women. People between forty and sixty years of

age are more easily annoyed than younger or older subjects, while those between ten and twenty-five are least subject to annoyances. Cason's list of annoyances includes a few that were given by children but most of them were given by adults so that his test is not useful for work with children.

Cason did not study the relationship of scores on the annoyance test with other factors. It seems to the present writer that a list combining data for all ages would fail to indicate the special irritations of special age groups.

A Neurotic Inventory for College Students.- Thurstone and Thurstone (75) compiled "A Personality Schedule" from Woodworth's psychoneurotic inventory, House's monograph, Laird's schedules, Freyd's list of questions on introversion-extroversion, and Allport's ascendance-submission test. Their aim was to obtain a single index of neurotic tendency of their subjects, who were 694 University of Chicago freshmen.

They found that women averaged higher psychoneurotic scores than men. Non-fraternity men scored higher than fraternity men. Jewish students were very slightly more neurotic than non-Jews. The correlation between intelligence and neurotic tendency was .037. It was found that in families where the mother dominated the home

situation the child was more neurotic than in other home situations. The order of birth was not an important factor. The Thurstones state that, "The fundamental characteristic of the neurotic personality is an imagination that fails to express itself effectively on external social reality." (75:27).

Emotional Instability and Academic Standing.- Bridges (99) tested 168 college students in arts and medicine on the Woodworth Questionnaire. He found some sex differences in reactions to certain questions of the test. He found no correlations between instability and intelligence. From the data obtained from twenty-two art students he concludes that there is no significant correlation between instability, emotionality, or idiosyncrasy as measured by the Woodworth, Pressey, or Kent-Rosanoff tests, and academic standing.

Nineteen Criteria of Emotionality.- Landis, Gullette, and Jacobsen (127), in a search for criteria of emotionality, upon the basis of experimental procedure, testing, and rating, studied nineteen factors which may constitute such criteria. Intercorrelations of the factors were in most cases low. They found that the most satisfying measures of expressiveness include head movements and amount of laughter, and that the average judge considers unexpressiveness as related to stability. The most

significant intercorrelations found were those between a rating scale estimate of emotionality and the other factors studied. The Woodworth questionnaire correlates well with rating scale estimates and motor stability tests. The score for idiosyncrasy of the Pressey X-O test is a better criterion of emotionality than that for affectivity. Variability or range of blood pressure is of doubtful value as a criterion of emotionality. Increased reaction time and increase in score on a recognition vocabulary test seem to be good criteria of emotionality.

This study represents a tremendous amount of work on a very important and difficult problem, but the results are disappointing. The use of the correlation technique with twenty-five or fewer cases can hardly be expected to yield reliable data. It seems that with the large amount of material obtained by the authors, additional approaches to the problem could have been made.

Psychoneurotic Traits As Related to Physiological Traits.- Darrow and Heath (108) compared changes in the electrical resistance of the body with scores on the Thurstone Neurotic Inventory and the Northwestern University Introversion-Extroversion Test. Their subjects were University of Chicago students. The authors conclude that temperamental type, as defined by the tests used, is "in no way a result of the physiological traits measured." Yet

they state that their evidence points to "a degree of concomitant variation" of physiological reactions and certain personality traits.

Emotional Traits of Juvenile Delinquents.- Landis reports (128) an attempt to measure emotional traits in juvenile delinquents. He studied one hundred delinquent boys and one hundred and twelve delinquent girls. His aim was to evaluate tests of psychopathic or emotional behavior such as the Pressey X-O Test, performance on the pursuit-meter, psychogalvanic reflex, Thurstone's Personality Schedule, the Allport A-S Test, tests of the sense of humor, introversion-extroversion tests, performance on maze learning tests, and suggestibility. He concludes that in general the "analytical investigations of the personality traits of emotionality or psychopathy are unsatisfactory and fail to bring out decisive evidence. The present experimental test methods are not adapted to answer either positively or negatively the questions concerning personality traits. Such answers must await the development of new methodological approaches." (128:314).

The writer's conclusion shows the influence of Lashley who edited the report. However, the studies suggest the difficulties and yet the importance of testing personality and emotional make-up.

The Validity of Certain Measures of Emotional Instability.- Lee (145) reports a study in which medical students rated each other and teachers rated pupils in emotional instability. Each rater was left to define the term independently as he thought best. The results of the rating method were found to be consistent. The Woodworth Psychoneurotic Inventory was given to the adults and the Woodworth-Matthews revision given to the children. Two reflex tests were given. These consisted of the knee jerk and the Romberg sign, or ability to stand steady with eyes closed and feet together. The results showed that in general the child with a low knee jerk is unsteady, tends to score high on the questionnaire and tends to be rated as nervous. The writer concludes that the physiological tests are the most direct indices of nervous instability but agreement between various measures is the safest guide in detecting nervous instability.

Analysis of Material Dealing with Nervousness and Emotional Instability

Different approaches have been made to the measurement of emotional instability. Olson (139) devised a check list which was used by observers to check the number of specified overt reactions per a stated unit of time. Rogers (146) used a paper and pencil test, based on the technique of interviewing, to measure personality

adjustment. As a measure of emotional maturity Chambers (105) used differentials for the various words crossed out on the Pressey X-O Test Form B. Flügel (109) used the diary method whereby he had nine subjects keep a detailed record of their affective life for thirty days. Cason (104) made a collection of common annoyances and used it as a test. In an effort to obtain a single index of neurotic tendency the Thurstones (75) compiled a "Personality Schedule" from the material of existing psychoneurotic tests. Landis, Gullette, and Jacobsen (127) used nineteen factors in their search for "criteria of emotionality". One of their aims was to evaluate existing tests now available. In most of the studies cited the validity and reliability of the tests used are questioned.

B. Material Dealing with Introversion-Extroversion Tests

Freyd's Trait List as a Test in Introversion-Extroversion.- Heidbreder (115) used Freyd's list of fifty-four traits showing introversion as a test of that personality characteristics. Her subjects were nine hundred students in general psychology who were rated by self and two associates on the traits listed. She finds that introverts and extroverts are not distinct types. The central tendency of her group of subjects tends toward extroversion. Individuals tend to rate themselves more introverted than their associates judge them to be.

Heidbreder concludes that Freyd's list is justified as an instrument for distinguishing between introverts and extroverts.

Methods of Measuring Introversion-Extroversion.- Guthrie (111-a) tested 365 university students in intelligence, scholarship, and four measures of introversion-extroversion. The latter consisted of the Colgate Personal Inventory, Form C2, a test of campus information or gossip, the Jung Association test given as a group test, and an association test made up of a list of a hundred words taken from Whately Smith's The Measurement of Emotion. The conclusions show no relationship between scholarship and campus information. There was found a negligible relationship between scholarship and the four measures of introversion-extroversion, while no one of these four measures shows any appreciable correlation with any other. The author concludes that the common use of the term introversion-extroversion should be avoided until we have more information concerning the trait in question.

Analysis of Material Dealing with Introversion-Extroversion

Jung (125), in his Psychological Types, was first to develop the idea of introversion-extroversion. Outside of Marston's work with pre-school children little has been done in the direct testing of introversion-extroversion,

although those traits have been considered in the make-up of certain tests of personality such as Laird's "Colgate Personal Inventory," Thurstone's Personality Schedule, and Bernreuter's "Personality Inventory."

Heidbreder (115) used Freyd's list of fifty-four traits showing introversion, as a check list. Guthrie (111-a) used a test of campus information, Jung's Association test, and a hundred word association test taken from Smith's (150) study, to test the introversion-extroversion of college students. MacNitt devised a short questionnaire for testing introversion-extroversion of high school students. Conklin (107) used an interest questionnaire of forty activities to test the trait in question. Hendrickson and Huskey (119) used rating methods to check on these characteristics in fifth and sixth grade children. However, the problem of testing introversion-extroversion still represents a groping in the dark.

C. Material Dealing With the Measurement of Persistence

A Method of Testing Persistence for Self and Group.- Maller (131) wished to study children's behavior under the motivation of competition and cooperation. His data consisted of a behavior test devised for the purpose and a number of test scores and ratings obtained by the character

education inquiry. The test material consisted of forty pages of simple addition used to measure speed of work under competition and cooperation. The cooperation was measured by the difference between the scores of work for self and for group, and by the number of times a child chose to work for the group instead of for himself.

The findings show a consistently and significantly greater efficiency of work for self than for the group. Work for the group shows greater unevenness and less persistence. When choice was given to work either for group or self the choice was twenty-six per cent for group and seventy-four percent for self. Those who are neither accelerated nor retarded show greater persistence in work for self and group. Maller concludes that cooperativeness is influenced by environmental factors and is a result of learning.

Maller's study attempts to measure persistence in a tedious situation. The child who is bored by a monotonous task and will not work on it under artificial motivation may react differently in a problem solving situation. It seems to the present writer that the ability to stick to a difficult problem is a better test of persistence and patience than the working on a monotonous task which has been artificially stimulated. It may be said that factory girls who work continuously

at monotonous tasks, such as packing soap or pasting labels, are exemplifying persistence, according to Maller's concept of that personality quality. His study does show the reaction of children to monotonous tasks. It is possible that the child who is of superior intelligence may need to exert greater self discipline to work on the uninteresting problems of Maller's test than does the slow child who may find such a task soothing, restful, and satisfying. From that point of view Maller's test may not be a real measure of persistence. Nevertheless the study presents some interesting material and is a contribution to education.

Persistence Tests.- Hartshorne, May, and Maller (114) used three tests to measure persistence. The first, the Story Resistence Test, consists of three exciting stories. The story was read to the class, up to the climax. The child was permitted to read the ending, which process was made difficult by mixing capital and small letters and running them together, or he could choose to begin another story which ended in the same way as the first one. The score was the number of words of the text spaced off.

The second and third tests were mechanical and mental puzzles. The first was a Japanese Cross which was to be erected from six irregular pieces of wood. The second consisted of Chinese Rings which were to be taken apart and then put together again. The subjects were given both tests

and permitted to work on one and change to the other one whenever he pleased. His persistence score was the time spent on the first puzzle. Eighty minutes were allowed. Other puzzles were given to those who grew tired of the first two.

The P-M Tests were a number of paper and pencil puzzles comparable to the problems given in the present writer's study. The score was the length of time the child worked. Practically all of the children were unable to solve the puzzles given them.

The correlations between persistence and school work were .204 for the Z group, .118 for the Y group, and -.004 for the X group. The correlations between deportment and persistence scores were .149 for the Z group, .263 for the Y group, and .155 for the X group.

Word Building as a Test in Persistence.- Chapman (106) asked pupils of grade eight to build as many words as they could, out of six letters given them. The results showed a great difference in speed of work, in persistence as measured by continuance in work, and in success. When persistence was made equal by a requirement that all work for fifteen minutes, the correlation between speed and success increased greatly.

Analysis of Material Dealing with the Measurement of Persistence

Maller's idea of persistence (131) is sticking to a monotonous task. His criterion was the length of time a subject would work on the adding of simple problems. Hartshorne, May, and Maller (114) measured persistence by using exciting stories, leaving endings to be read by the subject. These endings were difficult to read. They also used mechanical and mental puzzles. Chapman (106) used success and continuation of work in building words out of six given letters, as a measure of persistence. It seems that these writers have different ideas of what persistence is.

Table III gives a summary of studies pertaining to test materials.

Summary and Conclusion

The literature selected for review was based on recent investigations touching on the problems of the present study. These deal with the relation of personality and emotional factors to learning; with learning experiments, with special analysis of the emotional conduct of the subject during the learning process; and with material related to the actual tests used in the writer's own study.

Such traits as introversion-extroversion, emotional instability, inferiority feeling, and home background are considered. Disagreement is found in reported relationships of personality to scholarship. In no case is the relationship

TABLE III

SUMMARY OF STUDIES PERTAINING TO TEST MATERIALS

Author	Factors Studied	Subjects Grades	Method Used	Results
Olson	Nervous habits	Elementary school children	Checked overt reactions	Number of nervous habits varies
Rogers	Personality adjustment	Maladjusted and normal children	Written interview test	Maladjusted make higher scores
Chambers	Emotional Maturity	Elementary, high school, and college boys	Differentials on Pressey X-O Form B	Found norms useful in showing immaturity
Flügel	Daily affective life	Students	Kept daily detailed record	Predominance of pleasure over displeasure
Cason	Common annoyances	All ages, mostly adults	Annoyance test (written)	Women more annoyed - Subjects past 40 years most annoyed
Thurstone and Thurstone	Neurotic tendency	College freshmen	Compiled schedule from personality tests	Women more neurotic - Non-fraternity more neurotic

TABLE III (Continued)

Author	Factors Studied	Subjects Grades	Method Used	Results
Bridges	Instability Intelligence	College students	Woodworth Questionnaire	No Relationship
Landis, Gullette, Jacobsen	Nineteen criteria of emotionality	College students	Correlation of test scores	Very low intercorrelations
Darrow and Heath	Physiological and neurotic traits	College students	Thurstone Inventory, Changes in electrical resistances of body	Very little correlation
Landis	Emotional traits	Delinquent children	Personality tests, Performance on pursuitmeter and on mazes	Personality tests yield no decisive evidence
Lee	Emotional instability	College students, Elementary pupils	Rating, Psychoneurotic tests, Reflex tests	Low knee jerk accompanies instability
Heidbreder	Introversion - Extroversion	College Students	Rating on Freyd's list	A good test of introversion-extroversion

TABLE III (Continued)

Author	Factors Studied	Subjects Grades	Method Used	Results
Guthrie	Introversion Extroversion	College students	Four measures of introversion	No correlation of four measures with each other
Maller	Persistence for self and group	Elementary children	Forty pages simple addition	Persistence greater for self than for group
Chapman	Persistence	Children eighth grade	Build words from given letters	Much variation in persistence and speed of work
Hartshorne, May, Maller	Persistence School work	Children	Reading difficult printing - Written tests - Mechanical puzzles	Positive correlation between persistence and school work

outstanding and unquestionable.

The descriptions of learning experiments show that the subject is emotionally affected by the difficulties involved in solving the problem put before him. This fact was noted by all the experimenters, although their purpose was to study the learning process and not the emotional expressions of the learner.

The literature describing efforts to measure emotional instability and personality traits shows the many difficulties encountered. Among the methods used to measure emotional instability are: check lists, questionnaires, diaries, and lists of annoyances. In testing for introversion-extroversion, use is made of rating, knowledge of gossip, and association tests. More experimental methods have been used in measuring persistence. These deal with the use of simple problems in addition, the reading of difficult print, the solving of puzzles, and the building of words from certain letters. These approaches suggest that experimenters do not agree in their idea of what persistence really is.

The reported literature shows the need for further research for the purpose of improving and refining tools and of acquiring additional data. It also shows an ever-growing realization of the importance of emotions and personality to learning and to social adjustment.

CHAPTER III

TECHNIQUES AND PROCEDURE

Purpose of This Chapter.- The purpose of this chapter is to give an account of the techniques and procedures used in this study. The two major approaches to the problem consisted of a testing program and an experiment. A description will be given of the tests and the conditions under which the tests were administered. In the latter part of the chapter a brief description will be given of the experimental procedure.

It was necessary to develop several new testing instruments for the purpose of measuring certain emotional and personality traits. These will be described in detail together with attempts to establish their reliability and validity. A briefer description will be given of other tests used. The method of treating the data will also be described. Inasmuch as thes experimental work will not be treated directly until chapter six, complete details of work done will be reserved for that chapter.

A brief description of the subjects will be given preliminary to the discussion of techniques.

The Subjects

The survey and experimental work of this study is limited to the children who acted as subjects. These subjects comprised 286 sixth grade boys and girls from two suburban, elementary public schools of Cincinnati, the Avondale Public School and the Pleasant Ridge Public School.

The Avondale School Subjects.- The Avondale School is located in a suburb populated mostly by Jewish people. Eighty-two per cent of the sixteen hundred children enrolled in this school belong to that racial group. The 244 Avondale children used for this study included all the sixth grade children of this school and consisted of six classes grouped according to intelligence and school achievement. Ninety-eight per cent of the children were native born. Sixty-four per cent of the parents were also native born. Two-thirds of the foreign born parents came from Russia. The average chronological age of the children was eleven years and eight months, on January 23, 1935, when they were given the Otis Group Intelligence Scale, Advanced Examination: Form B. The average mental age at that time was fourteen years. The socio-economic background, as measured by Sims Score Card

of Socio-Economic Status, averaged 21.85. This score represents the 85th percentile of socio-economic status and is rated as a little below "very high." On the Barr Scale of Occupational Status the average score was 11.35, which is equivalent to the average intelligence required by a small town retail storekeeper and owner.

The Pleasant Ridge School Subjects.- The Pleasant Ridge School is located in a suburb where most of the families are of the Protestant faith. The forty-two subjects included in this study represented about fifty per cent of the sixth grade children of that school. Of the ninety sixth grade children enrolled in that school, ranked according to intelligence and achievement, the subjects of this study included all but the eighteen best and the thirty lowest. All the children were native-born except the minister's daughter, who was born in China. Ninety-four per cent of the parents were born in the United States. The average chronological age was eleven years and eight months, when they were tested by the Otis test on February 7, 1935. Their average mental age at that time was fourteen years and four months. Their average on the Sims Score Card was 21.40 and on the Barr Scale of Occupational Status it was 11.31.

Comparison of the Two Groups of Subjects.- It will be noted that the averages for the children studied, in both

schools, were practically the same in chronological and mental age, socio-economic background, and occupational level of the father. They differed in that the Avondale group included all of the sixth grade children while the Pleasant Ridge group consisted of the upper middle group of the sixth grade children, as based on achievement. The Pleasant Ridge children were used so that a larger number of subjects and also a larger number of non-Jewish children would be included.

Subjects for Individual Tests.- The hundred subjects used for the individual testing were all from the Avondale School since transportation difficulties made it inconvenient to work with the Pleasant Ridge children on this phase of the problem.

Table IV shows the distribution of subjects according to race, school, and sex.

Procedure for Measurement Program

A. Methods and Conditions of Administering Tests

The Testers.- The procedure for the measurement program consisted of a series of paper and pencil tests. The writer, a sixth grade teacher in the Avondale School, administered all the tests to the sixth grade classes in

TABLE IV

DISTRIBUTION OF SUBJECTS ACCORDING TO RACE, SCHOOL, AND SEX

	Avondale School			Pleasant Ridge School			All
Race	Boys	Girls	Total	Boys	Girls	Total	Subjects
Jewish	97	102	199	0	0	0	199
Non-Jewish	20	16	36	20	22	42	78
Colored	5	4	9	0	0	0	9
Total	122	122	244	20	22	42	286

that school, testing one class at a time as they reported to her room, according to their regular program. The Pleasant Ridge teacher tested the children of that school. She followed written directions for administering the tests to her class. The only test not given by these teachers was the Otis Advanced Group Intelligence Test, Form B, which is administered every year to all sixth grade children in the Cincinnati Public Schools by the Psychological Laboratory of the Cincinnati Public Schools.

The Testing Conditions.- All the classes were given the same test on the same day. Not more than one test was ever given on one day. The children were given from one to three tests a week until the testing program was completed. This was done so that the children should not become bored with the testing procedure and thereby react with indifference. There was complete rapport between the tester and the subjects. The teacher explained to the children that their answers would not count against them or be considered in their school record. They were told that it was for a university study and that they would be helping the teacher and helping others understand children if they would give their true feelings and attitudes. The children seemed interested and cooperated

in every way. None of the tests took more than thirty-five minutes while many of them took less time to administer. Their form was such as to permit the minimum of work on the part of the subject. The total testing time for all the tests given was eight hours for every class tested.

B. Definitions Basic to the Concepts of Emotionality and Emotional Instability

Limitation of Definitions.- It is felt that the present knowledge of the nature of personality and emotions is very limited and that no exact definitions can therefore be given. However, in order to help make the following discussions more concrete, working definitions will be given.

Personality and Emotions.- An individual's personality may be defined as his method of reacting to his physical and social environment. His emotions are the feeling tones that accompany those reactions and color his behavior.[1] Some activities may be only slightly colored by

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[1] "The emotional gives the main direction to all mental behavior," says Krueger (17:72).

"It is now generally recognized that every mental state possesses some kind of emotional quality and it is a common and convenient practice to speak of it in this respect as having 'affective tone'," according to W.W. Smith (150:140). Again he states, "We are beginning to realize with increasing clearness that affective tone is the dominant factor in all

emotions whereas other activities may be dominated by affect.

The definition of emotions here presented is in accord with Lashley's concept. He realized that abstract generalizations about emotions have not been especially fruitful in defining their nature. He suggests the need for a more empirical approach when he says, "A priori definitions can be formulated in mathematics and logic. In natural science we deal with material experiences. Our interest is in the natural relationship. We must deal with groups of phenomena."[2]

Value of Lashley's Concept of Emotions.- This concept is useful first, because it leads to an objective approach to the study of emotions and second, because it relates emotions with actual experience and therefore with

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mental activity." (150:98-99).

Madison Bentley says, "The titles to our emotions generally refer to the situation or context in which the organism is placed....and to the bodily indicators of the way in which the individual 'takes' the situation."(2:19).

Krueger also writes, "Feeling is the maternal source of all kinds of experience." (17:72).

Lashley says, "The measuring of the term 'emotion' throws us back on the environmental situation." (From notes taken in his course on emotions.)

2 From lecture notes taken in Lashley's course on emotions.

education. The present study is concerned with emotions as they function in children's actual contacts with their physical and social environment.

Pleasant and Unpleasant Attitudes.- The feeling tone which surrounds things, persons, places, and ideas, may be pleasant or unpleasant in different degrees of intensity. All people have both pleasant and unpleasant associations with the people and activities that are a part of their daily experiences. The individual whose daily contacts with things and persons are in most cases pleasantly toned, who has many likes, may be classed with the happy people. On the other hand, the person who has an unpleasant reaction towards most of the things and persons that make up his daily living, may be grouped with the unhappy individuals.

Children's Experiences.- Upon the basis of this hypothesis it was felt that a knowledge of the things and persons that make up the daily life of sixth grade children, and the children's emotional reactions to those items, might indicate the degree of social adjustment of these children and perhaps give some idea of the factors which may interfere with their emotional stability.

Definition of Emotionality.- The term emotionality is commonly defined as a state characterized by

excited feeling. For the purpose of this investigation the term was limited to pleasant, excited feeling as expressed in a tendency to be happy, interested in many things, fearless, willing, responsive, easily inspired, sociable, having many likes, having most activities associated with a feeling tone which is pleasant and satisfying.[1]

Definition of Emotional Instability.- For the purposes of this investigation the term emotional instability is defined as a tendency to have many dislikes, to have most activities associated with a feeling tone which is unpleasant, to be easily annoyed and irritated by many situations, to be unhappy most of the time.

C. Discussion of the Woodworth-Cady Questionnaire

Weaknesses Discussed in the Literature.- The Woodworth-Cady Questionnaire, which was based on McCurdy's lists of symptoms found in neurotic patients, and which was adapted by Cady for testing children in their early teens, was felt by the writer to be inappropriate for testing the degree of instability of children who are considered the

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[1] It was later felt that the more limited definition of emotionality used in this study might be somewhat confusing to the reader but it was thought advisable to retain the term since it was used in obtaining teachers' ratings of the children in the trait thus defined.

normal population of a public school. Symonds (152:188) reports that "various writers emphasize the fact that the inventory shows tendencies only and that persons with high scores should be subjected to a more thorough clinical examination." Symonds states that Cady found a reliability coefficient of .55 with children. This is partly due to language difficulties and also to the fact that it is not easy for children to diagnose and judge their own states.

Weaknesses Disclosed When Used in Present Study.- When the test was administered to the subjects used in this study the children asked a number of questions indicating that they did not understand the meanings of some of the terms. Such questions as the following were not clear to the children:

1. Do things ever get misty before your eyes?
2. Are you ever bothered by a feeling that things are not real?

Anyone working with children would hardly consider such questions as the following to be psychoneurotic indicators:

1. Are you anxious to get away from school and get a job?
2. Do people say that you are disobedient?
3. Do your teachers tell you that you are too noisy or talk too much?
4. Do you hear easily when spoken to?
5. Do you get out of breath quickly when you run?

Because of these criticisms of the Woodworth-Cady Questionnaire, another approach to an investigation of emotional instability in children was made. It was desired to use tests based on the children's reactions to the actual experiences that make up their daily living.

D. Building Tests of Children's Likes and Dislikes

Getting the Actual Experiences of Children.- In order to obtain a list of the actual experiences that make up the daily activities of sixth grade youngsters, 185 such children of the Avondale School were asked to think over all the activities and experiences they had or would like to have. They were then asked to make four columns on a sheet of paper and list their experiences, activities, and ideas under the following headings:

1. Things that make me most happy
2. Things that I don't mind
3. Things that I don't like
4. Things that I hate

The Second Approach.- Ten weeks later a somewhat different approach was made. The children were asked to list all the things which thrill, delight, and make them happy. They were then given other papers and asked to list the things which annoy, irritate, and bother them most. In both instances the children were told that the information would be kept strictly confidential and would not count against them. They were told that it would be very helpful to the teacher if

they would give their true feelings.

Results of the Survey.- The material seemed very revealing of the children's feelings and it was believed that the items could be used in building two tests on emotional characteristics of sixth grade children. Separate tabulations were made for the two sexes and for the items which make the children most happy and those which they dislike. The items given the first time were listed separately from those given ten weeks later. It was found that the second approach yielded more items than the first method but at both times so many similar items were given as to suggest the reliability of those facts, and the possibility of using them in tests of children's likes and dislikes. The lists resulting from the two approaches were combined. The boys and girls varied so much in their interests that separate tests were made for each and also for likes and dislikes. The first test was for the purpose of measuring their emotionality and the other their emotional instability. The theoretical assumption was that children who have many likes and few dislikes rate high in emotionality while those who have few likes and many dislikes are irritable and rate high in emotional instability.

Another purpose of the tests was to see the variety and the kind of things which make children happy and those which make them unhappy and irritate them.

The Tests.- Two tests were finally constructed,

one based on the items listed as being liked by the children and the other based on the items listed as being disliked. The first was called the Emotionality Test. Since it gave greater opportunity for expressing liking rather than disliking, the degrees of feeling given on this test were:

Like much - Like - Don't mind - Don't like - Hate

The second test, based on the items listed as being disliked, was named the Emotional Instability Test. Since this test gave more opportunity to express disliking the degrees of feeling given on this test were:

Like - Don't mind - Don't like - Hate - Hate Much

The children were asked for each item to encircle the word or words that best described their feeling toward the thing listed. There were 331 items on the boys' Emotionality Test and 370 items on the girls' test. On the Emotional Instability Test the boys had 320 items and the girls 445 items. Most of the items obtained from the children were used in the test since it was a new test and it was felt that more information would be obtained from a longer test. However, it only took about thirty minutes to take each test because they were so constructed that all the subject had to do was to encircle the word expressing his degree of feeling in addition to reading the list of items. It is felt that the element of fatigue did not affect the results since the attention of sixth grade children can be sustained for a period of thirty

minutes. The children were interested in the tests and were not bored. Copies of the test will be found on pages A, B, C, and D, of the appendix.

Method of Scoring the Tests.- In scoring the tests the total number of items encircled, under each degree of feeling, were added. In the Emotionality Test the number of "Like much" encircled items was multiplied by five, that of "Like," by four, "Don't mind," by three, "Don't like," by two, and "Hate," by one. These weighted scores were then added in order to give the total score. To avoid high numbers the final score was divided by ten. The same method was used in scoring the Emotional Instability Test except that "Like," was multiplied by one, "Don't mind," by two, "Don't like," by three, "Hate," by four, and "Hate much," by five. In both tests the total scores showed the degree of feeling they were testing for. The first test was intended to show the degree of emotionality and the second test the degree of emotional instability as defined at the beginning of this chapter.

E. Reliability of the Emotionality and Emotional Instability Tests

Retesting for Reliability.- In order to establish the Emotionality and the Emotional Instability Tests twenty-six boys and seventeen girls were retested on the former and thirty-nine boys and thirty-two girls on the latter. There

was an interval of two months between the first and second testing. The coefficients of reliability, as shown in Table V, were obtained by the use of the Pearson product-moment formula. Correlations of .614 for the boys and .637 for the girls were obtained on the Emotionality Tests and .816 for the boys and .855 for the girls on the Emotional Instability Tests. If consideration is given to the fact that the retesting was done after an interval of two months, correlation coefficients of .614 and .637 should be acceptable as indicating consistency for a social attitudes test.[1]

F. Validity of the Emotionality and Emotional Instability Tests

Difficulties of Establishing Validity.- The question of the validity of a test is always a difficult one since the test itself is built upon the assumption that there is no better way of measuring the thing it purports to measure. However, comparisons are made with other tests which were made to measure the same or related characteristics. Other methods used are rating or ranking the subjects in the trait under consideration.

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[1] Symonds (152:232) found an r of .67 for the 115 items on his social attitudes questionnaire. He quotes reliability coefficients for various personality tests which are lower than that found here (152:164-67). Symonds says, "In diagnosing conduct one does not expect as much consistency as in measures of ability." (152:21)

TABLE V

COEFFICIENTS OF CORRELATION SHOWING THE RELIABILITY OF THE EMOTIONALITY AND THE EMOTIONAL INSTABILITY TESTS BY THE RETESTING METHOD

Test	Boys			Girls		
	N	r	PE r	N	r	PE r
Emotionality	26	.614	.067	17	.637	.092
Emotional Instability	39	.816	.037	32	.855	.052

Correlations with Woodworth-Cady Questionnaire.- The Emotional Instability Test was correlated with the Woodworth-Cady Questionnaire and an r of .19 ±.054 was obtained for the boys and -.08 ±.054 for the girls. Correlations of scores on the Emotionality Test with those on the Woodworth-Cady Questionnaire yielded coefficients of -.15 ±.054 for the boys and -.21 ±.054 for the girls. The evidence suggests that the two tests do not measure the same thing. If one measures emotional instability the other does not, unless each measures some separate phase of this trait.

The Method of Teachers' Ranking.- Another method used in an effort to establish validity was to have the children ranked by their three fifth grade teachers and four sixth grade teachers. There was an interval of two weeks between their ranking the subjects in emotionality and their ranking them in emotional instability. The instructions to the teachers for ranking the children in the two characteristics follow:

FOR TEACHERS WHO ARE RANKING
CHILDREN IN EMOTIONALITY

Definition of Emotionality.- Emotionality may be defined as the tendency to be happy, to be interested and active in many things, fearless, willing, responsive, easily inspired, sociable, having many likes and interests, having most activities associated with a feeling tone which is pleasant and satisfying. It does not necessarily mean being aggressive, forward, unusually excited, or the inability to control oneself.

Examples of children who stand out in emotionality are Barbara S. and Henry R.

Method of Ranking.- Please read over the list of children in the class. Write number one after the name of the child who best fits the description. Read over the list again and put a number two after the child who stands second in the class according to the definition. Please continue to do this until you have given every child a number according to his rank in emotionality, as defined above.

Please do not discuss this with any other teacher as your personal judgment is desired.

When reading the list please read from the top down one time followed by reading the names from the bottom up, the next time, thus alternating until a number has been placed next to each name. Please rank the boys and girls of the class separately, starting with one for each list and ending with the number that represents the total number of boys for their list and of girls for their list.

FOR TEACHERS WHO ARE RANKING CHILDREN
IN EMOTIONAL INSTABILITY

Some Characteristics of Emotional Instability.- Some of the following factors are often indicators of emotional instability: Being impulsive, restless, egocentric, poor in inhibition and self control, extreme in temper, very suggestible, indifferent to results of one's conduct, absent-minded or dreamy, easily moved to laughter or crying, quick to change in mood. Often the emotionally unstable individual stutters, speaks in a high pitched voice, is unable to sit still, is unable to concentrate for a long period, forgets things, loses things, has a short span of attention, is not discreet, talks to himself, and is poor in taking criticism.

In ranking a child in emotional instability both the number and degree to which they have these characteristics should be considered.

Method of Ranking.- Please read over the list of children in the class. Write number one after the name of the child who best fits the description. Read over the list again and put number two after the name of the child who stands second in the class according to the definition. Please continue to do this until you have given every child a number according to his rank in emotional instability, as defined above, the most unstable child ranking first, etc.

Please do not discuss this with any other teacher as your personal judgment is desired.

When reading the lists please read from the top down, one time, followed by reading the names from the bottom up, the next time, thus alternating until a number has been placed next to each name. Please do the boys and girls

separately starting with one for each list and ending with the number that represents the total number of boys for their list and of girls for their list.

Problems Involved in Method of Scoring Rankings.- Finding a score for each child on the basis of the teachers' rankings presented several problems. (1) A number of the children had not been taught by the fifth grade teachers. There were, therefore, only four rankings for these children. (2) The children of the two lowest groups in Avondale School and those of the Pleasant Ridge School were ranked by only one teacher. (3) Since every class had a different number of children, a certain ranking of a child in one class did not mean the same as the rank of a child in another class. (4) Since ranks yield a rectangular distribution, if the ranked data are to be compared with scores on tests they must be transmuted into equivalent scores so that a distribution based on the normal frequency curve may be obtained. (5) It was felt that the opinion of the fifth grade teacher should not receive as much weight as that of the sixth grade teachers since the former had not been in contact with those children for almost a year.

Solutions to Problems.- To obtain a score for both the complete rankings by seven teachers and also for the incomplete rankings where only the sixth grade teachers ranked the children, it was decided to average the ranks for

each child. This was in accordance with Garrett's (177) study in which he compares different methods of combining incomplete order of merit ratings. He finds that using the average of incomplete rankings is just as reliable as using the standard deviation or the percentile method.

In order to give the sixth grade teachers' rankings more weight than those given by the fifth grade teachers, the rankings of the four sixth grade teachers were treated as eight rankings. Then the three rankings of the fifth grade teachers were included and an average taken of the eleven. However, it seemed that this method yielded scores that were influenced too much by extreme rankings. For example, a child who received the following rankings by seven teachers, 1, 2, 3, 4, 5, 8, 19, would have an average ranking of 6. Here the extreme ranking is exerting more than its share of influence. If the median ranking is used it avoids the extra influence of extreme measures. The means and medians were both found but it was decided to use the median score. However, the difference between the two was not large since a correlation of the mean scores with the median scores was .87 $\pm$.012.

The means and medians were changed to per cents according to Hull's (181) method. He used the formula

$$\text{Per cent Position} = \frac{100\ (R-5)}{N}$$

where N equals the total number of cases. The values were then changed to per cents of the standard deviation values. These values may be read from Thorndike's "Mental and Social Measurements," Table 54, which is entitled "The Average Distance from the Central Tendency in Terms of Sigma Distribution, of any Defined Percentage of Continuous Ranks of a Series of Facts Ranked for Relative Position, the Form of Distribution for the Fact in Question in the Series in Question Being Assumed to Be that of the Normal Probability Surface." (182)

Instead of going through all the labor involved in the foregoing method the writer was enabled to use a short cut by using Haught's Table (180:168). This table is so arranged that with the knowledge of an individual's rank and the number in the class of which he is a member, one can read the percentile score representing the per cent of the standard deviations, directly from the table. The entire distance is assumed to be six standard deviations. An additional advantage of this table is that all the scores are positive. Decimal fractions are eliminated and the units are expressed in percentile instead of in standard deviations although it is always a certain per cent of six standard deviations.

In classes where only one teacher did the ranking, the single ranking was converted into a percentile score in

the same manner as the median of the rankings in the cases where more teachers ranked the children.

Summary of Procedure.- The exact procedure of converting teachers' rankings into percentile scores consisted of:

1. Treating the four sixth grade teachers' rankings as eight and including the three fifth grade teachers' rankings, and finding the median of the eleven values.

2. Transmuting the median ranking into scores representing percentages of six sigma distributions, by the use of Haught's Tables.

3. In incomplete rankings finding the median of the given rankings.

4. Where only one ranking was obtained, transmuting that ranking into percentile scores by the use of Haught's Tables.

Reasons for Using the Ranking Method.- The use of ranking involves much labor but it is the only method of checking on the validity of new tests where no other objective measurements exist, and it is an accepted method of obtaining data. Of course, a large number of rankings is more reliable than one or two rankings.

Whether the term, emotional instability, is clear enough to teachers to enable them to use it as a basis for rating children has been questioned. In a study by Mary A. M. Lee (145) it was found that without giving a definition

of emotional instability, when three to five independent teachers' ratings were obtained on a three point scale, for 258 children, "There was complete agreement in the placing of 37 per cent, partial agreement in regard to 51 per cent, and in 12 per cent complete disagreement. There seems to be no doubt that back of the term, emotional or nervous instability, as generally used, there is a common basis in fact. Popular unanalysed judgments - for that is all that ratings are - do consistently discriminate between the unstable and the stable child." (145:106)

Advantages of the Ranking Method.- Ranking by means of order of merit eliminates the halo effect that may be found in rating. It requires fine discrimination and comparison of each child with every other child. Since the girls and boys of each class were ranked separately and the largest number in each group to be ranked was twenty-seven, it was not difficult to compare each child with every other child, especially since the list of names was typed on one page and could easily be scanned.

Of course, the ranking method has many weaknesses and should not be used where more objective measures can be obtained.

G. Evidence in Relation to Validity

Correlations of Rankings with Test Scores.- Despite all the effort put forth in rating and scoring the children,

the results obtained were not encouraging. The correlation of teachers' rankings in emotionality with scores on the emotionality test was only -.06 (Table VI) for the boys and +.15 for the girls. A correlation coefficient of -.42 was obtained between teachers' ranking in emotionality and their ranking in emotional instability, although the correlation of emotionality ranking with the Woodworth-Cady Questionnaire Scores was only -.05.

Teachers' ranking in emotional instability gave no significant correlations with scores on the emotionality or the emotional instability tests, yet they gave correlations of -.19 and -.14 with teachers marks and reading scores, respectively.

A correlation of +.09 was found between teachers' ranking in emotional instability and scores on the Woodworth-Cady Questionnaire. Scores on the latter test gave correlations of -.15 for the boys and -.21 for the girls with scores on the emotionality test, and +.19 and -.08 with scores on the emotional instability test.

Trow (156) found the same type of correlations between test scores and ratings in confidence. He measured the relation of confidence as measured by test acquaintances. "The highest correlation obtained between the confidence scores and the order-of-merit ratings for confidence was .37

TABLE VI

CORRELATION COEFFICIENTS SECURED
IN THE STUDY OF VALIDITY

Variables Correlated	Sex	N	r	PE r
A. Teachers' Ranking in Emotionality with:				
1. Emotionality Test	B	142	-.06	.05
Emotionality Test	G	142	∠.15	.05
2. Emotional Instability Test	B	142	∠.04	.05
Emotional Instability Test	G	142	∠.02	.05
3. Woodworth-Cady Questionnaire	B and G	284	-.05	.04
4. School Marks	B and G	284	∠.26	.03
5. Reading	B and G	79	∠.16	.05
B. Teachers' Ranking in Emotional Instability with:				
1. Emotional Instability Test	B	142	∠.02	.05
Emotional Instability Test	G	142	∠.07	.05
2. Emotionality Test	B	142	-.04	.05
Emotionality Test	G	142	-.04	.05
3. Teacher Ranking in Emotionality	B and G	284	-.42	.04
4. Woodworth-Cady Questionnaire	B and G	284	∠.09	.05
5. School Marks	B and G	284	-.19	.04
6. Reading	B and G	79	-.14	.05
C. Woodworth-Cady Questionnaire with:				
1. Emotionality Test	B	142	-.15	.05
Emotionality Test	G	142	-.21	.05
2. Emotional Instability Test	B	142	∠.19	.05
Emotional Instability Test	G	142	-.08	.05

and the lowest .16 with P.E.'s so high as to make the correlation of little value." (156:29). His conclusion is that the tests and ratings probably measure different traits.

Significance of Findings.- What do these figures mean? Are the teachers' rankings unreliable? Do the Emotionality and the Emotional Instability Tests really not measure those factors as defined in the present study? Is the correlation technique too narrow and limited an instrument to measure reactions to complex situations?

Teachers' Rankings.- Can the ranking of children by teachers be used as an acceptable method of getting information about children's personality traits, as defined in this study? Every effort was made to comply with the best accepted principles of ranking. According to Symonds (152:43-44) rating is a recognized method of getting information for research purposes. The present method that is actually used in handling personality maladjustments in the schools consists of conferences between parents, teachers, visiting teachers, social workers, and in more serious cases, doctors and psychiatrists. This suggests that the final decision in handling personality problems is the result of the personal opinion of teachers and others who come in contact with the subjects. At present, a combination of the

judgments of these supposedly experts, and of scores on tests, is all that can be used. Since teachers come in close contact with pupils they get a large sampling of their conduct upon which to base their judgment. Of course, the children's school accomplishments may color the teachers' judgments. This is suggested by a correlation of .26 between teachers' ranking in emotionality and scholarship, as expressed by an average of all the report marks of all the teachers the child ever had, and a correlation of .16 between ranking in emotionality and reading. Ranking in emotional instability gave negative correlations of -.19 and -.14 with those factors.

After all, emotionality and emotional instability are not vague, elusive qualities far removed from the actual life and activities of individuals. If they were they would not be of such vital concern to the educator. It is for this reason that the teachers' judgments, based on their many contacts with the child, are important.

The Tests.- Do the Emotionality and the Emotional Instability Tests really measure the factors defined in the present study? It must be remembered that the items of both tests were obtained from the children's lists of their actual experiences and their reactions on the tests indicate their attitudes towards those experiences. A knowledge of

those attitudes should show, rather concretely, the emotionality and emotional instability tendencies of the children. In comparison with the teachers' rankings, which are limited to attitudes and conduct expressed in a school environment, these tests cover a much wider range of children's experiences. Since the children's scores on the tests are statistically consistent, they should be used as measures of the qualities they are supposed to measure, until better tests are made available.[1] Of course, by additional work with the various test items the tests could be shortened and refined.

The Correlation Technique.- Although the words, trait, characteristic, and quality, have been used in this study for the sake of convenience, the writer does not conceive of personality as a sum total of an individual's traits, but rather as a unique pattern or Gestalt. The product-moment correlation technique devised by Pearson is so sensitive to minute differences and therefore so limited that it becomes almost useless in comparing such factors as teachers' judgments and personality tests, even if both are expressed numerically. Gainsbury (111:64) says, "Aside

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[1] Symonds (152:22) says, "If the instrument has high reliability this is evidence that there is something there in reality, even if the name assigned to the test does not properly describe it."

from its weakness as conclusive evidence, statistics has other inherent defects when applied to a highly complex problem."

H. The Introversion-Extroversion Test

The degree to which an individual is introverted or extroverted is considered an important personality trait and might in some way be related to his emotionality, emotional instability, and learning.

Scarcity of Testing Material.- Although Laird, Conklin, and Heidbreder, have worked with college students, and Marston has worked with pre-school children, little has been done in measuring the introversion-extroversion of twelve year old children. Hendrickson and Huskey (119) used the rating method to test this characteristic in children of this age. The only test that might have been used was "A Psychological Interview," by Reginald D. MacNitt. However, copies of this test were not available. It was decided to follow Heidbreder's method but to adapt it to the experiences of sixth grade children. Heidbreder took Freyd's collection of fifty-four specific characteristics of introversion and worked them into a questionnaire. The present writer took fifty of these characteristics and put them in the form of questions that are within the experiences of sixth grade children. A copy of the tests will be found on pages F

and G in the appendix. Items from Freyd's list together with the questions in the test may be used to illustrate what was done.

Freyd's List	Test - Form A
1. Limits his acquaintances to a select few	1. Would you rather have a few real good friends instead of a great many friends?
2. Feels hurt readily; apparently sensitive about remarks or actions which have reference to himself.	2. Are your feelings easily hurt?
3. Is suspicious of the motives of others.	3. Do you think that most people are fair to you?

Two forms were used. In the first form the items could be answered by underlining either yes or no. The second form was made up of statements and the subjects were asked to underline the words true or false. The score on each form was the sum of introverted responses.

Reliability of the Introversion-Extroversion Tests

Method of Scoring Tests.- It seemed that by changing the forms of the questions the meanings were not always the same. The correlation of Form A with Form B was found to be .30 $\pm$.032. Forty-nine children were retested on both forms within an interval of two months. By adding the scores of Form A with Form B and correlating the scores

of the children who took the test twice, a correlation of .78 ±.046 was obtained. It was therefore found that the sum of the two tests was more reliable than the single forms, so the sums were used as the introversion scores. Reactions to questions about which the children were undecided may have been different on the two forms whereas reactions to questions about which they were sure were probably the same on both forms. Taking a sum of the test scores on the two forms for the score in introversion, automatically allowed for these positive and undecided feelings to certain questions on the two forms.

Method of Revising the Introversion-Extroversion Test.- In order to improve the test for future use it was necessary to select only those questions on the two forms that seem to have the same meaning, since the questions were not identical. To illustrate: The first question of Form A was, "Would you rather have a few real good friends instead of a great many friends?" The first statement in Form B was, "I like to have a great many friends." It seemed at first that the meanings of those two questions were about the same but a tabulation of the responses showed that 72 per cent of the boys gave the introverted response to the first question in Form A while only 21 per cent of the boys gave the introverted answer to Form B. By the use of the Bernoulli

theorem[1] significant differences between the paired questions were noted. Where the $\sigma_{B\%}$ was 2.5 or more the difference was considered significant and that question was selected which had fewer introverted responses, since it was assumed that fewer introverts than extroverts exist (152:201) and since an introverted response to such a question would be more significant than such a response to a question where the majority gave the introverted answer. Where the difference was not significant the questions which had fewer introverted responses were retained for use on the revised form. Edgerton's Table of Standard Errors (176) was used to find the σ^2.

On page H of the appendix will be found the revised test.

I. Disagreement on Tests as a Measure of Inconsistency

Starting out with the assumption that the two forms of the introversion test were equivalent, each child's answers on one form of the introversion test was checked against his

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[1] $\sigma_{B\%} = \frac{pq}{N}$ In this equation $\sigma_{B\%}$ is the standard deviation of the proportion in one category of a Bernoulli distribution. p is the probability of success, or percentage of cases, in a given group. q is 1 - p, and N is the total number of cases.

answers on the other form. Much variation was found among the children in the amount of disagreement that existed. Wherever disagreement occurred the subject was considered as being inconsistent in his reactions. The total number of disagreements was his score in inconsistency. The inconsistency score was used in comparing this trait with other personality characteristics and with learning ability.

J. The Pessimism-Optimism Test

It is believed that some degree of optimism is necessary for the attainment of any goal, for if the individual has absolutely no confidence in his ability to succeed he will not be motivated to pursue the task at hand. Yet, over-confidence in the belief that success will ensue may make an individual careless in his attack on a problem.

A test was devised to see how an attitude of pessimism-optimism influences children of this age level. This test consisted of twenty-five very short stories that have two possible endings, a happy one and a sad one. The children were asked to underline the endings representing what they thought really happened. The total number of sad endings was the score in pessimism. It is recognized that this is a crude measure, however, the results are given for what they are worth. A copy of the test will be found on page I of the appendix.

K. Superiority-Inferiority Feeling

Self-Rating in Superiority-Inferiority Feeling.- Children are constantly striving to be like the ideals they have set before themselves and are consciously or unconsciously measuring themselves against that standard. This ideal is often a composite of the characteristics of a number of children whom the child knows or it may be a single child whom he admires. A child's rating of himself in comparison with his ideal might indicate his feeling of status in his social group. This feeling may be related to school success and learning. Sweet (151) has devised a scheme for scoring this trait but since the scoring scheme is long and complicated and since every child may have certain standards for his ideal which are different from those set up by Sweet, it was decided to use a somewhat different approach to the problem.

The children were given blank sheets of theme paper and were asked to list all the characteristics of their ideal sixth grade child. When they were finished with the list they were instructed to place a mark for themselves on every trait they had listed. They were told to use the letters from A to E with plus or minus signs wherever they wished to use them.

Scoring.- The papers were scored by giving the

letters the following values.

A = 3
B = 2
C = 1
D = .5
E = 0

The average of all the marks was considered the score in superiority feeling. The higher the score was the greater was the feeling of superiority. The scale used for grading was found by Flemming (58) to be the best method for scoring scholarship of students on the basis of their letter grades. Children tend to rate themselves by giving the same evaluation to the letters that their teachers use in giving them marks in school work.

L. The Problem Solving Test

Written Problem Test.- The central theme of this study is the relation of personality factors to problem solving ability. The paper and pencil problem test found on page J in the appendix was given for the purpose of testing the patience of the subjects in problem solving. The first problem was a paper and pencil puzzle and the others were arithmetic problems. By continuous effort and checking of results the children could tell when the correct answer was found. They were given as much time as they wanted, for working on the problems, and were told to do their best.

Scoring.- Problems 3 and 5 were omitted since only a few children were able to solve them. Problem 1 received 30 points, problem 2 was given 5 points for every combination making a total of 40 for all the eight possible combinations, and problem 4 was scored 30 points for the correct answer and 10 points when only one combination was given.

M. Racial Attitudes Indicator

Since an attitude is an emotional reaction the writer desired to see what relationship there is between a child's tolerance and his personality traits and his tolerance and his learning ability. The Racial Attitudes Indicator measures the social distance of the child towards 39 races, for the relationship of cousin, chum, roommate, playmate, neighbor, classmate, and schoolmate. The score is the total number of times the subject answers, "Yes," as an expression of his willingness to permit such relationship (161). A copy of the test is found on page K of the appendix.

N. Monroe's Silent Reading Test

A child's reading ability is one of the indexes of his school achievement. The Monroe Standardized Silent Reading Test, Revised, Test II, Form 3, was used to test the

reading comprehension of the four upper sixth grade groups of the Avondale School. The test consists of eighteen short paragraphs to be read silently. The subject indicates his comprehension of each paragraph by drawing a line under the word that best describes the thing asked about. The score is the number of correct answers given in four minutes of reading. The scores on these tests were used since the data were available. The Monroe Tests are used as a regular part of the school procedure in testing reading.

O. Scholarship

Report Marks.- Important measures of the children's success in school are the report marks given by the teachers. The report marks of each child, for his six years at school, as recorded on the school cumulative record sheets, were averaged, using Flemming's method as described on page 68 of this report. The average of all the report marks was the education achievement score or scholarship index.

P. Home Background

Attitudes, habits, and responsibilities in the home contribute to the development of the child's personality and emotional life and may influence his learning and problem solving ability. An attempt was made to measure these in several ways.

Sims Score Card for Socio-Economic Status, Form C.- The children were tested for socio-economic background by the Sims Score Card for Socio-Economic Status, Form C. This test consists of twenty-three questions regarding the child's home environment. It considers such things as number of rooms occupied by the family, the existence of a telephone, furnace, and bathroom, in the home, the possession of an automobile, the size of the home library, the education of the parents, and other such factors. A complete copy of the test will be found on page N in the appendix. Sims reports a reliability on this test of $\pm .94$, obtained by correlating the responses of 200 paired siblings.

Barr Scale of Occupational Status.- The children were asked to give their father's occupation. On this basis a score was found for each child on the Barr Scale of Occupational Status (152:542). This scale consists of a list of a hundred representative occupations, clearly described, and gives the P.E. values assigned to each occupation on the basis of the ratings of thirty judges. The scale is supposed to be the best that exists for placing each occupation in the order of the intelligence it requires. It is supposed to correlate very highly with socio-economic level. Since such a study had not been made the present writer correlated the children's scores on the

Sims Score Card with their scores on the Barr Scale and found a correlation of .63 ± .025.[1] It seems that these two tests are not measuring identical factors of environment.

Q. Hours of Sleep

The amount of sleep a child gets is an important environmental factor and may indicate home training. The children in four of the classes were asked to keep a chart of the time they go to bed and get up every day, for three months. The writer examined the charts periodically during those three months. After the three months the children were asked to hand in their charts. It is felt that the children kept an honest and exact record since they had no reason for giving wrong information on the subject and they were told that care and accuracy in keeping this chart was very important. The average amount of sleep per night was found from the chart data.

R. Number of Children in Family

The influence of siblings is an important consideration in a study of the child's emotional and

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[1] Symonds (152:545) says, "Although the matter has not been investigated, it is presumed that such a scale will correlate very highly with a scale made strictly to fit socio-economic level."

personality growth. The number of children in the family was obtained and its relationship to other factors was noted.

Procedure for Experimental Program

The second part of this study dealt more specifically with learning as expressed through the solving of puzzles. The object was to record the children's progress and conduct while they were actually at work.

The Subjects.- The subjects were sixth grade children from the Avondale School selected at random from the six classes. Three puzzles were used, known as the boot puzzle, the T puzzle, and the triangle puzzle. One hundred children worked on the boot puzzle, eighty of the same children worked on the T puzzle, and twenty-three of them worked on the triangle puzzle.

The Boot Puzzle.- The boot puzzle consists of a flat metal boot two and one half inches long and one inch wide. A number of slots are cut out of the boot. On the top there is a gate-like part that can be moved back and forth. A metal bottle whose two sides are connected by two rods of different thickness slips through the gate and down the slots to the bottom of the boot. The object is first to take the bottle out of the boot and then to put it back. Analysis and patience are necessary for success in most cases. Figure 2 (page 175) is a picture of this puzzle.

The T Puzzle.- The T Puzzle is made up of four flat metal pieces which form the capital letter T when put together correctly. The subject is given the four pieces and asked to make the letter T. A picture of the T puzzle is found on page 177.

The Triangle Puzzle.- The triangle puzzle is made up of seven pieces which when put together enclose a triangle. The subject is just told to make a triangle from the pieces. A copy of this puzzle will be found on page 178.

The children were first given the boot puzzle. When they solved it or gave up they were handed the T puzzle which was later followed by the triangle puzzle.

Testing Conditions.- The children were tested during the summer, individually, at the home of the writer. The subject was timed while working the puzzles. Unknown to him, his remarks, conduct, and nervous signs, were recorded by the tester. After working on each puzzle the subject was asked to write his introspections. These introspections and his remarks were later analyzed into emotional and rational statements. A more detailed description of the procedure is given with the interpretation of the data.

Treatment of Data

Interpretation of the data was made through several different approaches.

Comparisons of Ability Groups.- Differences in personality and emotional traits of ability groups were analyzed and compared.

Intercorrelations.- The scores on all the tests were intercorrelated and an effort was made to interpret the significance of the various relationships.

Experimental Data.- In the interpretation of the data obtained through the experimental procedure a picture is given of the learning curve involved in solving puzzles. The children who were successful in solving the boot puzzle were compared with those who failed to solve it. Comparisons are made of the twenty-one children who stayed longest on the T puzzle with those who gave up most quickly. Analyses are made of the actual remarks made by the children in regard to their emotional and rational nature. Some case studies are also presented.

Summary of Chapter

The Procedure.- The procedure of this study included a survey and an experiment. The survey comprised a rather extensive testing program dealing with factors about children's emotions, personality, scholarship, and environmental background. It necessitated the development of several new testing instruments for the purpose of

measuring certain emotional and personality traits. A detailed description of these tests and the methods used to establish their validity and reliability are presented. A briefer description of other tests used is presented. Definitions are given of the important terms used in the investigation. A description of the subjects is given previous to the detailed discussion of the procedure.

Measures Used.- The following tests were used in the measurement program.

I. Tests Dealing with Emotional and Personality Factors

1. Emotionality and emotional instability measures based on children's likes and dislikes of the things and people that make up their environment.

2. The Woodworth-Cady Questionnaire, a test of psychoneurotic tendencies in children

3. Specially devised tests of introversion-extroversion

4. A test of inconsistency based on disagreements expressed on the two forms of the introversion-extroversion test

5. A method of measuring children's feelings of inferiority-superiority in which they rate themselves in comparison with their ideal

6. Several written problems used for the purpose of testing the children's patience

7. A test of racial tolerance as measured by the Racial Attitudes Indicator

II. Factors Dealing with School Achievement

1. Scholarship scores obtained through records

of children's report marks

2. Reading ability as measured by the Monroe Silent Reading Test

III. Factors of Home Environment

1. Sims Score Card for Socio-Economic Status

2. Barr Scale of Occupational Status of the father

3. The average number of hours of sleep taken by the children

4. The number of children in the family

Methods Used to Establish Validity and Reliability.- Methods used to establish the validity of the more important tests included correlation of scores with similar tests and teachers' rankings. The reliability of the major tests devised for this study was checked by correlating the scores obtained by the retesting method.

A description is given of the methods used in scoring the tests.

Description of the Experiment.- A brief statement of the experimental program is made in this chapter and a more detailed description is given in the chapter dealing with the experiment.

Treatment of Data.- Interpretation of the data is made by means of ability group comparisons, intercorrelations of test scores, and analyses of children's behavior while solving puzzles in reference to their emotional and rational nature and patience.

CHAPTER IV

COMPARATIVE DATA FOR ABILITY GROUPS

Purpose of this Chapter.- The present approach to the relation of emotions to learning will be through a comparison of ability groups. The purpose of this chapter is to ascertain how children who differ in intelligence and school achievement compare in emotional and personality traits, educational achievement and social background; and to analyze the implication of the findings in regard to a basis of grouping that fits in with a philosophy of education for emotional and personality development.

Procedure and Background of Chapter

Preliminary Discussion.- Preliminary to the presentation of data which grew out of the present investigation, some statements will be made concerning present practices and their bases in earlier methods of grouping children. Newer trends based on the philosophy of the progressive school will be discussed. The hypothesis that personality and emotional traits may develop in order to compensate for lower intellectual capacity, in an effort at educational adjustment, will be considered in relation to the theory of positive

correlations of favorable traits.

Present Practices.- A study of present practices in grouping, as reported by Billet (167), shows the general tendency to group children on the basis of intelligence or mental age rather than on other considerations. He shows that in 289 selected schools, out of sixteen bases for grouping, intelligence, or mental age, was the leading factor, while industry and effort ranked twelfth, and social maturity thirteenth.

Psychological Theory Underlying Ability Grouping.- This method of grouping has been largely due to the development of mental tests and to the belief in the theory of positive correlation of favorable traits. Spearman expressed this idea in his theory of general intelligence, Thorndike in his belief that favorable traits tend to go together, and Terman in his study of gifted children. It can be seen then, that in the grouping of children in school, much stress has been given to the intellectual factor, little to the importance of social and emotional maturity. The assumption, that superior personality and emotional maturity accompany intellectual superiority, seems to have met ready acceptance while little thought has been given to the importance of developing the emotional and personality traits of children.

Evidence Found in The History of Grouping.-

A summary statement concerning the history of grouping will show how it is closely related to psychological theories just presented.

History of Grouping.- Alice Keliher (169) gives a detailed report of the history of grouping. As early as 1849 Massachusetts segregated mentally defective children. William T. Harris, superintendent of schools in St. Louis, attempted to adjust instruction on the basis of individual differences in intelligence. W. J. Shearer, of New Jersey, in 1886, grouped the children in each room into different sections. The Cambridge Plan of 1891 shortened the period required for completion of the grammar grades for bright children. At about the same time Preston Search used the method of individual instruction, as did Frederich Burk, in 1914, in San Francisco State Normal School. The Santa Barbara, New York, and Chicago plans of 1898, grouped dull, average, and bright children separately. More recently, the Winnetka Plan of Carelton Washburne and the Dalton Plan of Helen Parkhurst were introduced (169).

Modern Attitudes Towards Grouping.- The philosophy of the progressive school which stresses the need for "teaching the whole child" has influenced the attitude towards grouping of children. A critical analysis and an experimental study of homogeneous grouping in the light of

that philosophy will be reported since those studies help to clarify the present study of grouping as it is related to non-intellectual factors.

Keliher's Critical Study of Homogeneous Grouping.- Keliher (169) evaluates the evolution of some of the significant concepts involved in school provisions for individual differences. She discusses the influence of thought patterns set by the graded school system, the attempts to adjust schools through administrative devices and measurement, and her own philosophy of individual differences as related to the total personality. She analyzes assumptions concerning measurement, homogeneity, curriculum, and school and society. She concludes that present standardized tests of intelligence and learning do not measure the broad scope of those fields. She believes that homogeneous grouping is not possible because it does not reduce variation even in the measured traits. An individual is not consistent within his own abilities, and "a high degree of specificity in... skill is found within each individual." Keliher's stress on the needs to study the "whole child" found expression in another recent study made in the Avondale School by Madeline Schmidt.

Schmidt's Experiment to Determine the Advisability of Homogeneous Grouping in a Child-Centered Program.- The

experimental study of Madeline Schmidt (173) indicates that no conclusive experiments, prior to her study, had been performed in homogenous grouping and no experiment had been made in grouping as related to a child-centered program. Her study aimed to determine the relative achievement in fifth grade geography in a child-centered program where grouping was the experimental factor. Superior and average subjects in a heterogeneous group were equated with superior subjects in another group. The experiment lasted for five months. The results showed no significant difference in achievement of the heterogeneous and homogeneous group.

Educational Implications of Schmidt's Study.- The educational implication of Schmidt's study is that grouping on the basis of ability does not especially lead to greater educational achievement but that learning takes place, in an activity program, in accordance with each child's ability. It suggests that if tasks are suited to the individual abilities of children and they all learn to work together to attain the purpose of the group, each child will grow in personality and emotional maturity in accordance with his capacity.

The Effect of Present Methods of Grouping Upon Growth of Non-Intellectual Factors.- If it is true that

favorable traits tend to go together, children who are superior in intelligence should also be superior in non-intellectual traits, if those traits are developed in accordance with their possibilities. The educational requirements demanded of each child should result in his emotional and personality growth.

According to the present set-up of grouping children on the basis of ability, the difference in work of one grade is not great enough to allow for differences in ability. The result is that the work constantly gets easier for the mentally superior children and more difficult for the slow children. The former then may not be stimulated to grow in emotional and personality traits while the latter, in an effort to adjust to the difficult tasks at hand, may develop greater emotional control and perseverance, or they may give up in despair and become emotionally unadjusted.

In the light of the discussion here presented, comparisons will be made of six ability groups from the Avondale School and the Pleasant Ridge group.

A description will be given of the methods used in the Avondale School for grouping children. This will be followed by the procedure for the analysis and interpretation of the data.

Method Used in Grouping Avondale School Children.- The Avondale School children are grouped in the first grade

on the basis of intelligence tests. Later, individual children who are superior to their group in achievement are placed with a group where they will fit in better on that basis.

The Procedure for Study of Data of This Chapter.- The present approach to the problem of ability grouping will be through a description of the groups in terms of mental and chronological ages followed by comparisons of means, for each class and for boys and girls, of emotional, educational, and social factors.

The data for the one class of the Pleasant Ridge School are also given as they permit an additional comparison of Jewish with non-Jewish children of similar intelligence and social background.

Description of The Subjects

Chronological Age.- The average chronological age, as of February 1st, 1935, was 11 years and 8 months, for both the 142 boys and 143 girls. Table VII gives the average age for each class and for boys and girls. The Pleasant Ridge group did not differ from the Avondale classes in average chronological age. In the Avondale classes the differences were slight, with the A and B groups somewhat below the average, the C- class one month

TABLE VII

MEAN CHRONOLOGICAL AGES OF ALL SUBJECTS, ARRANGED ACCORDING TO CLASSES

Class	Boys	Girls	Mean
Pleasant Ridge	11- 9	11- 8	11- 8
Avondale			
A Group	11- 8	11- 7	11- 7
B/ Group	11- 5	11- 7	11- 6
B Group	11- 7	11-10	11- 9
B- Group	11- 9	11- 7	11- 8
C/ Group	11- 9	11- 9	11- 9
C Group	12- 0	12- 0	12- 0
Mean	11- 8	11- 8	11- 8

TABLE VIII

MEAN MENTAL AGES OF ALL SUBJECTS, ARRANGED ACCORDING TO CLASSES

Class	Boys	Girls	Mean
Pleasant Ridge	14- 0	14-10	14- 5
Avondale			
A Group	16- 0	15- 4	15- 8
B/ Group	15- 0	14-10	14-11
B Group	14- 7	14- 4	14- 5
B- Group	13- 7	13- 2	13- 5
C/ Group	12-11	12- 1	12- 6
C Group	12- 0	12-11	12- 5
Mean	14- 0	13-11	14- 0

older and the C group four months older than the average chronological age of all the subjects. The range in average age was six months. The entire group may therefore be regarded as homogeneous in chronological age. All the tests except the Otis Test were given in May and June, 1935, making the average chronological age at that time close to twelve years. The individual testing was done in August, 1935.

Mental Age.- The mental ages were taken from the results of the Otis group intelligence test given February 1st. Table VIII shows the average mental age for all the subjects was 14 years for the boys and 13 years 11 months for the girls. The Pleasant Ridge boys averaged the same as the mean for all the boys while the girls of that school were ten months older in mental age than the mean for all the subjects. The Pleasant Ridge group averaged the same mental age as the B group of the Avondale School. The A group had a mental age average of 16 years for the boys and 15 -4 for the girls. Table VIII shows a direct relationship between group status and mental age, except that the girls of the C group scored ten months higher than those of the C- group.

Emotional and Personality Factors

The Woodworth-Cady Questionnaire.- The mean score

for all the boys on the Woodworth-Cady Questionnaire for psychoneurotic tendencies is shown in Table IX to be 13.9. Terman (41:500-505) gives a score of 12.5 for his gifted boys aged 12 and 15.1 for his control group. The average for the girls is 15.0, which is identical with Terman's control group. His scores for gifted girls is 10.4. The Pleasant Ridge class averaged higher scores than any of the Avondale classes. When the scores for only the Avondale children are considered, the boys' average is 13.9 and the girls' is 14.5. A racial comparison is of interest at this point. It is often assumed that Jewish children are more psychoneurotic than non-Jewish children. The results on the psychoneurotic questionnaire causes one to question that assumption, since 82.5 per cent of the Avondale children are Jewish and all of the Pleasant Ridge children are non-Jewish. This also supports Thurstone's (75) findings that very little difference in psychoneurotic tendencies is found between Jewish and Gentile students. Class comparisons show variations, the C/ group showing the smallest number of psychoneurotic tendencies. The boys of the B group score higher than any of the other classes while the girls of that class score lower than any of the other classes. According to the findings there seems to be little relationship between class status and psychoneurotic tendencies, as expressed by scores on the Woodworth-Cady

TABLE IX

MEAN SCORES AND PERCENTAGES OF HIGHEST POSSIBLE SCORE, OF ALL THE SUBJECTS, ON THE WOODWORTH-CADY QUESTIONNAIRE, ARRANGED ACCORDING TO CLASSES

	Scores			Per Cent		
Class	Boys	Girls	Mean	Boys	Girls	Mean
Pleasant Ridge	17.0	18.3	17.7	23.3	25.1	24.3
Avondale						
A Group	12.1	16.5	14.3	16.6	22.6	19.6
B/ Group	12.6	13.8	13.2	17.3	18.9	18.1
B Group	20.7	12.1	16.4	28.4	16.6	22.5
B- Group	12.3	16.6	14.5	16.8	22.7	19.9
C/ Group	9.4	13.0	11.2	12.9	17.8	15.3
C Group	13.2	15.0	14.1	18.1	20.6	19.3
Mean	13.9	15.0	14.5	19.1	20.6	19.9

Questionnaire.

The Emotionality Test.- Table X gives the mean scores for each class on the Emotionality Test and also these scores expressed in percentages of the highest possible score obtainable. The Pleasant Ridge children made slightly lower averages than the average for all the subjects. The A class made the lowest and the B- class the highest scores. This slight difference might indicate a tendency for the brighter children to be more narrow in their interests or less extreme in their feelings towards things and people. There is no sex difference in emotionality as measured by the test used.

The Emotional Instability Test.- Table XI gives the class averages in score points and in percentages of the highest possible score obtainable, for the seven classes, on the Emotional Instability Test. Here again there is not much variability among the classes although there is a tendency for the upper groups to show greater dislike for more things than the lower groups. Girls are more easily annoyed than boys.

Figure 1 shows the class averages on the Emotionality Test, the Emotional Instability Test, and the Woodworth-Cady Questionnaire, expressed in percentages of highest possible score obtainable. No outstanding relationship between class status and emotional instability

TABLE X

MEAN SCORES AND PERCENTAGES OF HIGHEST POSSIBLE SCORE, OF ALL THE SUBJECTS, ON THE EMOTIONALITY TEST, ARRANGED ACCORDING TO CLASSES

	Scores		Per Cent		
Class	Boys	Girls	Boys	Girls	Mean
Pleasant Ridge	140	155	85.0	84.0	84.5
Avondale					
A Group	136	156	82.0	84.3	83.2
B+ Group	148	157	89.7	84.9	87.3
B Group	137	159	83.1	86.0	84.5
B- Group	148	166	89.6	89.7	89.6
C+ Group	140	159	84.8	86.0	85.4
C Group	142	158	86.0	85.4	85.7
Mean	142	159	86.0	86.0	86.0

TABLE XI

MEAN SCORES AND PERCENTAGES OF HIGHEST POSSIBLE SCORE, OF ALL THE SUBJECTS, ON THE EMOTIONAL INSTABILITY TEST ARRANGED ACCORDING TO CLASSES

Class	Scores		Per Cent		
	Boys	Girls	Boys	Girls	Mean
Pleasant Ridge	97	127	60.6	57.2	58.9
Avondale					
A Group	91	137	56.9	61.7	59.3
B/ Group	86	138	53.8	62.2	58.0
B Group	96	141	60.0	63.5	61.8
B- Group	94	130	58.8	58.6	58.7
C/ Group	88	134	55.0	60.4	57.7
C Group	85	131	53.1	59.0	56.1
Mean	91	134	56.9	60.4	58.7

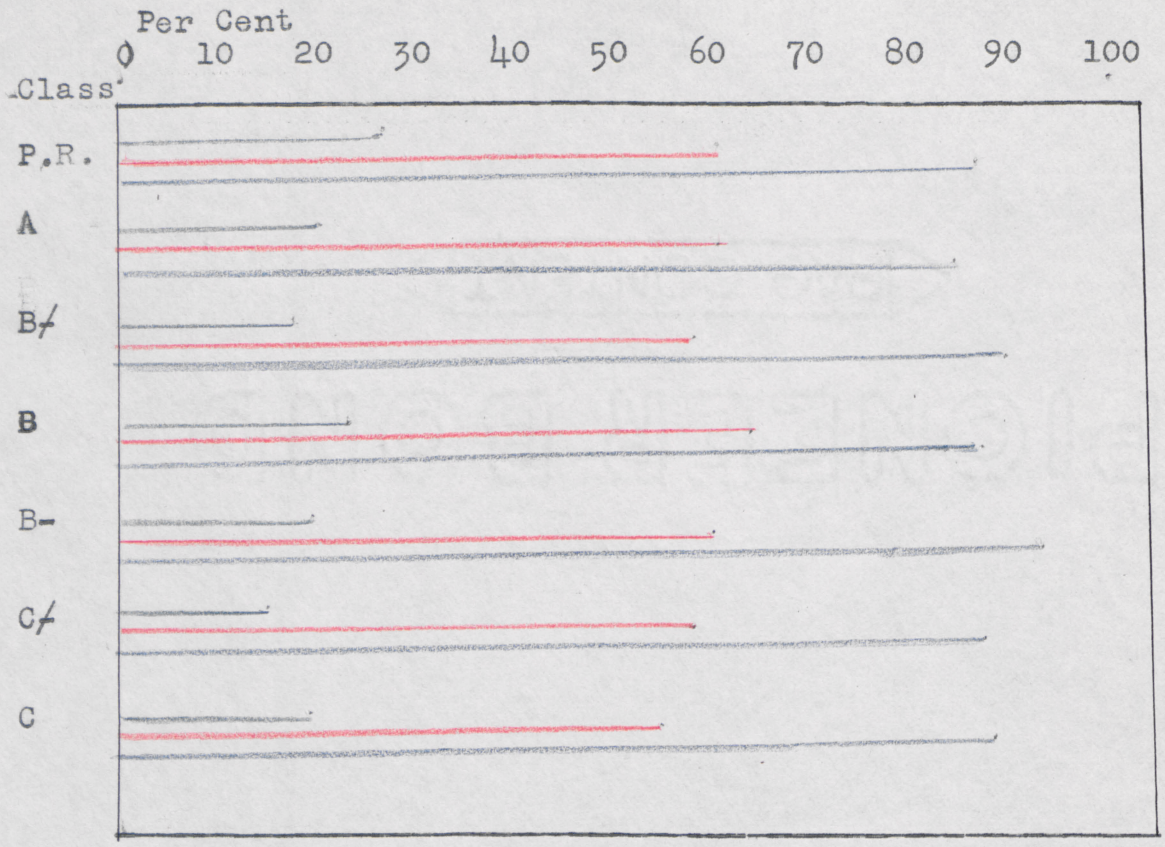


Figure 1. Comparison of class means on the Emotionality, Emotional Instability, and Woodworth-Cady Tests, expressed in the percentages of the highest possible scores obtainable.

Woodworth-Cady ——— Emotional Instability ———

Emotionality ———

is noticed.

The Introversion-Extroversion Test.- The average scores on the two forms of the introversion-extroversion tests are practically the same for all the classes, as shown in Table XII. In order to insure greater reliability, the sum of the two forms was used. A high score indicates introversion. The girls seem to be slightly more introverted than the boys. This is in agreement with the findings of Marston (133) and Hendrickson and Huskey (119). Heidbreder (116) finds little difference in the final score but does find sex differences towards certain questions. Class comparisons show some variation. The B- class is the least introverted while the C and A classes are slightly more introverted than the B- class. The Pleasant Ridge average is slightly higher than the general average. From Table XII it will be noted that class status based on school achievement is not related to class averages in introversion.

Inconsistency Between Two Forms of the Introversion-Extroversion Test.- Consistent conduct is generally considered an index of stability. The questions on the two forms of the Introversion-Extroversion Test were checked against each other and wherever disagreement occurred the subject was scored one point for inconsistency. Table XIII shows the averages for the different classes. There is little variability except that the lower classes

TABLE XII

CLASS MEANS ON THE TWO FORMS OF THE INTROVERSION-EXTROVERSION TEST

	Form A			Form B			Sum of A and B		
Class	Boys	Girls	Mean	Boys	Girls	Mean	Boys	Girls	Mean
Pleasant Ridge	20.7	22.4	21.6	20.6	23.1	21.9	40.1	45.5	42.8
Avondale									
A Group	20.3	23.8	22.1	21.2	22.2	21.7	41.5	46.0	43.8
B/ Group	21.6	20.5	21.0	20.7	20.9	20.8	42.3	41.4	41.8
B Group	22.0	21.2	21.6	21.6	20.0	20.8	43.6	41.0	42.3
B- Group	19.2	20.4	19.8	18.5	19.7	19.1	37.7	40.1	38.9
C/ Group	20.9	21.8	21.4	22.0	21.0	21.5	42.9	42.8	42.9
C Group	21.9	24.2	23.0	21.9	20.4	21.2	43.8	44.6	44.2
Mean	21.0	22.0	21.5	20.9	21.1	21.0	41.7	43.1	42.4

TABLE XIII

CLASS MEANS IN INCONSISTENCY BETWEEN THE TWO FORMS OF THE INTROVERSION-EXTROVERSION TEST

Class	Boys	Girls	Mean
Pleasant Ridge	17.9	18.2	18.0
Avondale			
A Group	17.8	16.1	17.0
B/ Group	16.9	17.8	17.3
B Group	17.9	17.1	17.5
B- Group	18.9	18.0	18.5
C/ Group	18.3	18.2	18.2
C Group	19.0	18.6	18.8
Mean	18.1	17.7	17.9

TABLE XIV

CLASS MEANS ON THE PESSIMISM-OPTIMISM TEST

Class	Boys	Girls	Mean
Pleasant Ridge	6.5	3.7	5.1
Avondale			
A Group	7.6	6.6	7.1
B/ Group	6.4	6.1	6.3
B Group	6.2	6.1	6.1
B- Group	4.7	6.2	5.5
C/ Group	4.9	5.7	5.3
C Group	5.2	4.7	4.9
Mean	6.0	5.6	5.8

are somewhat higher in inconsistency. There is a direct relationship between class status and inconsistency. The boys are slightly more inconsistent than the girls.

Pessimism-Optimism Test.- The results of the Pessimism-Optimism Test, shown in Table XIV (page 123), suggest that the upper groups may be more pessimistic than the lower groups of the sixth grade. The general trend is towards a decrease in pessimism with every decrease in class status. Perhaps the slower children do not worry much about the unhappy possibilities in their own work, while the others tend to face reality and therefore work harder in order to avoid failure. The boys seem to be more pessimistic than the girls.

Superiority-Inferiority Feeling.- Some educators have expressed the theory that homogeneous grouping leads those in the lower groups to have a feeling of inferiority. The averages in Table XV show slight differences between the groups in regard to inferiority feeling, with a very slight tendency for the lower groups to rate themselves as feeling inferior. When one considers that this difference may be due to comparisons which the child himself may notice in out-of-school activities, it is questionable whether the grouping method affects the child's personality in inferiority feeling. There is a slight tendency for the girls to rate themselves higher in superiority feeling than

TABLE XV

CLASS MEANS IN SUPERIORITY-INFERIORITY FEELING, SHOWN BY CHILDREN'S SELF-RATING IN COMPARISON WITH THEIR IDEAL SIXTH GRADE CHILD

Class	Boys	Girls	Mean
Pleasant Ridge	2.39	2.56	2.48
Avondale			
A Group	2.61	2.55	2.58
B/ Group	2.76	2.54	2.65
B Group	2.39	2.71	2.55
B- Group	2.66	2.60	2.63
C/ Group	2.38	2.43	2.41
C Group	2.05	2.39	2.22
Mean	2.46	2.54	2.50

TABLE XVI

SCHOLARSHIP - CLASS MEANS OF CHILDREN'S REPORT MARKS FOR SIX YEARS

Class	Boys	Girls	Mean
Pleasant Ridge	1.91	2.19	2.05
Avondale			
A Group	2.38	2.54	2.46
B/ Group	2.12	2.22	2.17
B Group	1.83	2.05	1.94
B- Group	1.62	1.73	1.68
C/ Group	1.56	1.63	1.60
C Group	1.28	1.45	1.37
Mean	1.81	1.97	1.89

the boys rate themselves.

Educational Factors

Teachers' Marks.- The average of all the school report marks for six years may be taken as a good index of a child's success in school, since it represents the opinion of many teachers at various times and for a variety of school subjects. Table XVI (page 125) shows that in every class girls receive higher marks than boys do. Whether this is due to real achievement or to the fact that teachers may be prejudiced in favor of girls is not clear. However, other studies of sex differences reported by Good support the superiority of women over men in scholarship (60:283-284).

A comparison of classes shows consistently diminishing averages in scholarship from the highest to the lowest group. A score of 3.00 is equivalent to an "A" average.

The Monroe Silent Reading Test.- In order to obtain additional data on the children's educational status, the four upper groups were given the Monroe Silent Reading Test, Test II Form 3. The average comprehension score for each class is given in Table XVII. The boys score higher than the girls and the upper classes score higher than the lower classes but the differences in both cases are not large.

TABLE XVII

CLASS MEANS IN COMPREHENSION ON
THE MONROE SILENT READING TEST

Class	Boys	Girls	Mean
Avondale			
A Group	16.2	14.4	15.3
B/ Group	15.6	14.9	15.3
B Group	14.9	14.5	14.7
B- Group	14.6	14.0	14.3
Mean	15.3	14.5	14.9

TABLE XVIII

CLASS MEANS ON A WRITTEN PROBLEM TEST

Class	Boys	Girls	Mean	Rank
Pleasant Ridge	48.5	53.0	50.8	2
Avondale				
A Group	66.8	58.7	62.7	1
B/ Group	52.1	42.9	47.5	4
B Group	55.2	44.7	50.0	3
B- Group	29.7	35.7	32.7	7
C/ Group	35.3	38.4	36.8	6
C Group	39.3	38.6	39.0	5
Mean	46.7	44.6	45.7	

The Problem Test.- The purpose of the problem test was to see how the children would react to situations which require patience and effort. The averages, as found in Table XVIII (page 127), show that the boys score somewhat higher than the girls. In the individual classes this superiority of the boys is not always maintained. Class comparisons show that although the upper groups tend to have higher scores, their relative rank is not always in accordance with class status. The results suggest that some other factor, outside of intelligence or achievement, perhaps patience, is the cause of such ranking.

Social Factors

Sims Score Card for Socio-Economic Status.- In order to study the influence of socio-economic background, the children were given the Sims test. The average for all the children on the Sims Score Card for Socio-Economic Status, as indicated in Table XIX, is 21.8. This score represents the 85th percentile of socio-economic status and is rated a little below "very high." The Pleasant Ridge children score about the same as the general average for all the subjects studied. The boys seem to have a somewhat higher socio-economic background than the girls. Although the upper classes tend to have higher scores, this does not hold entirely, as seen from the table. The A class and the

TABLE XIX

CLASS MEANS ON SIMS SCORE CARD
FOR SOCIO-ECONOMIC STATUS

Class	Boys	Girls	Mean	Rank
Pleasant Ridge	22.5	20.3	21.4	5
Avondale				
A Group	26.9	25.4	26.2	1
B/ Group	21.6	23.4	22.5	4
B Group	22.7	23.9	23.3	3
B- Group	25.5	21.4	23.5	2
C/ Group	19.6	18.5	19.1	6
C Group	18.8	14.6	16.7	7
Mean	22.5	21.1	21.8	

TABLE XX

CLASS MEANS ON BARR SCALE
OF OCCUPATIONAL LEVEL

Class	Boys	Girls	Mean	Rank
Pleasant Rdige	11.25	11.37	11.31	5
Avondale				
A Group	13.22	12.90	13.06	1
B/ Group	12.10	11.92	12.01	2
B Group	11.35	11.62	11.48	4
B- Group	12.20	10.95	11.58	3
C/ Group	10.11	10.07	10.09	6
C Group	10.90	8.78	9.84	7
Mean	11.59	11.09	11.34	

two lowest classes maintain the same relative status for socio-economic background as for achievement, but the other classes do not. It would seem, from the data, that economic background is a contributing but not a sole factor in school achievement.

Barr Scale of Occupational Status.- Another approach to the study of environmental background was through the use of the Barr Scale of Occupational Level applied to the occupations of the fathers. This scale places each occupation in order of the intelligence it demands. It is assumed that this scale will correlate highly with a scale that measures socio-economic level. However, a coefficient of correlation of the scores on the Barr Scale with those on the Sims Score Card, for the 285 subjects of the present study, was found to be only .63 $\pm$.035. Scores on the Barr Scale are closely related to intelligence while those on Sims Score Card are based more on economic status. From Table XX (page 129) it can be seen that the average score for each class, on the Barr Scale follows the same order of the class groupings except that the B- group is slightly higher than the B group. This suggests the probability of a relationship between the father's occupation and the child's school achievement. In comparing the ranking of the classes on the two scales it will be seen that the Pleasant Ridge

class, the A, C- and C classes maintain the same rank, while the three middle classes differ in rank on the two scales. It may be that a cultural home background contributes more to a child's school success than one where the economic level is very high. Of course, this assumption would probably not hold in homes lacking minimum necessities required for a decent standard of living.

The Number of Children in the Family.- Another approach to environmental background is the study of family size. The families to which these children belong average 2.7 children. The girls come from larger families than the boys. This is to be expected since families will often limit their number of children to one, if the first-born is a son, but will have more children if the first child is a daughter. The old time prestige of the male child still holds good today despite the belief in sex equality among some people. Additional evidence to support this theory is found in Table XXIII which shows that of the 46 children in this study who were only children, 28 were boys and 18 were girls. Of course, another factor which may be responsible for the sex differential favoring boys among only children is that the sex ratio for first-born favors males. Griffith and Mitchell (113) report that Little found a ratio of males to females of 115.5 $\pm$1.5 for the first born. This ratio is somewhat diminished by a larger death rate among boys during

TABLE XXI

CLASS MEANS IN THE NUMBER OF CHILDREN PER FAMILY

Class	Boys	Girls	Mean	Rank
Pleasant Ridge	2.3	3.0	2.7	5
Avondale				
A Group	1.8	2.2	2.0	7
B/ Group	2.1	2.6	2.4	6
B Group	3.0	3.1	3.0	3
B- Group	2.7	3.0	2.8	4
C/ Group	3.0	3.1	3.1	2
C Group	2.7	3.6	3.2	1
Mean	2.5	2.9	2.7	

TABLE XXII

CLASS MEANS IN THE NUMBER OF ONLY CHILDREN PER CLASS

Class	Only Children		
	Boys	Girls	Total
Pleasant Ridge	8	4	12
Avondale			
A Group	7	4	11
B+ Group	5	4	9
B Group	3	1	4
B- Group	1	3	4
C+ Group	3	2	5
C Group	1	0	1
Total	28	18	46

TABLE XXIII

CLASS MEANS IN AMOUNT OF SLEEP TAKEN PER NIGHT

Class	Boys Hrs. Min.	Girls Hrs. Min.	Mean Hrs. Min.
Avondale			
A Group	10-14	10-30	10-22
B+ Group	10-38	10-15	10-27
B Group	10-18	10-40	10-29
B- Group	10-23	10-15	10-19
Mean	10-23	10-25	10-24

the first year of life. Bakwin, as reported by Griffith and Mitchell, gives a mortality rate of 8 per cent for males and 6 per cent for females. Taking this mortality rate into consideration there would still be a larger number of male first-born children, but the difference in the number of first-born children favoring the male is not large enough to account for the ratio of 155:100 found in the present study, for boys who were only children.

Group comparisons show that the upper groups are made up of children who come from smaller families. The only exception is that the B group children belong to slightly larger families than the B- group. One should not conclude that size of family alone has an indirect effect on school achievement, for other factors which are related to the size of families today, such as the negative relation of intelligence and of economic status, to size of family, may be the cause.

The Average Hours of Sleep.- It seems that the amount of rest a child gets might be related to school achievement. Table XXIII (page 133) gives the average amount of sleep per night for the four upper classes of the Avondale School. The average amount of sleep for the four classes was 10 hours and 24 minutes. The difference between the boys and girls is negligible. There is very little difference between classes, the range being 10 minutes

between the lowest and highest class averages.

Scores on the Racial Attitudes Indicator.- A comparison of the classes in race tolerance, as found on the racial attitudes indicator, shows that there is not much relationship between school achievement and racial tolerance.

Since people are often afraid of the unknown, there is some tendency for those who don't know anything about certain races to have a greater feeling of social distance towards them. The correlation of the number of "Don't Knows" with scores on the Racial Attitudes Indicator, for the 285 subjects, was $-.189 \pm .037$. It is believed that specific and continuous training would be of some help in creating more favorable racial attitudes, but training from early childhood should prove the most effective.

Summary of Findings

A comparison of one sixth grade class from the Pleasant Ridge School and six sixth grade classes from the Avondale School, grouped according to intelligence and school achievement, shows that the average chronological age was 11 years 8 months, as of February first 1935, when the Otis Group Intelligence Scale, Advanced Examination: Form B was given and almost 12 years when all the other tests were administered. The difference in age between the upper and lower groups was three months. There was a direct

TABLE XXIV

CLASS MEANS IN TOLERANCE AS EXPRESSED BY SCORES ON THE RACIAL ATTITUDES INDICATOR

	Tolerance Score			
Class	Boys	Girls	Mean	Rank
Pleasant Ridge	136	132	134	3
Avondale				
A Group	109	101	105	5
B/ Group	147	115	131	4
B Group	129	141	135	2
B- Group	159	141	150	1
C/ Group	68	84	76	7
C Group	98	83	91	6
Mean	121	114	118	

TABLE XXV

CLASS MEANS IN THE NUMBER OF RACES THE CHILDREN CLAIM THEY DON'T KNOW

Class	No. of Don't Knows		
	Boys	Girls	Mean
Pleasant Ridge	3.0	5.0	4.0
Avondale			
A Group	4.4	4.0	4.2
B+ Group	5.0	6.0	5.5
B Group	7.0	5.0	6.0
B- Group	5.0	3.4	4.2
C+ Group	3.6	4.5	4.0
C Group	9.0	4.5	6.8
Mean	5.3	4.6	5.0

relationship between mental age and class status. The average mental age in February, 1935 was 14 years.

Results from tests on emotional factors and personality characteristics indicate that, according to the Woodworth-Cady Questionnaire, there seems to be little relationship between class status and psychoneurotic tendencies. Scores on the Emotionality Test show no significant class and sex differences. Little variability among the classes is found on the Emotional Instability Test except for a slight tendency for the upper groups to score somewhat higher in the number of dislikes, and for the girls to be more easily annoyed than the boys. It was also found that class status based on school achievement is not related to class averages in introversion. There is little class difference in inconsistency except that the lower classes are somewhat more inconsistent. In pessimism the upper groups show somewhat more pessimistic attitudes. There is only a slight difference between the upper and lower groups in the feeling of inferiority.

Materials on educational factors reveal consistently diminishing averages from the highest to the lowest degree in scholarship and in reading scores. Scores on a specially devised problem test show a tendency for the upper classes to attain higher marks but this superiority is not maintained in every case.

Social factors, based on Sims Score Card and the Barr Scale for Occupational Status, indicate a very high average rating for all classes. The Barr ratings follow the ranking of the classes, in achievement, more closely than scores on the Sims test do. In a comparison of family size, it is found that the upper groups belong to smaller families.

Implication of the Evidence on Ability Grouping in Reference to Growth in Non-intellectual Traits

Possible Explanations of Data.- The evidence found in a comparison of ability groups suggest that children of superior intellectual ability are superior in academic work but have not developed in emotional and personality traits more than children of lower mental status. Several possible explanations of these results may be given. First, it may be that intellectual and non-intellectual traits are completely unrelated; second, it is possible that favorable traits tend to go together; third, training and need for adjustment may lead individulas to compensate by greater development of non-intellectual traits.

Evidence Supporting Theory of Positive Correlation of Favorable Traits.- Evidence to support the belief that favorable traits tend to go together will be found in Spearman's theory of general intelligence, in Thorndike's belief that favorable traits tend to go together and in

Terman's study of gifted children.

The Factor of Compensation.- Assuming then that there is a tendency for a positive relationship between favorable traits and finding few significant differences in emotional and personality traits between the ability groups of the present study, one is led to believe that this is caused by the school and home tasks required of the children, as these are dependent upon both intellectual and non-intellectual traits. It may be that the tasks required of children cause those in the lower groups to exert themselves more in order to compensate for their inferior intellectual ability while those with superior intellectual ability find it so easy to adjust that they have little opportunity to develop emotional control, patience, and other character qualities. Symonds says (52:321-22):

> In school work there is good reason to believe that persistence, or sticking to a task, is one of the main factors that helps to supplement or compensate for ability. There is also good evidence that some bright children tend to let go of a task too quickly when they have done enough to excel and to win the praise of the teacher and the approbation of fellow-pupils.

If this assumption is correct then the present method of ability grouping tends to retard the mentally superior children in personality and emotional development, since they vary little from the children of the lower groups in these traits, as measured by the tests used in this study,

although those of the higher groups should be superior in these traits.

Weakness of Present System.- What is more, the present system does not permit children of superior mental ability to grow in educational achievement in accordance with their capacities. Terman (41) found many of his gifted children retarded educationally in comparison with their mental possibilities. The fault lies partly with the present method of grouping children and partly with the course of study. Few courses of study make very wide differentiations between the tasks required of children of different abilities but in the same grade. The skillful teacher, if she is permitted to do so, may partly solve the problem by enriching the curriculum for the superior child. In practice, however, this is not done very extensively.

If children would be given tasks equal with their mental ability, the result would be success for those whose patience and emotional control were at the stage of development that enabled them to proceed with the tasks and failure for those whose personality and emotional qualities were not sufficiently developed. The same is true of slow groups. Children in slow groups who are slow in mentality and weak in personality and emotional development fail while those who are superior in one or the other have a greater chance at success. An examination of the intelligence scores

of subjects used in the present study reveals much variability in intelligence with several superior children in the lowest group. These children were originally placed in higher groups, on the basis of their mental capacity, but were shifted to the lower groups on the basis of their achievement.

It seems that the present method of grouping is not conducive to the development of the highest educational potentialities and emotional and personality growth of the children.

Suggestions for a Basis of Grouping Children

Since the intellectual and non-intellectual factors must both be considered in a plan for grouping children, it is better to group according to emotional and personality levels and arrange the educational tasks according to the individual differences in mentality. The advantages will be three-fold. It will show parents and teachers the need for more specific and definite education for emotional maturity and personality development; it will make the child himself conscious of such aims and cause him to work for self-improvement; and it will be in keeping with the requirements of the outside world where certain minimum levels of emotional maturity and personality are needed by

all who have to work together in a cooperative society although the intellectual requirements of their tasks may be different.

It is suggested then, that children be grouped according to their emotional and social maturity and opportunity be provided within the group for differences in ability, so that each child can work at problems requiring his best effort and fitting in with his intellectual capacity.

Activity Program Suggested.- That the activity program, as advocated by the progressive school, gives opportunity for the growth of the whole child, may be the answer to the grouping problem in its relation to the development of emotions and personality in children, as these factors are related to learning. This would mean that children learn to work together at tasks requiring cooperation, patience, and emotional control of all, and allowing for differences in intellectual ability to fit the various phases of the task at hand. Additional evidence to support the advisability of such a program will be found in studies by Keliher (169) and by Schmidt (173).

Summary of Chapter

The data showing differences in intelligence and achievement and little difference in personality and

emotional traits, of ability groups, suggest the importance of emotional and personality development to school success. Terman's (41) study with gifted children, and the researches of the Character Education Inquiry (113 and 114) and theoretical discussions, suggest that favorable traits tend to go together. Interpretation of the data of the present study suggests the importance of intelligence, emotional, and personality development to school success. In an effort to adjust to his educational environment the child may compensate by developing his non-intellectual traits when his mental ability is not high enough to enable him to solve his problems with ease. The result is that the child who is mentally superior may have little opportunity for developing non-intellectual traits because his tasks entail few difficulties. It is suggested that grouping, based on emotional and personality traits and instruction based on an activity program, be used in order to aid the child to develop according to his mental, personality, and emotional potentialities.

Limitation of Evidence

It is felt that the evidence is limited to the data here presented and to previous findings reported in the literature. Since an approach to the relation of emotional and personality factors to learning, by a comparative study of those characteristics in ability groups, shows a

difference in mental ability and scholarship and little difference between groups in emotional and personality traits, another approach to the problem which may shed further light might be through a comparative study of mental ability and emotional and personality traits of groups classified on the basis of some specific emotional trait, such as patience to work at a difficult task. That method was used and will be reported in Chapter VI. Another approach to the problem by the use of the intercorrelation of the various tests of emotional and personality traits and scholarship will be reported in the next chapter.

CHAPTER V

INTERCORRELATION OF TEST SCORES AND THEIR SIGNIFICANCE

The Purpose of This Chapter.- In the previous chapter an attempt was made to study the relation of emotions to learning by comparing ability groups in emotional and personality traits. The purpose of this chapter is to determine the intercorrelations of scores in intelligence, emotional and personality traits, educational achievement, and social background. This approach may give some idea of the extent to which emotions are related to learning. It may also give some indication concerning the degree to which the different traits, measured by the tests used, are related or independent.

The Procedure.- The procedure will consist of a detailed analysis of the findings and a discussion of their significance. A comparison will be made of the data with the results obtained through similar studies. This will be followed by a discussion concerning the value of the correlation technique in the study of personality and emotional traits.

The Correlation Coefficients

General Trends.- Table XXVI gives the complete intercorrelations of all the factors used in this study. In most of the correlations the number of cases was 285. The coefficients vary in size but the trend is toward low correlations.[1] In general, the tendency is for psychoneurotic qualities to be associated with introversion, inconsistency, pessimism, and inferiority feeling, and to be negatively associated with time spent on the T puzzle and emotionality. Mental age shows little correlation with personality factors. School success is positively related to time spent on the T puzzle.

Mental Age.- Table XXVII gives the correlations of the various factors with mental age, scores on the Woodworth-Cady Questionnaire, and teachers' ranking in emotionality and emotional instability. Mental age seems to be slightly correlated with teachers' ranking in emotionality, superiority feeling, time spent on the T puzzle, tolerance towards other races, and emotional instability as expressed by the number of things disliked. It is practically not at all related to scores on the Woodworth-Cady Questionnaire, teachers' ranking in emotional instability, introversion, pessimism, and the average hours of sleep the child takes. A slight negative correlation is found between mental age

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[1] In many cases where certain tendencies are noted in the present study the coefficient of correlation is so small that the tendency might be in the opposite direction with other subjects.

TABLE XXVI

INTERCORRELATIONS OF TEST SCORES AND OTHER FACTORS

	1. Mental Age	2. Woodworth Cady	3. Tr's. Ranking Emotional Instability	4. Tr's. Ranking Emotionality	5. Introversion	6. Inconsistency	7. Pessimism	8. Superiority Feeling	9. Teacher's Marks-	10. Monroe Reading	11. Time - T Puzzle	12. Sim's Score Card	13. Children in Family	14. Hours of Sleep	15. Racial Tolerance	16. Emotionality Test B and G		17. Emotional Instability Test B and G	
																B	G	B	G
1.		+.06	-.03	+.15	+.02	-.12	+.04	+.11	+.59	+.39	+.14	+.27	-.18	+.01	+.10	-.14	-.21	+.17	+.09
2.			+.09	-.05	+.54	+.26	+.08	-.16	+.03	+.20	-.24	-.07	+.09	-.08	+.05	-.15	-.21	+.19	-.08
3.				-.42	-.08	+.09	+.05	-.08	-.19	-.14	-.02	+.05	-.03	+.02	-.02	-.04	-.04	+.02	-.07
4.					+.03	-.07	-.08	+.08	+.26	+.16	-.11	+.11	+.01	+.12	+.01	-.06	+.15	+.04	+.02
5.						+.25	+.11	-.26	+.05	+.16	-.14	-.21	+.08	-.05	-.15	-.10	-.23	+.07	+.04
6.							+.08	-.16	-.14	+.06	-.28	-.18	+.09	-.14	+.01	-.12	+.02	+.06	-.14
7.								-.06	+.06	-.01	-.14	-.14	-.02	-.12	-.03	-.09	-.01	+.08	+.05
8.									+.19	-.15	-.03	+.11	-.05	+.13	+.05	+.09	+.15	+.07	+.13
9.										+.22	+.27	+.30	-.13	+.04	+.12	-.09	-.14	+.05	+.06
10.											+.16	-.14	+.05	-.07	+.04	+.06	-.13	-.07	-.06
11.												+.08	-.07	+.08	-.12	+.13	-.06	-.15	+.05
12.													-.28	+.11	+.14	-.05	+.04	+.13	+.10
13.														-.01	-.09	+.04	+.03	-.03	-.02
14.															+.07	-.03	+.12	-.27	+.08
15.																+.13	+.08	-.04	-.19
16.																		-.09	-.14

TABLE XXVII

CORRELATION COEFFICIENTS OF TEST SCORES
OF TRAITS ONE TO FOUR

	Mental Age		Woodworth-Cady		Teachers' Ranking Emotional Instability		Teachers' Ranking Emotionality	
	1.	PE r	2.	PE r	3.	PE r	4.	PE r
1. Mental Age	----	---	∕.06	.04	-.03	.04	∕.15	.04
2. Woodworth-Cady Questionnaire	∕.06	.04	----	---	∕.09	.04	-.05	.04
3. Tr's. Ranking Emo. Instab.	-.03	.04	∕.09	.04	----	---	-.42	.04
4. Tr's. Ranking Emotionality	∕.15	.04	-.05	.04	-.42	.04	----	---
5. Introversion	∕.02	.04	-.54	.03	-.08	.04	∕.03	.04
6. Inconsistency	-.12	.04	∕.26	.03	∕.09	.04	-.07	.04
7. Pessimism	∕.04	.04	∕.08	.04	∕.05	.04	-.08	.04
8. Superiority Feeling	∕.11	.04	-.16	.04	-.08	.04	∕.08	.04
9. Teachers' Marks	∕.59	.03	∕.03	.04	-.19	.04	∕.26	.03
10. Monroe Reading	∕.39	.04	∕.20	.05	-.14	.05	∕.16	.05
11. Time on T Puzzle	∕.14	.07	-.24	.06	-.02	.07	-.11	.07
12. Sims Score Card	∕.27	.03	-.07	.04	∕.05	.04	∕.11	.04
13. Children in Family	-.18	.03	∕.09	.04	-.03	.04	∕.01	.04
14. Hours of Sleep	∕.01	.05	-.08	.05	∕.02	.05	∕.12	.05
15. Racial Tolerance	∕.10	.04	∕.05	.04	-.02	.02	∕.02	.04
16. Emo. Test B	-.14	.05	-.15	.05	-.04	.05	∕.02	.05
G	-.21	.05	-.21	.05	-.04	.05	-.07	.05
17. Emo. Instab. Test B.	∕.17	.05	∕.19	.05	∕.02	.05	∕.04	.05
G.	∕.09	.05	-.08	.05	-.07	.05	∕.02	.05

and inconsistency, number of children in the family, and emotionality. Higher positive correlations are found with mental age and scholarship (.59), with reading ability (.39), and socio-economic status (.27). It is interesting to note these higher correlations and also the positive though very slight correlation with emotional instability. The negative relation with emotionality indicates a greater tendency for those of lower intelligence to develop interests outside of the academic, abstract fields represented by school work and reading. This seems a sensible adjustment.

Woodworth-Cady Questionnaire.- The Woodworth-Cady Questionnaire is only slightly related to teachers' ranking in emotional instability, to pessimism, and to the number of children in the family. It is practically not at all related to teachers' ranking in emotionality, scholarship, socio-economic status, amount of sleep, and tolerance towards other races. Negative correlations are found with superiority feeling (-.16) emotionality (-.21 for boys and -.15 for girls), and amount of time spent on T puzzle (-.24). The highest positive correlations were found with introversion (.54), with inconsistency (.26), and reading comprehension (.20). These findings suggest the introverted tendencies of psychoneurotic twelve year old children, their instability as found in inconsistent reactions towards questions on an introversion test, their habit of giving up quickly on a

problem involving a novel yet difficult situation, their limited likes and many dislikes, and the desire to get off by themselves and read, to be in a world of imagination rather than one of reality.

Teachers' Ranking in Emotional Instability.- Although the teachers were given a definition of emotional instability, the correlations of their rankings with other factors were insignificant in most cases. Negative correlations of -.42 with teachers' ranking in emotionality, -.19 with scholarship, and -.14 with reading, were found. This evidence seems to suggest that the teachers' judgments of a child's stability is related to his school achievement and that emotionality is the opposite of emotional instability.

Teachers' Ranking in Emotionality.- The teachers' ranking in emotionality showed no relationship with scores on the Woodworth-Cady Questionnaire, introversion, number of children in the family, tolerance towards other races, and scores on the emotional instability test. Very slight positive correlations were found with superiority feeling, socio-economic status, and average hours of sleep. Somewhat higher positive correlations are with mental age, (.15), Monroe reading test score, (.16) and the girls' score on the emotionality test (.15). Slight negative correlations are shown with inconsistency, pessimism, and time spent on

T puzzle; the highest negative correlation (-.42), was with teachers' ranking in emotional instability. Higher positive correlations were found with scholarship (.26) and reading ability (.16). Here again the greatest considerations were given to absence of emotional instability, scholarship, and reading. It appears that teachers tend to measure children's emotionality by their interest and achievement in school work.

Introversion.- Table XXVIII gives the correlation coefficients for all the factors with introversion, inconsistency, pessimism, and superiority feeling. Introversion is not related to mental age, school marks, and scores on the emotional instability test. Higher correlations are .54 with Woodworth-Cady Questionnaire, .25 with inconsistency, and .16 with reading ability. Negative correlations were obtained with superiority feeling (-.26), economic status (-.21), tolerance towards other races (-.15), time spent on the T puzzle (-.14), and scores on the emotionality test (-.10 for boys and -.23 for girls). In general, introversion tends to be related to psychoneurotic tendencies, inconsistency, and low economic status.

Inconsistency.- Inconsistency is related to Woodworth-Cady scores (.26), to introversion (.25), and slightly to the number of children in the family (.09).

TABLE XXVIII

CORRELATION COEFFICIENTS OF TEST SCORES
OF TRAITS FIVE TO EIGHT

	Introversion 5.	PE	r	Inconsistency 6.	PE	r	Pessimism 7.	PE	r	Superiority Feeling 8.	PE	r
1. Mental Age	∠.02	.04		-.12	.04		∠.04	.04		∠.11	.04	
2. Woodworth-Cady Questionnaire	∠.54	.03		∠.26	.03		∠.08	.04		-.16	.04	
3. Trs.' Ranking Emo. Instab.	-.08	.04		∠.09	.04		∠.05	.04		-.08	.04	
4. Trs.' Ranking Emotionality	∠.03	.04		-.07	.04		-.08	.04		∠.08	.04	
5. Introversion	----	---		∠.25	.03		∠.11	.04		-.26	.03	
6. Inconsistency	∠.25	.03		----	---		∠.08	.04		-.16	.04	
7. Pessimism	∠.11	.04		∠.08	.04		----	---		-.06	.04	
8. Superiority Feeling	-.26	.03		-.16	.04		-.06	.04		----	---	
9. Teachers' Marks	∠.05	.03		-.14	.04		∠.06	.04		∠.19	.04	
10. Monroe Reading	∠.16	.04		∠.16	.05		-.01	.05		-.15	.05	
11. Time on T Puzzle	-.14	.07		-.28	.06		-.14	.07		-.03	.07	
12. Sims Score Card	-.21	.03		-.18	.03		∠.14	.04		∠.11	.04	
13. Children in Family	∠.08	.04		∠.09	.04		-.02	.04		∠.05	.04	
14. Hours of Sleep	-.05	.05		-.14	.05		-.12	.05		∠.13	.05	
15. Racial Tolerance	-.15	.05		∠.01	.04		-.03	.04		∠.05	.04	
16. Emo. Test B.	-.10	.05		-.12	.05		-.09	.05		∠.09	.05	
G.	-.23	.05		∠.02	.05		-.01	.05		∠.15	.05	
17. Emo. Instab. Test B.	∠.07	.05		∠.06	.05		∠.08	.05		∠.07	.05	
G.	∠.04	.05		-.14	.05		∠.05	.05		∠.13	.05	

It is negatively correlated with mental age (-.12), superiority feeling (-.16), scholarship (-.14), time spent on the T puzzle (-.28), Sims Score Card (-.18), amount of sleep taken (-.14), emotionality test for the boys (-.12), and emotional instability test for the girls (-.14). It is interesting to note that disagreement in answers to similar forms of a test which are taken as indications of the test's unreliability may also be taken as indexes of the unreliability or inconsistency of the children, since the scores in inconsistency represent the number of disagreements made by the subjects on the two forms of the introversion-extroversion test.

Pessimism.- Pessimism is slightly related to economic status. It is negatively related to time spent on the T puzzle and to hours of sleep.

Superiority Feeling.- A positive relationship is found between superiority feeling and teachers' marks (.19), Sims Score Card (.11), number of hours of sleep (.13) and scores on the emotionality test (boys .09 and girls .15). It is negatively correlated with Woodworth-Cady scores (-.16), reading (-.15) and inconsistency (-.16).

Teachers' Marks.- Table XXIX gives the correlations of teachers' marks, Monroe reading, Time Spent on T Puzzle, and Sims Score Card with all the factors studied. Scholarship as shown by teachers' report marks, is

TABLE XXIX

CORRELATION COEFFICIENTS OF TEST SCORES
OF TRAITS NINE TO TWELVE

	Teachers' Marks 9.		Monroe Reading 10.		Time T Puzzle 11.		Sims Score Card 12.	
	PE	r	PE	r	PE	r	PE	r
1. Mental Age	±.59	.03	±.39	.04	±.14	.07	±.27	.03
2. Woodworth-Cady Questionnaire	±.03	.04	±.20	.05	-.24	.06	-.07	.04
3. Trs.' Ranking Emo. Instab.	-.19	.04	-.14	.05	-.02	.07	±.05	.04
4. Trs.' Ranking Emotionality	±.26	.03	±.16	.05	-.11	.07	±.11	.04
5. Introversion	±.05	.04	±.16	.04	-.14	.07	-.21	.03
6. Inconsistency	-.14	.04	±.06	.05	-.28	.06	-.18	.03
7. Pessimism	±.06	.04	-.01	.05	-.14	.07	±.14	.04
8. Superiority Feeling	±.19	.04	-.15	.05	-.03	.07	±.11	.04
9. Teachers' Marks	----	---	±.22	.05	±.27	.06	±.30	.03
10. Monroe Reading	±.22	.05	----	---	±.16	.09	-.14	.05
11. Time on T Puzzle	±.27	.06	±.16	.05	----	---	±.08	.08
12. Sims Score Card	±.30	.03	-.14	.05	±.08	.08	----	---
13. Children in Family	-.13	.04	±.09	.05	-.07	.07	-.28	.03
14. Hours of Sleep	±.04	.05	-.07	.05	±.08	.09	±.11	.05
15. Racial Tolerance	±.12	.04	±.04	.05	-.12	.07	±.14	.04
16. Emo. Test B.	-.09	.05	±.06	.07	±.13	.10	-.05	.05
G.	-.14	.05	-.13	.07	-.06	.13	±.04	.05
17. Emo. Instab. Test B.	±.05	.05	-.07	.07	-.15	.10	±.13	.05
G.	±.06	.05	-.06	.07	±.05	.11	±.10	.05

positively related with mental age (.59), teachers' ranking in emotionality (.26), superiority feeling (.19), reading (.22), time spent on the T puzzle (.27), socio-economic status (.30) and racial tolerance (.12). Negative correlations are -.19 with teachers' ranking in emotional instability, -.14 with inconsistency, -.13 with the number of children in the family, and -.09 for boys and -.14 for girls in scores on the test in emotionality.

Reading Ability.- Correlation of reading with personality factors is of special interest since it gives those who find reality unpleasant an opportunity to live in an imaginative world of books. Reading is positively correlated with mental age (.39), Woodworth-Cady scores (.20), teachers' ranking in emotionality (.16), introversion (.16), scholarship (.22), and time spent on the T puzzle (.16). It is negatively correlated with teachers' ranking in emotional instability (-.14), superiority feeling (-.15), socio-economic status, (-.14), and the girls' score in emotionality (-.13).

Time Spent on T Puzzle.- The purpose of this test was to see how long a child would stick to a difficult task before giving up. This characteristic is positively related to mental age (.14), to reading ability (.16), and scholarship (.27), indicating a relationship between the ability to stay with a problem and school success. The

negative correlations of -.24 with Woodworth-Cady scores, -.14 with introversion, -.28 with inconsistency, -.14 with pessimism, and -.15 with emotional instability test scores for boys suggest the importance of stability and self-confidence to success in problem solving.

Sims Score Card.- A positive relationship exists between socio-economic status and mental age (.27), pessimism (.14), superiority feeling (.11), scholarship (.30), and racial tolerance (.12). The figures suggest the importance of economic status to scholarship. Negative correlations are -.28 for the number of children in the family, -.21 for introversion, -.18 for inconsistency, -.14 for reading, and -.13 for the girls' test scores in emotionality.

Number of Children in Family.- Table XXX gives the correlations of the number of children in the family, the hours of sleep, and the racial tolerance with all the other factors studied. The importance of family size has received some attention in the literature. The present study shows negative correlations of -.28 with Sims Score Card, -.18 with mental age, and -.13 with scholarship. The other correlations are not significant.

Average Hours of Sleep.- There seems to be a

TABLE XXX

CORRELATION COEFFICIENTS OF TEST SCORES
OF TRAITS THIRTEEN TO FIFTEEN

	Children in Family		Hours of Sleep		Racial Tolerance	
	13.	PE r	14.	PE r	15.	PE r
1. Mental Age	-.18	.03	∠.01	.05	∠.10	.04
2. Woodworth-Cady Questionnaire	∠.09	.04	-.08	.05	∠.05	.04
3. Trs.' Ranking Emo. Instab.	-.03	.04	∠.02	.05	-.02	.02
4. Trs.' Ranking Emotionality	∠.01	.04	∠.12	.05	∠.01	.04
5. Introversion	∠.08	.04	-.05	.05	-.15	.05
6. Inconsistency	∠.09	.04	-.14	.05	∠.01	.04
7. Pessimism	-.02	.04	-.12	.05	-.03	.04
8. Superiority Feeling	-.05	.04	∠.13	.05	∠.05	.04
9. Teachers' Marks	-.13	.04	∠.04	.05	∠.15	.04
10. Monroe Reading	∠.05	.05	-.07	.05	∠.04	.05
11. Time on T Puzzle	-.07	.08	∠.08	.09	-.12	.07
12. Sims Score Card	-.28	.03	∠.11	.05	∠.14	.04
13. Children in Family	----	---	-.01	.05	-.09	.04
14. Hours of Sleep	-.01	.05	-----	---	∠.07	.05
15. Racial Tolerance	-.09	.04	∠.07	.05	----	---
16. Emotionality Test B	∠.04	.05	-.03	.07	∠.13	.05
G	∠.03	.05	∠.12	.07	∠.08	.05
17. Emotional Instability Test B	-.03	.05	-.27	.06	-.04	.05
G	-.02	.05	∠.08	.07	-.19	.05

slight tendency for the greater amount of sleep to be negatively associated with inconsistency (-.14), pessimism (-.12), and boys scores in emotional instability (-.27). Amount of sleep shows slight positive correlations with teachers' ranking in emotionality (.12), girls' scores in emotionality test, and superiority feeling (.13).

Racial Tolerance.- Favorable attitudes towards other races is practically not at all related to intelligence (.10), shows a slight positive correlation with socio-economic status (.14), and boys' scores on the emotionality test (.13). It is negatively correlated with introversion (-.15), time spent on the T puzzle (-.12), and girls' score on the emotional instability test (-.19).

Test on Emotionality.- The tests in emotionality and emotional instability for boys were different from those for girls therefore two correlations are given for these tests. No relationship is found between emotionality and teachers' ranking in emotional instability, Sims Score Card, and the number of children in the family. There are slight positive relations with teachers' ranking in emotionality for girls, superiority feeling, time spent on the T puzzle, by the boys, amount of sleep taken by the girls and racial tolerance of the boys. Negative correlations were found with mental age (boys -.14, girls -.21), with Woodworth-Cady scores (-.15 boys, -.21 girls), and with introversion (-.10

TABLE XXXI

CORRELATION COEFFICIENTS OF TEST SCORES
OF TRAITS SIXTEEN AND SEVENTEEN

	Emotionality Test				Emotional Instability Test			
	16.	PE	r		17.	PE	r	
	Boys				Boys			
	Girls				Girls			
1. Mental Age	-.14	.05	-.21	.05	∠.17	.05	∠.09	.05
2. Woodworth-Cady Questionnaire	-.15	.05	-.21	.05	∠.19	.05	-.08	.05
3. Trs.' Ranking Emo. Instab.	-.04	.05	-.04	.05	∠.02	.05	-.07	.05
4. Trs.' Ranking Emotionality	-.06	.05	∠.15	.05	∠.04	.05	∠.02	.05
5. Introversion	-.10	.05	-.23	.05	∠.07	.05	∠.04	.05
6. Inconsistency	-.12	.05	∠.02	.05	∠.06	.05	-.14	.05
7. Pessimism	-.09	.05	-.01	.05	∠.08	.05	∠.05	.05
8. Superiority Feeling	∠.09	.05	∠.15	.05	∠.07	.05	∠.13	.05
9. Teachers' Marks	-.09	.05	-.14	.05	∠.05	.05	∠.06	.05
10. Monroe Reading	∠.06	.07	-.13	.07	-.07	.07	-.06	.07
11. Time on T Puzzle	∠.13	.10	-.06	.13	-.15	.10	∠.05	.11
12. Sims Score Card	-.05	.05	∠.04	.05	∠.13	.05	∠.10	.05
13. Children in Family	∠.04	.05	∠.03	.05	-.03	.05	-.02	.05
14. Hours of Sleep	-.03	.07	∠.12	.07	-.27	.06	∠.08	.07
15. Racial Tolerance	∠.13	.05	∠.08	.05	-.04	.05	-.19	.05
16. Emo. Test	----	---	----	---	-.09	.05	-.14	.05
17. Emo. Instab. Test	-.09	.05	-.14	.05	----	---	----	---

boys and -.23 girls). The results indicate a tendency for those liking many things to be somewhat lower in mental age, in psychoneurotic tendencies as expressed by the Woodworth-Cady Questionnaire, to be more extroverted and consistent, to be poorer in school work, and more tolerant to other racial groups. (Table XXXI, page 160)

Correlation of Emotionality Test With Emotional Instability Test.- The slight correlations between scores on the Emotionality Test and scores on the Emotional Instability Test of -.09 for the boys and -.14 for the girls, point to the independent nature of these factors. They suggest that four possible relationships may exist. Extreme likes may in some cases not be associated with extreme dislikes. That is, a child may be annoyed by many things and pleased by very few. Or he may be annoyed by many things and pleased by many, or annoyed by few things and pleased by few. Interest, then, may or may not be related to emotional instability.

The Emotional Instability Test.- Correlations with this test show a slight relationship with mental age (boys .17 girls .09), with Woodworth-Cady Questionnaire for the boys, (.19) and negative correlations with inconsistency for the girls (-.14) time spent on the T puzzle for the boys (-.15), average amount of sleep taken by the boys (-.27),

and racial tolerance of the girls (-.19). There is only a slight negative correlation between scores on the Emotional Instability Test and scores on the Emotionality Test.

Summary.- Table XXVI (page 148) shows low intercorrelations. In general, the tendency is for psychoneurotic qualities to be associated with introversion, inconsistency, pessimism, and inferiority feeling, and to be negatively associated with time spent on the T puzzle and emotionality. Mental age shows little correlation with personality factors. School success is not at all related to Woodworth-Cady scores (.03) but is related to time spent on the T puzzle (.27), indicating that by training children to stick to a task more persistently it may be possible to help them succeed in school.

Significance of Data

Low Correlations Found in Similar Studies.- A survey of the literature shows few high correlations between various personality and character tests and between different measures of the same trait.[1]

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1. Trow (157) finds no relationship between his different tests of confidence. He says, "The range of each subject's confidence was so great in the different situations that any one test is necessarily fictitious as an indicator of any general quality or trait of confidence." (157:41) His conclusion is that "any single test, judgment

The low correlations may be explained by the complex make up of the personality and emotional nature of the individual. However, too much stress has been placed on the importance of high correlations and not enough effort has been made to interpret the significance of low correlations. After a very comprehensive survey of the literature on personality and conduct Symonds (152:559) states:

> The author's review of diagnostic techniques convinces him of the value of small correlations. In the early stages of educational research students were looking for the big, obvious relationships between phenomena, and relationships represented by coefficients of correlation as low as .10 or .20 were considered negligible, unworthy of attention....There is a need now for the patient investigation of relationships of low degree carried out on sufficiently large numbers and with accurate enough measures to insure that the relationships are reliably determined. These low relationships are now sensed to be of particular importance in diagnosing conduct.

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or reaction, or even a handful of them, is futile as a measure. It is conceivable that the same is true of the other so-called character traits." (157:41)

Hartshorne and May (112) found very low correlations of moral knowledge with moral conduct. They even found low intercorrelations of different measures of the same trait, as illustrated by their figures for nine types of deceptive behavior. They conclude that a single test of deceit has little symptomatic value of deceit in general. (112)

Hartshorne and May found very low correlations between their various character tests. (113)

Brown (100) found an average correlation of .143 for the 472 correlation coefficients he obtained between different tests of suggestibility.

Hartshorne and May (113) interpret their low correlations as indexes of the specificity of conduct. In spite of the low correlation coefficients they find some general integration of the various factors tested. Symonds (152:562) says, "Most significant for the problem of the measurement of character was the finding that general integration correlates with the average of twenty-three tests .44, ... In other words, the more desirable the qualities a person has in general, the more consistent he is."

The general point of view expressed by Symonds (152), Hartshorne and May (113) (114), Trow (157), Landis, Gullette and Jacobsen (127), and others, concerning low correlations of emotional and personality traits, leads one to believe that such correlations are meaningful in pointing out both the unique nature of the quality tested and its relation to personality as a whole. In other words, the low correlations indicate that the tests used are approaches to different characteristics of the individual which, in themselves, are unique and separate, yet when considered as a part of the total personality pattern act in relation to that pattern. Attention must be given to separate traits but these should not be thought of only as such traits but should be viewed in their relationship to the Gestalt, to

the synthetic whole. After all, the major aim of those who study personality and emotional traits is to gain an understanding of the individual as an integrated personality.

Meaning of Low Correlations.- Since most studies of personality and emotions, in which the correlation technique has been used, have revealed low coefficients one must naturally come to one of the following conclusions:

1. Correlation between various personality and emotional tests must be high or the tests are neither reliable nor valid.

2. Low correlations are meaningful because they indicate the uniqueness of the traits measured.

3. Low correlations suggest the limitations and narrowness of the correlation technique for the study of such complex problems as are involved in personality make-up.

Lashley (127) editing the "Studies in The Dynamics of Behavior" of Stone, Darrow, and Landis, and influencing their interpretation, has accepted the first conclusion.[1]

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1. Landis (128) sees nothing significant in the low correlations found between intelligence, Thurstone's Personality Schedule, Heidbreder's Temperament Test, the revised Allport's Ascendancy - Submission Test, tests of humor, the Pressey X-O Test, Ball's maze learning test, Hall's suggestibility test, and psychogalvanic measurements (128:310-13) when these tests are applied to delinquent boys and girls.

He suggests that a possible explanation of the low correlations might be that "each test employed measured

Landis dismisses the entire testing approach as completely inadequate for the study of personality and emotional traits.

The second explanation, advocated by Symonds (152) and Hartshorne and May (113), is that low correlations are meaningful and show both the general relationship and the separateness of the traits measured.

The present writer feels that the first explanation sets up the correlation technique as supreme and upon its basis dismisses all the extensive work that has been done in the study of emotions and personality. Such an explanation seems neither logical nor fruitful since it discredits past investigations and gives no suggestion for future researches.

It seems that the second and third explanations suggest that low correlations show trends or tendencies but also indicate the limitations or narrowness of the

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some independent function which had little or no overlapping with the other functions so measured." (128:313)

However, he seems to give little consideration to that explanation when he finally concludes that "analytical investigations of the personality traits of emotionality or psychopathy are unsatisfactory and fail to bring out decisive evidence. The present experimental test methods are not adapted to answer either positively or negatively the questions concerning personality traits. Such answers must await the development of new methodological approaches." (128:314)

instrument in the investigation of complex problems such as are involved in personality make-up. The correlation technique may show that different tests measure different personality characteristics but it does not indicate how these are related to the personality as a whole. This analytical approach must be supplemented by a synthetic approach in order to study the whole personality.

In the next chapter, the investigation of emotions to learning will be approached through a study of the actual conduct exhibited while solving puzzles, through comparisons of groups based on the amount of patience exhibited while working on the puzzles, and through case studies.

Summary of Chapter

An approach to the study of emotions and personality characteristics to learning by the use of the intercorrelation technique reveals mostly low correlations. The general tendency, however, is for unfavorable traits to be associated together and to be negatively related to patience as shown by time spent on T puzzle. The latter factor shows positive relationship with school success.

The findings of this study are similar to other investigations of the same nature and leads one to conclude either that low correlations are meaningful in bringing out the uniqueness of the traits measured or that the

correlation technique is too limited an instrument for the measurement of the complex problems involved in emotions, personality traits, and learning.

CHAPTER VI

THE EXPERIMENTAL APPROACH THROUGH THE SOLVING OF PUZZLES

Relationship Between Survey and Experiment

Approaches Used in Survey.- The data presented up to this point deal with a rather extensive survey of emotional factors and personality traits as these are related to school learning. Two approaches were used in the survey. The first was based on school classification and the second on intercorrelation of scores dealing with emotional and personality traits and learning.

The Approach Through Ability Group Comparisons.- In the first approach, ability groups, classified according to intelligence and school achievement, are compared in non-intellectual traits. The results show only slight and insignificant group differences. The findings suggest that the slight difference in actual work required of the various groups is not in keeping with the greater differences in ability. This means that the slower children have to exert greater effort to achieve, in order to compensate for their lesser ability. Since present psychological theory indicates a tendency for favorable traits to go together the lack of difference between groups

in non-intellectual traits suggests that the method of ability grouping used is more conducive to the development of emotional and personality growth in slow children than in superior children.

The Approach Through Intercorrelations.- In the second approach the correlation technique is applied to the factors studied. Intercorrelations of the various factors yield low coefficients, in general. A tendency is found for psychoneurotic qualities to be associated together and for school success to be related to persistence but not to psychoneurotic traits. The general low correlations, in keeping with similar studies found in the literature, suggest that the tests used may measure traits that are unique, that low intercorrelations of tests designated to measure personality and emotional traits are therefore meaningful, or that the correlation technique is too narrow an instrument for the measurement of such a complex thing as personality make up.

Purpose and Problem of Present Chapter

Purpose of Present Chapter.- The findings obtained through the survey present a picture of personality and emotional factors of sixth grade children, as these are

related to school success, which should prove helpful in the interpretation of data obtained by some other method. The present chapter will report an experimental approach of a more intensive nature in the hope that it will contribute additional evidence to the understanding of children's emotional and personality traits, as these are related to learning. The patience and the emotional and rational nature of the subjects' behavior while in the actual process of solving the puzzles will be observed.

In the survey phase of this investigation the term "learning" was used to refer to school learning as measured by teachers' marks. For this chapter, however, the term "learning" is used in a narrower sense, to refer to the solution of specific problems, such as are involved in solving puzzles.

The findings of both the survey and the experiment should complement each other and help to clarify the problem of emotional and personality traits and learning in children.

The Problem.- In the introductory pages the hypothesis is presented that learning takes place in an emotional setting. The assumption is made that some relationship exists between the general emotional and personality make-up of an individual and his more specific emotional behavior in problem solving situations. The

purpose of the experiment was to note through the study of the children's actual conduct, their success in problem solving, their patience, and the emotional and rational nature of their behavior, and also to ascertain in what respects those who had the patience to work at problems a long time before giving up differed in non-intellectual traits from those who gave up in a short time.

Need for Combination of Data from Both Survey and Experiment.- In the present chapter the children are grouped according to their patience exhibited in problem solving, and the groups are compared in emotional, personality, and educational factors on the basis of the test scores obtained in the survey reported in the earlier part of this study. Special case studies are also reported, in which materials from both the survey and experiment are used.

The Procedure of This Chapter.- This chapter will present a series of six specific questions relative to the experimental work. These will be followed by descriptions of the subjects, the experiment, the puzzles used, and the experimental procedure. The data will then be analyzed in answer to the questions raised. This analysis will include a discussion of the learning involved in the solving of puzzles, a comparison of successful with

unsuccessful subjects, group comparisons in non-intellectual traits, statements from the remarks made by the children while working on the puzzles, and the complete records of some unusual and interesting cases.

Questions Relative to the Experimental Work

The specific questions to which the experimentation is directed are as follows:

1. What picture of the learning process is presented by the solving of puzzles?

2. What individual and sex differences are found in ability to solve puzzles and in patience to work at difficult puzzles?

3. Of the children who attempted to solve the T puzzle, how do those children who worked on it the longest before giving up compare in intelligence, emotional and personality traits, and educational achievement with those who gave up most quickly?

4. What is the nature of the remarks and behavior of sixth grade children expressed while solving puzzles?

5. What actual behavior do sixth grade children exhibit in a problem solving situation, as expressed by their remarks and actions while working puzzles?

6. What comparisons can be made between the children who were successful on the boot puzzle and those who failed, and between the group that worked on the T puzzle a long time and the group that gave up in a short time, in regard to nervousness?

The Subjects

The subjects for the individual experiments were one hundred sixth grade children selected at random from the six groups of the Avondale School. Fifty-four boys and forty-six girls worked on the boot puzzle. Eighty of the same subjects worked on the T puzzle. Twenty-three of them also worked on the triangle puzzle.

The Puzzles

A description of the three puzzles used in the experiment and given in the chapter on techniques will be repeated here for the convenience of the reader.

The Boot Puzzle.- The boot puzzle consists of a flat metal boot two and one half inches long and one inch wide. A number of slots are cut out of the boot. On the top there is a gate-like part that can be moved back and forth. A metal bottle whose two sides are connected by two rods of different thicknesses slips through the gate and down the slots to the bottom of the boot. The object is first to take the bottle out of the boot and then to put it back. Analysis and patience are necessary for success in most cases. Two illustrations of the boot puzzle are given in figure 2. The subject is asked to take the bottle out of the boot and then to put it back into the boot.

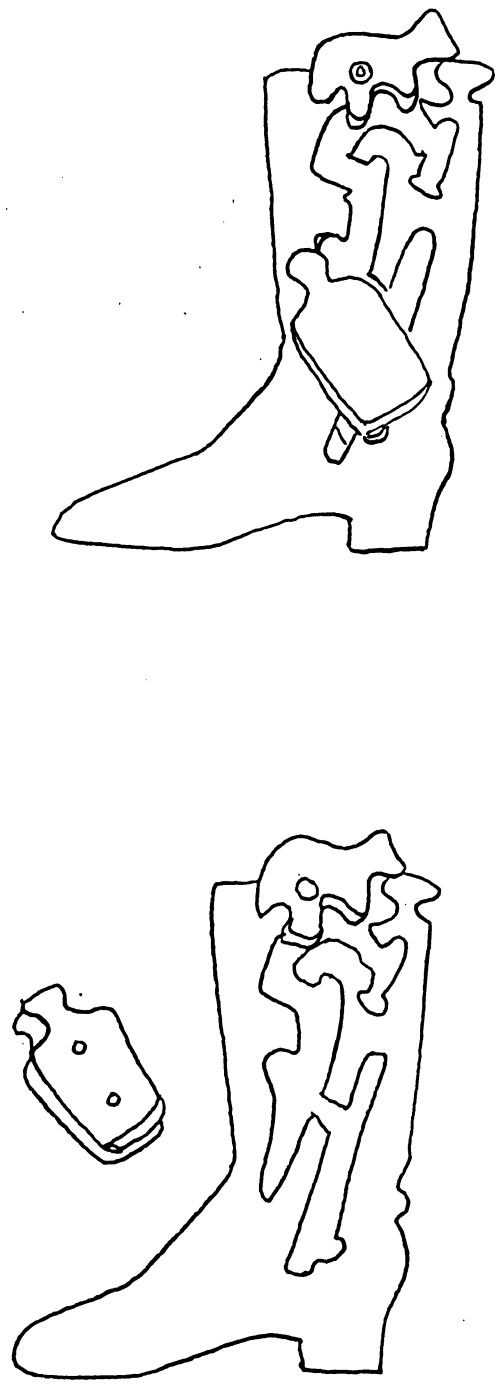


Fig.- 2.-. The Boot Puzzle

The T Puzzle.- The T puzzle is made up of four flat metal pieces which form the capital letter T when put together correctly. The subject is given the four pieces and asked to make the letter T. Figure 3 gives a picture of the T puzzle.

The Triangle Puzzle.- The triangle puzzle is made up of seven pieces which when put together enclose a triangle. The subject is told to make a triangle from the pieces. The directions are misleading because the subject believes that he is to form a solid triangle instead of enclosing one. Figure 4 shows the triangle puzzle.

Experimental Procedure

Experimental Conditions.- During the month of August, 1935, the children came to the home of the writer, who had been their teacher the previous year. Each subject worked alone in a room with the experimenter. Sometimes two children worked at the same time, but in different rooms. The investigator worked at an open window which was between the two rooms so that she could observe and communicate with both subjects. Under these conditions one child did not know what kind of puzzle the other child was working and how he was getting along.

The child was made to feel at ease by a short conversation about his vacation activities. Then the

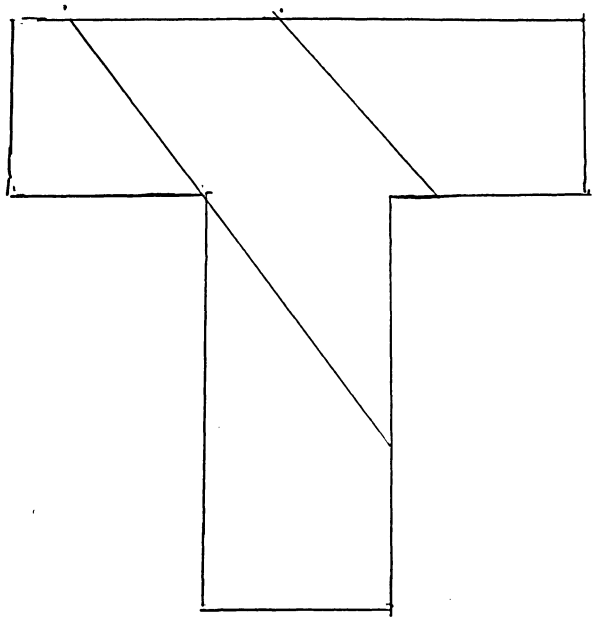


Fig. 3.- The T Puzzle

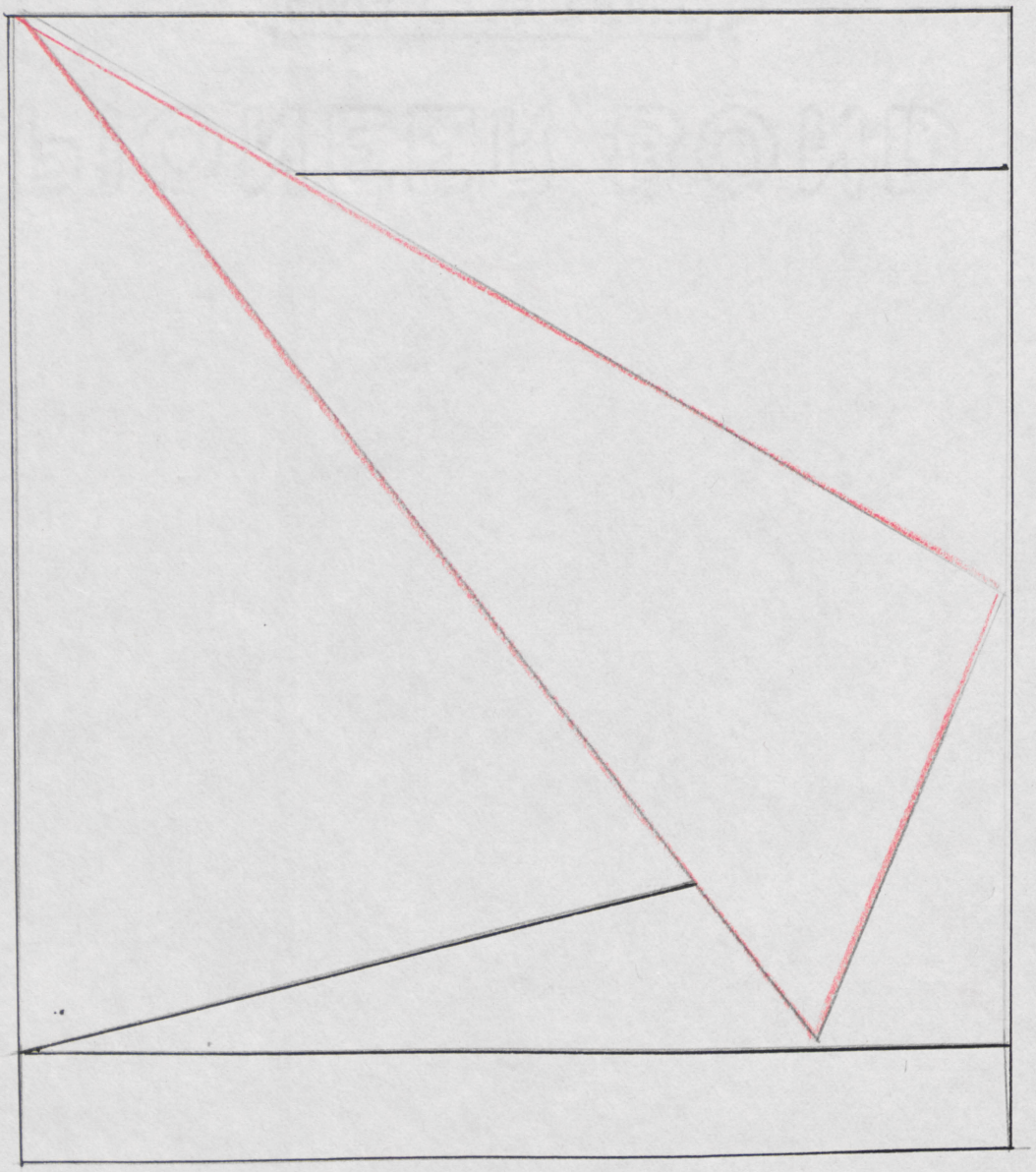


Fig. 4.- The Triangle Puzzle

investigator said, "Do you like to work puzzles? Will you try to take the bottle out of the boot? Let me know as soon as you get it out." She handed the child the puzzle and then busied herself with writing so that the child would give his complete attention to the task at hand. The subject was timed in minutes and seconds for each solution, although he did not know that he was being timed until after the first trial. After he removed the bottle he was asked to put it back again. Most of the subjects were asked to take it out and put it back, alternately, five times. In most cases the children could solve the problem very quickly after the first trial, when they had gained insight into its solution. In some instances, however, the first success was due to chance and the subject had to work longer at the second or third trial. Several such subjects gave up after having been successful at an earlier trial.

The Children's Conduct and Remarks.- While the child worked, the investigator, without the child's knowledge, noted all remarks made by the child, his emotional reactions, and his general method of attack. Any questions that were asked were answered in a few words, simply and objectively. No pressure to go on with the problem was put on the subject except his own desire not to give up.

Written Introspection.- After the child had solved the problem the first time, or after he gave up, he was asked to write down all the thoughts and feelings that went through his mind while he was working on the puzzle.

The T Puzzle.- After the subject had either solved or given up the boot puzzle he was asked whether he would like to try another puzzle. Eighty of the hundred subjects tried the T puzzle. Those who had to leave in a short time were not given this puzzle as the findings would not have been useful for this study.

The Learning Process as Presented By the Solving of Puzzles

Reasons for Choosing the Puzzles.- The purpose of the experimental investigation was to study the patience and conduct of children while in the process of solving puzzles. The solving of puzzles represents the kind of learning which is most baffling to the learner and therefore most prone to cause his emotional upset or at least to create emotional tension. At the same time, it requires emotional control because it is dependent upon the rational process of analysis and synthesis. It was felt that observation of the child while he was solving puzzles would give the observer opportunity to study the display of both rational and emotional behavior.

Since this study is concerned with children's behavior while working at various puzzles, the first section of this report will be an attempt to gain a picture of the learning process as it is presented by the solving of puzzles.

Problem Requires Analysis and Patience.- The boot puzzle was used because it represents a problem, the solution of which requires analysis and patience. It is not merely a matter of sticking to a monotonous, uninteresting task. The inability to solve a problem which baffles the worker creates an emotional upset to a greater or less degree, depending upon the subject. The emotional state which is aroused by the "felt difficulty" must be controlled while the rational processes are at work in analyzing the problem until insight or partial insight results.

Table XXXII shows the mean and median number of seconds for each trial for the thirty boys and twenty-three girls who were successful in solving the problem. Both measures are reported because they differed so much. From Figure 5 it can be seen that after the first trial, when the subjects had caught the idea, it took a much shorter time to solve the problem. In fact, the sum of all the other nine trials was much less than the number of seconds it took to solve the puzzle the first time. It took the girls longer to solve the problem, but after the first trial they were about

TABLE XXXII

AVERAGE NUMBER OF SECONDS SPENT BY THE FIFTY-THREE SUCCESSFUL CASES, ON EACH TRIAL OF THE BOOT PUZZLE

Process	Trials	Mean		Median	
		Boys (30)	Girls (23)	Boys (30)	Girls (23)
Taking out the bottle	1	600	1500	1108	1536
	2	96	155	227	272
	3	77	120	109	159
	4	62	85	109	232
	5	61	75	115	89
Putting in the bottle	1	117	213	207	390
	2	72	97	101	140
	3	63	46	108	93
	4	45	45	124	87
	5	38	38	55	64

TABLE XXXIII

A TYPICAL CASE SHOWING THE NUMBER OF SECONDS SPENT BY A CHILD ON EACH TRIAL OF THE BOOT PUZZLE

Taking out the Bottle		Putting in the Bottle	
Trials	Time	Trials	Time
1	2115	1	115
2	50	2	65
3	80	3	60
4	40	4	40
5	48	5	35

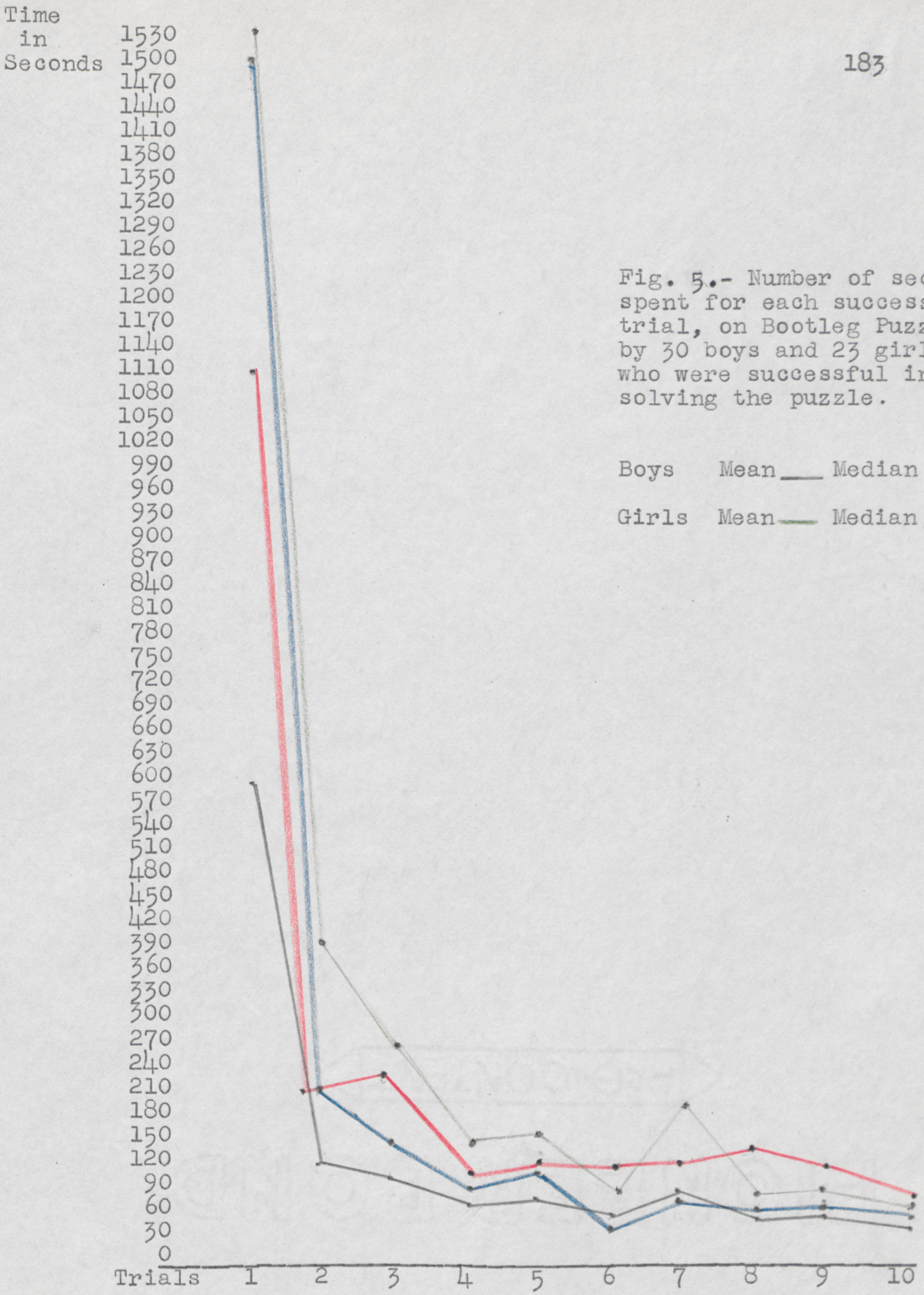


Fig. 5.- Number of seconds spent for each successive trial, on Bootleg Puzzle, by 30 boys and 23 girls who were successful in solving the puzzle.

Boys Mean ___ Median ___

Girls Mean ___ Median ___

as capable as the boys.

Individual Reactions.- The group trends may hide the learning processes of individuals. In some cases complete insight did not take place. The subject sometimes learned the general idea and direction of manipulation without understanding the finer points. It is for this reason that there is some improvement from the second to the tenth trial.

First Trial Most Difficult.- Out of forty-four cases the learning curves of thirty-two children show that the first trial took a long time while all the other trials took a short time. Sixteen children started with a long period for the first trial, then had periods of varying lengths for the other trials. Still, the first trial took the longest time in fourteen out of the sixteen cases. In two cases the second trial took longer than the first. These sixteen cases might be examples of partial insight. The evidence supports Alpert's (79:67) statement that "there are varying degrees of insight accompanying a solution; but no solution was found wholly unaccompanied by insight."

Time Taken for the Different Trials by One Child.- Table XXXIII (page 182) is an example of the time it took one child to solve the problem during different trials. It shows the sudden drop in time from the first to the other solutions and is typical of the thirty-two cases showing

regular curves. In the fourth and fifth trials the difference of a few seconds is probably due to increased skill in manipulation. After taking the bottle out once the subject was asked to put it in again, alternating thus until he had taken it out and put it in five times.

An Unusual Case.- Table XXXIV represents a case of unusual irregularity but even here none of the trials took as long as the first. The table shows a decrease in time needed for the second and third trial, an increase in the fourth and fifth trials, followed by a decrease in the sixth trial.

Summary.- The learning process as presented by the solving of puzzles is described through an analysis of the learning curve of the fifty-three children who were successful in solving the boot puzzle. Learning curves of representative and unusual cases are also discussed.

The children's reactions on the boot puzzle seem to indicate that it represents a type of problem whose first solution is difficult and takes a long time, but whose later solutions are in most cases comparatively easy and take much less time. The learning curves obtained for the different trials on the boot puzzle and for the four successful trials on the T puzzle compare with similar curves of learning described by Köhler(89), Koffka (88), Wheeler (46), Ogden (31), Wheeler and Perkins (47), Alpert (79), Brown (83),

TABLE XXXIV

AN IRREGULAR CASE SHOWING THE NUMBER OF SECONDS SPENT BY A CHILD ON EACH TRIAL OF THE BOOT PUZZLE

Taking out the Bottle		Putting in the Bottle	
Trials	Time	Trials	Time
1	660	1	120
2	65	2	85
3	60	3	180
4	430	4	50
5	610	5	35
6	60	6	105

and Ruger (94). The behavior of the subjects included a combination of random activity, indifference, and analysis, ending with sudden solution. This resulted in an understanding of the problem and the ability to solve it again in a very short time. After the subject understood the problem, after he knew the relationship of one movement to the next, leading finally to the solution, he did it with ease because he knew exactly what to do. He had gained insight. His behavior was similar to that of the subjects described by Alpert, Brown, Ruger, and Köhler. The picture of learning presented by the solving of puzzles used in this study may therefore be described as showing random activity, analysis, and solution, usually leading to a sudden drop in the learning curve after the first successful trial.

Individual and Sex Differences In Ability to Solve Puzzles and In Patience to Work at Difficult Puzzles

Procedure of This Section.- The previous section presented a general picture of the learning process involved in solving the puzzles used in this investigation. In this section attention will be given to individual and sex differences found in ability to solve puzzles and in patience to work at difficult puzzles.

The time spent by those who were successful and those who failed on the boot puzzle will be compared and

those same groups will also be compared in the amount of patience they exhibited on the T puzzle. Sex differences will also be noted.

Individual Differences in Problem Solving.- In the earlier chapters of this study it was found that both ability and persistence were correlated with school success. One of the aims of the experimental phase of this investigation was to find in what respects children who were successful in problem solving differed from those who were unsuccessful and how they differed in patience.

Reasons for the Choice of Puzzles.- The two main puzzles used with most of the children were the boot puzzle and the T puzzle. The purpose of using two or more puzzles was to make possible a comparison of the behavior of the same subjects on different puzzles. The boot puzzle was used because it was helpful in grouping the successful and unsuccessful subjects, since about half of the subjects were able to solve it. The two groups could then be compared in other factors. The T puzzle is so difficult to solve that almost all the children gave up. This puzzle was useful in measuring patience, in seeing how long the subjects would stick to a problem before giving up. Of course, both puzzles were useful in studying the children's behavior while they were working them.

Per Cent Successful in Solving Boot Puzzle.- The

length of time spent on the boot puzzle by the hundred subjects was tabulated and the various measures of central tendency and variability were computed and recorded in Table XXXV. A record was kept of the amount of time spent in trying to solve the puzzle, for those who finally gave up. Thirty boys and twenty-three girls solved the puzzle, while twenty-four boys and twenty-three girls gave up.

Sex Differences.- The table shows that of those who succeeded, the girls required more time than the boys. The means are 18.46 minutes with a standard error of 2.30 for the boys and 25.60 minutes with a standard error of 2.93 minutes for the girls. The chances are 95.25 in á 100 that this difference between the boys and girls is reliable. The median girl took 25.00 minutes while the median boy only required 10.00 minutes to solve the puzzle.

Time Spent by Those Who Failed.- Both the boys and girls who did not solve the puzzle stayed with it longer than those who did, before giving up. There is little difference in the averages of the boys and girls of the failing group, showing that there is little sex difference in patience as measured by the time spent on the boot puzzle before giving up. The figures suggest that the average sixth grade child will work 34.00 minutes on the boot puzzle before giving up, also that boys are able to solve such puzzles more quickly than girls. However, the range in the

TABLE XXXV

TIME IN MINUTES SPENT ON THE BOOT PUZZLE BY CHILDREN WHO SUCCEEDED AND CHILDREN WHO FAILED TO SOLVE BOOT PUZZLE

	Children Who Succeeded		Children Who Failed	
	Boys (30)	Girls (23)	Boys (24)	Girls (23)
Mean	18.46	25.60	33.34	35.09
Median	10.00	25.00	32.00	29.00
Range	74.00	90.00	114.00	120.00
Q_1	6.33	7.75	13.00	19.83
Q_3	27.00	40.50	44.00	50.50
Q	10.34	16.37	15.50	15.33
σ	17.14	19.84	25.06	28.76
σ_M	3.13	2.93	5.12	5.97
Difference	7.14		1.75	
σ Difference	4.28		4.58	
Chances in 100	95.25		64.80	

time spent on the boot puzzle shows that these children vary a great deal in the time it takes them to solve a puzzle and in the time they will work before giving up.

One of the major aims of this study was to determine the length of time children would work on a puzzle before giving up. Since those who failed on the boot puzzle worked on it longer than those who were successful, it was necessary to find out how long those who were successful on the boot puzzle would work at a puzzle which they couldn't solve, before giving up. The children were therefore given the T puzzle.

Time Spent on T Puzzle.- This is a rather difficult puzzle for children and only four of them were able to solve it. The purpose of using this puzzle was first, to see how long the children would work at it before giving up, and second, to see if those who gave up the boot puzzle differed in their reaction on the T puzzle from those who solved the boot puzzle. Of course, the amount of time spent on the second puzzle may have been influenced by success or failure in the previous problem. On the other hand, those who solved the boot puzzle were required to put the bottle in and take it out five times. This might have brought in an element of fatigue. The results, as presented in Table XXXVI are interesting. The time spent on the T puzzle before giving up was figured separately for those who

TABLE XXXVI

TIME IN MINUTES SPENT ON THE T PUZZLE BY SEVENTY-SIX CHILDREN, GROUPED ACCORDING TO CHILDREN WHO SUCCEEDED AND CHILDREN WHO FAILED TO SOLVE BOOT PUZZLE

	Children Who Solved Boot Puzzle		Children Who Failed to Solve Boot Puzzle		All Children Who Failed on T Puzzle
	Boys (26)	Girls (17)	Boys (18)	Girls (15)	Boys and Girls (76)
Mean	34.52	32.41	27.88	28.47	31.54
Median	31.50	32.00	19.00	24.00	25.33
Range	64.00	74.00	130.00	56.00	130.00
Q1	21.00	22.50	13.00	15.50	17.50
Q3	50.00	43.50	25.66	37.00	40.75
Q	14.50	10.50	6.33	10.75	11.63
σ	17.44	18.64	30.23	16.88	21.46
σ_M	3.41	4.52	7.13	4.63	2.50
Difference	2.11		0.59		
σ Difference	5.66		8.35		
Chances in 100	70.19		52.79		

had succeeded and those who had failed on the boot puzzle.

Results.- Both the boys and girls who had been successful on the boot puzzle worked longer on the T puzzle than did the unsuccessful children. There was a very slight sex difference within each group but a much larger difference between the two groups. The chances that this difference is significant are 79.95 out of 100 for the boys and 73.57 for the girls. This slightly greater patience on the part of th those who had solved the first puzzle may be due to the influence of the first success, but later findings suggest other factors which may be responsible. These findings will be discussed in the next section.

Summary.- The boot and T puzzles were used to study the children's ability in solving puzzles and their patience in sticking to a difficult puzzle. Over half of the children were able to solve the boot puzzle and only four out of eighty succeeded in solving the T puzzle. Those who were successful on the boot puzzle showed more patience on the T puzzle than those who failed on the boot puzzle. The boys were able to solve the boot puzzle in less time than the girls.

Comparisons in Intellectual and Non-Intellectual Traits of Group Showing Most Patience with Group Showing Least Patience

1. Aim of Section and Method of Selecting Groups

Purpose of This Section.- In the first section of this chapter a description is given of the learning that occurs during the solving of puzzles. In the second section, ability to solve the boot puzzle, and patience on the T puzzle, by those who succeeded and those who failed to solve the boot puzzle, are discussed. The purpose of this section is to compare those who showed the greatest patience in working at a problem with those who showed the least patience. These groups will be compared in mental age, emotional and personality traits, educational achievement, problem solving ability, and social factors. Such comparisons should help to determine the relation of emotional and personality traits to learning. This method of grouping the children, solely on the basis of patience, and comparing them in the other factors just mentioned, is a different approach to the problem from that made in Chapter IV where the children are grouped according to intelligence and school achievement and are compared in non-intellectual characteristics. The evidence obtained from both methods should prove helpful in

gaining an insight into the importance of non-intellectual factors to learning.

Method of Selecting Groups To Be Compared.- The selection of the group showing the most patience and the one showing the least patience was based on the actual amount of time the children worked on the T puzzle before giving up. The amount of time spent on the T puzzle by the seventy-six children who failed to solve it was tabulated. Table XXXVI (page 192) shows a range of 130 minutes and a mean of 31.54 minutes. Table XXXVII gives the distribution of the length of time the seventy-six children worked on the puzzle before giving up. Special interest is found in the extreme cases of the distribution because they represent the children who showed the most patience and those who showed the least patience. As seen from Table XXXVII, the distribution is such as to make it advisable to select the upper 27.6 per cent and the lower 23.6 per cent of the cases. These include the upper twenty-one and the lower eighteen cases. The upper group worked on the T puzzle for over forty minutes while the lower groupeworked for less than eighteen minutes.

Reasons for Selecting Extremes of Distribution.- In this study it was felt that the use of the upper and lower halves of the distribution might obscure the facts which would be more clearly distinguished by a comparison of

TABLE XXXVII

DISTRIBUTION OF TIME SPENT BY SEVENTY-SIX CHILDREN ON THE T PUZZLE BEFORE GIVING UP

Time in Minutes	Frequency
134 - 135.9	1

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84 - 85.9	1
82 - 83.9	
80 - 81.9	1
78 - 79.9	
76 - 77.9	
74 - 75.9	
72 - 73.9	
70 - 71.9	1
68 - 69.9	
66 - 67.9	
64 - 65.9	1
62 - 63.9	
60 - 61.9	3
58 - 59.9	2
56 - 57.9	1
54 - 55.9	
52 - 53.9	
50 - 51.9	
48 - 49.9	2
46 - 47.9	1
44 - 45.9	2
42 - 43.9	2
40 - 41.9	3
38 - 39.9	
36 - 37.9	2
34 - 35.9	1
32 - 33.9	3
30 - 31.9	4
28 - 29.9	3
26 - 27.9	2
24 - 25.9	6
22 - 23.9	2
20 - 21.9	4
18 - 19.9	10
16 - 17.9	4
14 - 15.9	4
12 - 13.9	2
10 - 11.9	2
8 - 9.9	3
6 - 7.9	2
4 - 5.9	1

extremes. In the discussion that follows, the twenty-one cases showing the most patience will be known as group A and the eighteen cases showing the least patience will be known as Group B. Group comparisons will now be made in the various factors.

2. Comparisons as to Mental Age

Mental Age.- Table XXXVIII shows that the mental ages of the two groups are almost identical, with a mean of 14 years 6 months for the A group and 14 years 4 months for the B group. This shows a difference of two months in favor of the A group with only 61.41 chances in 100 that this difference is significant. It seems then that mental age or intelligence is not related to patience or perseverance in solving problems or puzzles and that the average mental age of the two groups is practically the same.

3. Comparisons as to Emotional and Personality Traits

The Emotional Factor in Problem Solving.- Before analyzing the data concerning emotional and personality traits some theoretical discussion may be in order concerning the part played by emotions in problem solving. This may help to explain differences in emotional traits and educational achievement between the two groups to be compared. Dewey says that the awareness of a problem is indicated by a "felt difficulty". It starts with a feeling

TABLE XXXVIII

MENTAL AGE
FOR GROUP SHOWING MOST PATIENCE AND GROUP SHOWING LEAST PATIENCE IN PUZZLE SOLVING[1]

	Group A[2] (21 Children)	Group B[2] (18 Children)
Mean	14-6	14-4
Median	15-0	14-8
Q	1-3	1-3
σ	1-9	1-10
σ_M	4.56	5.30
Difference	2	
σDifference	7	
Chances in 100	61.41	

[1] Mean for 285 Children is 14-0

TABLE XXXIX

PSYCHONEUROTIC TENDENCIES AS MEASURED ON THE WOODWORTH-CADY QUESTIONNAIRE FOR GROUP SHOWING MOST PATIENCE AND GROUP SHOWING LEAST PATIENCE IN PUZZLE SOLVING[1]

	Group A[2] (21 Children)	Group B[2] (18 Children)
Mean	13.74	19.94
Median	14.00	19.50
Q	5.16	8.25
σ	6.37	8.77
σ_M	1.39	2.07
Difference	6.20	
σDifference	2.49	
Chances in 100	99.36	

[1] Mean for 285 Children is 14.50
[2] Group A showed most patience - Group B showed least patience

tone, an emotional reaction. The individual is not at rest. Many possible solutions present themselves. It may be suggested that while this ideational trial and error is going on the individual is emotionally keyed up. A mental alertness is accompanied by an emotional tension. This emotion may either aid or retard the process of solving the problem. When it leads to concentration, interest, patience, and persistence, it is helpful but when it results in anger, indifference, avoidance, and lack of confidence, it concentrates on the emotional factors and no adjustment or solution can take place because the unpleasant emotional factors do not permit the reasoning processes to be focused on the problem. In neither case, if this view is correct, is there pure reason in the solution of a problem, but in the first case it is helped and in the second case it is hindered by the emotional state.

Woodworth-Cady Scores.- Do objective findings support this theory? Table XXXIX (page 198) gives the means on the Woodworth-Cady Questionnaire. It will be noticed that 13.74, the mean for the A group, is somewhat below the mean of the entire 285 subjects, which is 14.50. It is 6.20 points less than the mean for the B group. Since a high score indicates emotional instability and there are 99.36 chances in 100 that this difference in the scores between the A and B groups is reliable it is reasonably certain that

the group which worked longer than forty minutes on the T puzzle is significantly more stable emotionally than the group that gave up in a short time, assuming that the Woodworth-Cady Questionnaire measures emotional instability.

The Emotionality Test.- The scores for "Like Much" and "Hate" on the Emotionality Test were changed to percentages and the mean, median, and standard deviation, were found for groups A and B, as shown in Table XL. A comparison of the groups shows that group A expressed stronger emotions in both liking and hating. The means and medians, for "Like Much," are higher for group A than for Group B and the chances are 77.94 in 100 that this difference is significant. For "Hate," the chances are 96.16 in 100 that the difference is reliable, but the difference between medians is very slight. The results suggest that group A has stronger feelings about many things than group B. It must be remembered, however, that the total number of "hates" on the Emotionality Test is so small that even a reliable difference does not prove that group A dislikes many things, since the mean percentage under "hate" was 5.70 and the median 4.25 for the A Group.

The Emotional Instability Test.- Table XLI shows the percentages for "Like" and for "Hate Much," on the Emotional Instability Test, for the two groups. Here again the difference is not significant, group A having a slightly lower mean and higher median for "Like" than group B. Group A

TABLE XL

PERCENTAGES OF TOTAL POSSIBLE SCORE FOR "LIKE MUCH" AND "HATE" ON THE EMOTIONALITY TEST, FOR GROUP SHOWING MOST PATIENCE AND GROUP SHOWING LEAST PATIENCE IN PUZZLE SOLVING [1]

	Like Much		Hate	
	Group A[2] (21 Children)	Group B[2] (18 Children)	Group A[2] (21 Children)	Group B[2] (18 Children)
Mean	67.26	60.30	5.70	3.60
Median	72.50	68.33	4.25	4.00
σ	19.25	27.00	4.54	2.85
σ_M	4.20	6.35	1.00	0.67
Difference	6.94		2.10	
$\sigma_{Difference}$	9.00		1.19	
Chances in 100	77.94		96.16	

[1] Mean for 285 Children

Like much	60.60
Hate	4.70

[2] Group A showed most patience - Group B showed least patience

TABLE XLI

PERCENTAGES OF TOTAL POSSIBLE SCORE FOR "LIKE" AND "HATE MUCH" ON THE EMOTIONAL INSTABILITY TEST FOR GROUP SHOWING MOST PATIENCE AND GROUP SHOWING LEAST PATIENCE IN PUZZLE SOLVING [1]

	Like		Hate Much	
	Group A[2] (21 Children)	Group B[2] (18 Children)	Group A[2] (21 Children)	Group B[2] (18 Children)
Mean	24.40	25.55	28.45	22.78
Median	23.75	22.00	22.50	15.00
σ	10.20	16.96	21.45	20.75
σ_M	2.10	4.05	4.70	4.90
Difference	1.15		5.67	
$\sigma_{Difference}$	4.32		6.70	
Chances in 100	60.26		79.95	

1 Mean for 285 Children - Like 22.90 - Hate Much 21.40

TABLE XLII

PERCENTAGES OF TOTAL POSSIBLE SCORE FOR SUM OF "LIKE" AND "DON'T MIND," AND THE SUM OF "DON'T LIKE," "HATE," AND "HATE MUCH," ON THE EMOTIONAL INSTABILITY TEST FOR GROUP SHOWING MOST PATIENCE AND GROUP SHOWING LEAST PATIENCE IN PUZZLE SOLVING [1]

	Sum of Like and Don't Mind		Sum of Don't Like, Hate and Hate Much	
	Group A[2] (21 Children)	Group B[2] (18 Children)	Group A[2] (21 Children)	Group B[2] (18 Children)
Mean	45.85	46.11	53.69	53.89
Median	44.17	40.00	54.38	56.67
σ	10.75	13.30	11.54	13.20
σ_M	2.20	3.20	2.45	3.15
Difference	0.26		0.20	
$\sigma_{Difference}$	3.85		4.00	
Chances in 100	52.67		51.99	

1 Mean for 285 Children - Sum of Like and Don't Mind 43.90
2 Sum of Don't Like, Hate, and Hate Much 54.60

also has higher averages for "Hate Much." When "Like" and "Don't Mind," are added there is practically no difference between the two groups, as shown in Table XLII (page 202).

In summary, according to average scores on the Emotionality Tests and the Emotional Instability Tests, no significant difference is found between the two groups in emotionality and emotional instability. A comparison of separate items of the tests might prove very revealing.

The Introversion-Extroversion Test.- The sum of the scores of Form A and Form B of the Introversion-Extroversion Test was used as the score in introversion. By referring to Table XLIII it will be noted that the B group is more introverted than the A group, and the chances are 99.62 in a 100 that the difference of 4.32 points is significant. The B group also scores a larger average in introversion (45.49) than that of the 285 subjects whose mean of 42.40 is slightly higher than the 41.17 mean of the A group. These results support the findings of Hendrickson and Huskey (119), who report a positive relationship of extroversion with achievement for boys of about the same age. The evidence of the present study seems to point to the fact that children who are quick to give up a problem are more introverted than those who are willing to work on it for a long time.

Introversion-Extroversion Disagreement.- In making

TABLE XLIII

INTROVERSION-- EXTROVERSION
FOR GROUP SHOWING MOST PATIENCE AND GROUP SHOWING LEAST PATIENCE IN PUZZLE SOLVING [1]

	Group A[2] (21 Children)	Group B[2] (18 Children)
Mean	41.17	45.49
Median	42.33	47.50
Q	4.81	7.42
σ	5.75	6.10
σ_M	1.26	1.44
Difference	4.32	
$\sigma_{Difference}$	1.62	
Chances in 100	99.62	

[1] Mean for 285 Children is 42.40

TABLE XLIV

INCONSISTENCY
FOR GROUP SHOWING MOST PATIENCE AND GROUP SHOWING LEAST PATIENCE IN PUZZLE SOLVING [1]

	Group A[2] (21 Children)	Group B[2] (18 Children)
Mean	17.79	21.23
Median	17.33	21.00
Q	3.13	2.38
σ	3.74	3.67
σ_M	0.83	0.89
Difference	3.44	
$\sigma_{Difference}$	1.22	
Chances in 100	99.76	

[1] Mean for 285 Children is 17.90

[2] Group A showed most patience
Group B showed least patience

out the Introversion-Extroversion test an attempt was made to have two forms, A and B, in which the same ideas were to be brought out but in different forms. The children's answers on the two forms were then compared question by question for the purpose of establishing the reliability of the test. Since there seemed to be differences in the number of items upon which the children disagreed it seemed possible that the number of disagreements might indicate some trait of the child tested, such as changeability or indecision. This might point to the instability of the subject. The average number of disagreements for the 285 subjects, as found in Table XLIV (page 204) was 17.90 while that for the A group was 17.79. The mean for the B group was 21.23 which is 3.44 points higher than that of the A group, and there are 99.76 chances in a 100 that this difference is significant. If this disagreement score can be considered an index of introversion or instability and it is higher for the B group than for the A group, one is led to suspect that there must be some relationship between lack of patience in problem solving and instability.

Pessimism-Optimism Test.- In the Pessimism-Optimism Test the score consisted of the number of pessimistic endings given to stories which had the possibilities of happy or sad endings. In this test the B group had more pessimistic endings than the A group although the chances are only 63.3 in a 100 that this difference is

significant. (Table XLV)

Superiority Feeling.- The subjects were asked to list the characteristics of their ideal sixth grade child and then to grade themselves on those traits in comparison with their ideal. These self-ratings were averaged and the score taken as an index of superiority-inferiority feeling. Table XLVI shows that the mean for the 285 subjects is 2.50 with mean of 2.58 for the A group and 2.48 for the B group. Here again the A group scores higher. The chances are 80.78 in a 100 that this difference in superiority feeling is reliable. It seems logical to assume that this is an expression of self confidence. Such belief in himself would cause an individual to stick to a task a long time because his attitude would be one of hopefulness rather than discouragement. It is therefore not at all surprising to find this feeling associated with perseverance at a task.

Teachers' Ranking in Emotionality.- Teachers' ranking in emotionality seems to favor the B group. However, the medians of the two groups are almost alike and the standard deviations are large. There are 90.32 chances in a 100 that the difference between the means of the two groups is significant. Table XLVII shows that there is much variability in the emotionality ranking of both groups with a somewhat greater spread for the B group.

TABLE XLV

PESSIMISM - OPTIMISM
FOR GROUP SHOWING MOST PATIENCE AND GROUP SHOWING LEAST PATIENCE IN PUZZLE SOLVING [1]

	Group A[2] (21 Children)	Group B[2] (18 Children)
Mean	5.57	6.05
Median	6.50	6.00
Q	3.29	4.84
σ	4.12	4.73
σ_M	0.90	1.10
Difference	0.48	
σ Difference	1.40	
Chances in 100	63.31	

[1] Mean for 285 Children is 5.80

TABLE XLVI

SUPERIORITY - INFERIORITY FEELING
FOR GROUP SHOWING MOST PATIENCE AND GROUP SHOWING LEAST PATIENCE IN PUZZLE SOLVING [1]

	Group A[2] (21 Children)	Group B[2] (18 Children)
Mean	2.58	2.48
Median	2.71	2.60
Q	0.28	0.31
σ	0.33	0.39
σ_M	0.07	0.09
Difference	0.10	
σ Difference	0.12	
Chances in 100	80.78	

[1] Mean for 285 Children is 2.50

[2] Group A showed most patience
Group B showed least patience

TABLE XLVII

TEACHERS' RANKING IN EMOTIONALITY FOR GROUP SHOWING MOST PATIENCE AND GROUP SHOWING LEAST PATIENCE IN PUZZLE SOLVING [1]

	Group A[2] (21 Children)	Group B[2] (18 Children)
Mean	48.59	53.72
Median	51.50	52.00
Q	6.63	6.50
σ	11.81	12.69
σ_M	2.58	3.00
Difference	5.13	
σDifference	3.95	
Chances in 100	90.32	

[1] Mean for 285 Children is 50.00

TABLE XLVIII

TEACHERS' RANKING IN EMOTIONAL INSTABILITY, FOR GROUP SHOWING MOST PATIENCE AND GROUP SHOWING LEAST PATIENCE IN PUZZLE SOLVING [1]

	Group A[2] (21 Children)	Group B[2] (18 Children)
Mean	52.60	56.72
Median	51.50	59.50
Q	8.88	10.25
σ	15.03	12.37
σ_M	3.30	2.89
Difference	4.12	
σDifference	4.39	
Chances in 100	82.64	

[1] Mean for 285 Children is 50.00

[2] Group A showed most patience
Group B showed least patience

Teachers' Ranking in Emotional Instability.- Teachers' ranking in emotional instability shows that the average for group B is 4.39 points higher than that for group A and there are 82.64 chances in 100 that this difference is significant. Table XLVIII (page 208) also shows that there is a difference of eight points between the medians of the two groups. It must be remembered that a high score indicates instability. The findings tend to confirm the results of the Woodworth-Cady Questionnaire and also help to validate teachers' rankings as a method of indicating the emotional instability of children.

Summary.- A comparison of groups shows that in every method used here to investigate the emotional and personality characteristics of the subjects, group A, made up of the children who stuck to a problem for over forty minutes, was superior to group B, which comprised those children who gave up the problem in less than eighteen minutes. There is one exception to this. Group B received higher teachers' ratings in emotionality. Such results certainly seem to indicate that emotional and personality factors are related to learning as expressed in problem solving. The evidence is especially interesting because no difference was found in the average mental age of the two groups.

4. Comparisons in Educational Achievement

It has been assumed, so far, that the ability to solve certain puzzles may be taken as an indication of learning ability, and that patience and continuous effort to solve a problem is related to success in problem solving and learning. Evidence is needed to support these theories.

Teachers' Marks.- The best record of a child's success and achievement in school is an average of all his report marks for the years he has spent in school. Such a score represents a large number of judgments of many teachers. It covers a long period of time and is the record of the child's work, made out at regular intervals for a continuous period of six years. This average of each child's report marks for six years was taken as a learning or scholarship score. Table XLIX shows that the mean for 285 subjects was 1.90; that for the A group 2.17 and for the B group 1.85.

The A group was .32 points above the B group and there are 98.68 chances out of a 100 that this difference is significant. When it is realized that the mental age of the two groups is practically the same this difference in achivement certainly seems to indicate that other factors outside of intelligence are operating to direct the child's

TABLE XLIX

SCHOLARSHIP
FOR GROUP SHOWING MOST PATIENCE AND GROUP SHOWING LEAST PATIENCE IN PUZZLE SOLVING [1]

	Group A[2] (21 Children)	Group B[2] (18 Children)
Mean	2.17	1.85
Median	2.14	1.82
Q	0.35	0.27
σ	0.57	0.34
σ_M	0.12	0.08
Difference	0.32	
$\sigma_{Difference}$	0.14	
Chances in 100	98.68	

[1] Mean for 285 Children is 1.90

TABLE L

COMPREHENSION ON MONROE'S READING TEST, FOR GROUP SHOWING MOST PATIENCE AND GROUP SHOWING LEAST PATIENCE IN PUZZLE SOLVING [1]

	Group A[2] (21 Children)	Group B[2] (18 Children)
Mean	16.38	15.73
Median	16.25	16.50
Q	1.63	1.59
σ	3.04	2.23
σ_M	0.54	0.58
Difference	0.65	
$\sigma_{Difference}$	0.77	
Chances in 100	80.09	

[1] Mean for 285 Children is 14.90

[2] Group A showed most patience
Group B showed least patience

success in school.[1] Furthermore, when it is found that those children who worked at a difficult problem for a long time were successful in school it may be suggested that patience to stick to a task may be an important factor in school success.

Reading Ability.- A comparison of the two groups on an educational test, such as reading, shows that the A group is slightly superior to the B group in comprehension (Table L, page 211). The mean for the 285 subjects was 14.90, for group A 16.38, and for group B 15.73. There are 80.09 chances in a 100 that this difference is reliable. It should be noted however, that the score for the B group is somewhat higher than that for the 285 subjects. It is known that reading is closely related to intelligence. The results suggest that although the A group is superior to the B group in reading the difference on a test that is closely related to native capacity is not as large as the difference that is a result of achievement, such as scholarship.

Summary.- In comparing the group of children that worked on the T puzzle for over forty minutes with the group that worked on the same puzzle for less than eighteen

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1. Symonds (152:566) says, "It is significant that ordinary school marks operate as one of the most effective single measures of character."

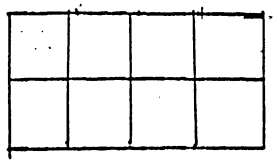
minutes before giving up, it was found that the more patient group received higher school marks for six years and was somewhat better in reading.

5. Comparisons In Problem Solving Ability

It should be remembered that groups A and B are so classified not because of their ability to solve problems but on the basis of the length of time they worked at a problem before giving up. How do these groups compare in the ability to solve problems?

Per Cent Who Solved Boot Puzzle.- Fifty-three per cent of the hundred children who worked on the boot puzzle were successful in solving it. In group A 76.2 per cent solved the boot puzzle while only 28.0 per cent of group B were successful with this problem. These results show that for every subject in group B who solved the boot problem there were almost three subjects in group A who succeeded.

Results On a Written Puzzle and Problem Test.- A test containing a written puzzle and some problems were given in order to see how the groups would compare in their ability to work other problems. The problems used were selected because they enable the subject, if he is careful, to check up on the requirements and see if he is correct. The subjects were not limited in the amount of time they could have to work on the problems.

Problem I 

In problem I the child was asked to cross out four lines leaving six complete boxes. A careful, patient child could see when he had the right answer and could continue to work on this problem until he found the right answer. Of the 285 subjects who worked this problem 36 per cent solved it. In the A group 48 per cent had it right while only 39 per cent of the B group subjects attained success.

> Problem II. Tom had a Red Tie and a Blue Tie, a White Shirt and a Gray Shirt, a Cotton Handkerchief and a Silk Handkerchief. He always wore one shirt, one tie, and one handkerchief at a time. Write out all the different possible combinations he could wear. Be sure that you have all the possible combinations.

Although it is possible to work this problem by a mathematical formula, the answer can easily be obtained by patiently working out all the possible combinations. In scoring, each child was given credit for the number of correct combinations. Table LI shows that the average number of combinations was 5.15 for the 285 subjects. The mean for group A was 5.79 and for group B it was 5.17. There are 81.59 chances in 100 that the difference favoring group A is significant.

TABLE LI

NUMBER OF COMBINATIONS IN PROBLEM II FOR GROUP SHOWING MOST PATIENCE AND GROUP SHOWING LEAST PATIENCE IN PUZZLE SOLVING [1]

	Group A[2] (21 Children)	Group B[2] (18 Children)
Mean	5.79	5.17
Median	5.86	5.20
Q	1.72	1.63
σ	2.17	2.05
σ_M	0.48	0.49
Difference	0.62	
σDifference	0.68	
Chances in 100	81.59	

[1] Mean for 285 Children is 5.15

TABLE LII

SCORES ON PROBLEM TEST FOR GROUP SHOWING MOST PATIENCE AND GROUP SHOWING LEAST PATIENCE IN PUZZLE SOLVING [1]

	Group A [2] (21 Children)	Group B [2] (18 Children)
Mean	50.85	49.15
Median	52.50	40.00
Q	21.56	23.12
σ	25.20	28.53
σ_M	5.50	6.73
Difference	1.70	
σDifference	8.60	
Chances in 100	57.93	

[1] Mean for 285 Children is 45.70

[2] Group A showed most patience
Group B showed least patience

Problem III was omitted.

Problem IV. If you add two numbers together the answer will be 80, if you subtract one from the other the answer will be six. What are the two numbers?

Of the 285 subjects 21 per cent had the correct answer. Only 10 per cent of the A group and 29 per cent of the B group had the problem correct. Forty-one per cent of all the subjects had one combination right. In group A 48 per cent had one combination right and 28 per cent of group B had one combination right. About 44 per cent of each group could not do any part of the problem. It can be seen that group B surpasses group A in the per cent of right answers to this problem. In actual numbers there were two in the A group and five in the B group who solved the problem correctly. It seems that the number in both cases is too small to prove anything.

Another method of scoring the problems was to give 30 per cent for number I, 5 per cent for each of the eight possible combinations in number II, and 30 per cent for number IV, with only 10 per cent for one combination in that problem. Table LII (page 215) shows that there is little difference between the means for the two groups although a difference of 12.50 is found between the two medians, in favor of the A group.

Summary.- Group comparisons in ability to solve problems show that the A group was more successful than the

B group in solving the boot puzzle and was also more successful in solving some of the problems in a problem test.

6. Comparisons in Social Factors

The social background including home environment, economic status, siblings, amount of sleep and other factors may contribute to the development of patience. Comparisons will therefore be made of the two groups in social background.

Sims Score Card of Socio-Economic Status.- A study of the scores on the Sims Score Card shows that the mean for 285 subjects in socio-economic status is 21.85, (Table LIII). The A group scores an average of 22.79 while the B group is 0.99 points higher. However, the chances are only 73.24 in a 100 that this difference is significant.

Barr Scale of Occupational Status.- Table LIV shows that on the Barr Scale the B group is slightly superior to the A group in occupational status of the father. The mean for the A group is 11.40 and for the B group it is 11.66. The small difference is not significant.

The Number of Children in the Family.- In considering the number of children in the family the two groups are almost identical, group A having an average of 2.62 and group B 2.61 children. (Table LV).

TABLE LIII

HOME ENVIRONMENT AS MEASURED BY SIMS SCORE CARD OF SOCIO-ECONOMIC STATUS FOR GROUP SHOWING MOST PATIENCE AND GROUP SHOWING LEAST PATIENCE IN PUZZLE SOLVING [1]

	Group A[2] (21 Children)	Group B[2] (18 Children)
Mean	22.79	23.78
Median	23.25	24.50
Q	3.40	4.50
σ	5.02	5.20
σ_M	1.09	1.20
Difference	0.99	
σDifference	1.60	
Chances in 100	73.24	

[1] Mean for 285 Children is 21.85

TABLE LIV

HOME ENVIRONMENT AS MEASURED ON THE BARR SCALE OF OCCUPATIONAL LEVEL FOR GROUP SHOWING MOST PATIENCE AND GROUP SHOWING LEAST PATIENCE IN PUZZLE SOLVING [1]

	Group A[2] (21 Children)	Group B[2] (18 Children)
Mean	11.40	11.66
Median	11.18	11.55
Q	1.12	0.57
σ	1.93	1.60
σ_M	0.42	0.37
Difference	0.26	
σDifference	0.56	
Chances in 100	68.08	

[1] Mean for 285 Children is 11.34

[2] Group A showed most patience
Group B showed least patience

TABLE LV

NUMBER OF CHILDREN IN FAMILY
FOR GROUP SHOWING MOST PATIENCE AND GROUP
SHOWING LEAST PATIENCE IN PUZZLE SOLVING [1]

	Group A [2] (21 Children)	Group B [2] (18 Children)
Mean	2.62	2.61
Median	2.75	2.77
Q	0.66	0.64
σ	1.25	1.21
σ_M	0.28	0.28
Difference	0.01	
$\sigma_{Difference}$	0.39	
Chances in 100	51.20	

[1] Mean for 285 Children is 2.70

TABLE LVI

NUMBER OF HOURS OF SLEEP
FOR GROUP SHOWING MOST PATIENCE AND GROUP
SHOWING LEAST PATIENCE IN PUZZLE SOLVING [1]

	Group A [2] (21 Children)	Group B [2] (18 Children)
	Hours Minutes	Hours Minutes
Mean	10 - 27	10 - 17
Median	10 - 32	10 - 34
Q	18	18
σ	26	25
σ_M	7	7
Difference	10	
$\sigma_{Difference}$	10	
Chances in 100	84.68	

[1] Mean for 285 Children is 10 - 24

[2] Group A showed most patience
Group B showed least patience

The Average Hours of Sleep.- Table LVI (page 219) shows that the 285 subjects average 10 hours and 24 minutes of sleep, the A group has a mean of 10 hours and 27 minutes, and the B group 10 hours and 17 minutes, per night. The chances are 85.31 in a 100 that the difference is significant.

Racial Tolerance.- From Table LVII it can be seen that the degree of racial tolerance as expressed by social distance is almost identical for the two groups although the B group is more variable.

Summary.- A comparison of social factors shows that the B group has a slightly better socio-economic background, has the same average number of children in the family, gets ten minutes less sleep, and has the same score in racial tolerance. These factors then show little differentiation between the two groups.

Summary of Group Comparisons.- Comparisons of twelve year old children from the same school, grouped on the basis of the time they stayed with a problem, reveal interesting differences. Both groups are similar in mental age and in the size of family to which they belong. Group B is slightly superior in economic status. In all other factors group A is superior. It is of special interest to find that children of the same intelligence, but grouped solely on the amount of patience they exhibited in staying with a problem for a long time before giving up, show

TABLE LVII

RACIAL TOLERANCE, AS EXPRESSED ON THE RACIAL ATTITUDES INDICATOR FOR GROUP SHOWING MOST PATIENCE AND GROUP SHOWING LEAST PATIENCE IN PUZZLE SOLVING [1]

	Group A[2] (21 Children)	Group B[2] (18 Children)
Mean	113.1	112.3
Median	105.0	105.0
Q	42.5	62.5
σ	66.5	72.6
σ_M	14.5	17.2
Difference	0.8	
σ Difference	22.5	
Chances in 100	51.60	

[1] Mean for 285 Children is 11.70

[2] Group A showed most patience
Group B showed least patience

superiority in scholarship and emotional and personality traits. The evidence shows that there must be some relationship between emotional and personality traits and learning. The data suggest that perhaps educators have laid too much stress on intelligence and have not given due consideration to non-intellectual characteristics. The findings suggest the importance and need for more definite programs in education for emotional maturity and personality development.

Evidence Helpful in Establishing Validity of Tests.- The data also support the validity of the tests, showing that they must measure some significant emotional and personality traits since the differences between the two groups in fourteen different tests are always in the direction favorable to the group showing the most patience.

The Nature of the Remarks and Behavior of Sixth Grade Children, Expressed While Solving Puzzles

The Purpose of this Section.- The first three sections of this chapter consisted of a description of the learning involved in solving puzzles, an analysis of individual and sex differences as these are related to ability and patience in working at difficult puzzles, and comparisons in various factors, of children grouped according to the patience they expressed in puzzle solving.

This section will deal with the nature of the remarks and behavior expressed while solving puzzles.

The hypothesis postulated in the introductory pages suggested the emotional setting of a problem solving situation. An analysis as to the nature of children's introspections and the remarks they make while in the actual process of solving puzzles should throw some light on the question.

The Classification of Children's Remarks.- The experimenter recorded all remarks made by the children while they were working the puzzles. The children also wrote out their introspections after solving a puzzle for the first time or after giving up. A careful analysis of their remarks and introspections indicates that they may be grouped under the following categories:

1. Emotional remarks
   - (a) Neutral statements
   - (b) Statements of encouragement
   - (c) Statements of discouragement
   - (d) Statements of determination
2. Analytical remarks
3. Digressions
4. Grimaces or emotional conduct

Definitions of Terms Used.- The term, "emotional remark," is used to refer to any statement colored by a feeling tone. A neutral emotional statement is defined as a remark showing feeling but not indicating the exact nature of this feeling. Illustrations of such remarks are,

"Gosh," or, "Goodness sakes." An example of a remark showing encouragement is, "Oh boy, I'm getting along swell!" Discouragement is illustrated by the statement, "It doesn't seem like I'm getting any place." Determination is expressed by the remark, "I've made up my mind to get it!"

Analytical remarks refer to reasoning applied to specific elements of the problem. Here the attention is not on the self but on the problem. It may be illustrated by the statement, "Must I turn the bottle forward or backward? Why won't the front end go in through that slit?"

Digressions show a change of attention from the problem at hand to some other fact, such as, "I wonder if I am going to get home in time for supper."

Grimaces or emotional conduct may be illustrated by the gesture of throwing up the hands in despair or by shaking the puzzle frantically.

Purpose of Analysis.- The purpose of this analysis is to determine the relative proportion of emotional reactions and analyses that constitute the conditions of a problem-solving situation, such as was presented by the puzzle problem, and to note group and sex differences.

Oral Remarks and Written Introspections of all the Subjects.- Table LVIII gives the mean number of oral remarks and written introspections, per child, made by

TABLE LVIII

MEAN NUMBER OF REMARKS AND INTROSPECTIONS MADE WHILE WORKING THE BOOT AND T PUZZLES

Kind of Reaction	Boot Puzzle		T Puzzle	
	Oral Remarks	Written Introspections	Oral Remarks	Written Introspections
	(99 Children)	(93 Children)	(75 Children)	(39 Children)
Neutral	0.94	0.57	0.71	0.54
Encouragement	0.81	0.79	0.13	0.57
Discouragement	3.46	1.41	1.39	1.87
Determination	0.11	0.17	0.04	0.26
Total Emotional Remarks	5.32	2.96	2.27	3.24
Analytical Remarks	0.49	1.56	0.17	0.80
Digression	0.13	0.27	0.00	0.10
Grimaces or Emotional Conduct	0.84	0.00	0.17	0.00

all the subjects tested, on both puzzles. In both puzzles the oral remarks made and the written introspections show a much greater proportion of emotional than analytical statements. A glance at the table, giving the total emotional remarks and the analytical remarks, shows a much larger number of emotional than analytical remarks. Of the emotional statements, expressions of discouragement predominated. Comparisons of the oral remarks with the written introspections in regard to the relative number of emotional statements show that on the boot puzzle almost twice as many emotional remarks were made in the oral statements as in the written introspections, while on the T puzzle more emotional written introspections than oral remarks were made. It may be inferred from the evidence obtained through the oral remarks and the written introspections, that the emotions were in the foreground during much of the time. The data of Table LVIII supports the idea that the emotions play a very important role in problem solving.

Sex Differences.- A comparison of the sexes in the number and ratio of emotional and analytical remarks are of interest. Table LIX shows the mean number of oral and written introspections per child made while working the boot puzzle. Table LX shows these facts for the T puzzle. The

TABLE LIX

SEX DIFFERENCES IN MEAN NUMBER OF REMARKS AND INTROSPECTIONS MADE WHILE WORKING THE BOOT PUZZLE

Kind of Reaction	Oral Remarks			Written Introspections		
	Boys (54)	Girls (45)	Diff.	Boys (51)	Girls (42)	Diff.
Neutral	1.24	0.58	0.66	0.31	0.88	-0.57
Encouragement	1.15	0.40	0.75	0.86	0.69	0.17
Discouragement	3.89	2.93	0.96	1.45	1.36	0.09
Determination	0.15	0.07	0.08	0.12	0.24	-0.12
Total Emotional Remarks	6.43	3.98	2.45	2.75	3.19	-0.44
Analytical Remarks	0.63	0.31	0.32	2.20	0.79	1.41
Digression	0.19	0.05	0.14	0.16	0.39	-0.23
Grimaces or Emotional Conduct	1.19	0.42	0.77	0.00	0.00	0.00

TABLE LX

SEX DIFFERENCES IN MEAN NUMBER OF REMARKS AND INTROSPECTIONS MADE WHILE WORKING THE T PUZZLE

Kind of Reaction	Oral Remarks			Written Introspections		
	Boys (44)	Girls (31)	Diff.	Boys (21)	Girls (18)	Diff.
Neutral	0.84	0.49	0.35	0.29	0.83	-0.54
Encouragement	0.20	0.03	0.17	0.71	0.39	0.32
Discouragement	1.91	1.00	0.91	1.86	1.83	0.03
Determination	0.05	0.03	0.02	0.38	0.11	0.27
Total Emotional Remarks	3.00	1.55	1.45	3.24	3.17	0.07
Analytical Remarks	0.25	0.07	0.18	1.29	0.22	1.07
Digression	0.00	0.00	0.00	0.19	0.00	0.19
Grimaces or Emotional Conduct	0.27	0.03	0.24	0.00	0.00	0.00

data are given for the boys and girls separately and the differences between the sexes are noted. It is seen that the boys made more remarks of all kinds while working on the puzzles. However, the girls increased the number of their emotional statements in the written introspections. This may suggest a greater introversion on the part of the girls. This evidence is found in both tables. Although the boys made more emotional statements than the girls the ratio of their emotional to analytical statements, as found in the written introspections is smaller than the ratio of those factors for the girls. In other words, in the written introspections the boys made a proportionally larger number of analytical statements than the girls, although both sexes had more emotional than analytical reactions. Table XXXV (page 190) gives the average number of minutes it took to solve the boot puzzle. The boys took less time than the girls, their average being 18.46 minutes compared with 25.60 for the girls. The boys' tendency to be more analytical than the girls and their greater speed in solving the puzzle suggest that there may be a relationship between analysis and success, and that emotional reactions, especially those of a discouraging nature, may interfere with problem solving. Of course, other factors, such as greater interest and experience with mechanical things may also have contributed to the greater ease with which the boys solved

the boot puzzle.

Comparison of Group A with Group B.- Table LXI gives a comparison of the number of remarks and introspections for the children who worked on the puzzles for over forty minutes with those who gave up in less than eighteen minutes. The total number of emotional remarks made by the average member of the A group is 2.80 and that made by the B group is 7.78. This shows that the average child in group B made 4.98 more emotional remarks than the Group A child. Of this difference 3.44 remarks were expressions of discouragement. Those in the B group made 0.20 more analytical remarks. They also made 0.91 more grimaces or emotional reactions per child.

On the T puzzle (Table LXII) group A averaged 2.71 and group B 2.06 emotional statements. Although the A group averaged 0.65 more such remarks yet the average of such statements per minute of working time was less for the A group since every member of that group worked on the T puzzle for a much longer time than the children of the B group. Even with that time difference the number of discouraging remarks were about the same for both groups. The difference in emotional remarks was due to the extra 0.66 neutral remarks made by the A group.

In the introspections, group A made an average of 1.93 more emotional remarks but only 0.65 of these were signs

TABLE LXI

MEAN NUMBER OF REMARKS AND INTROSPECTIONS MADE WHILE WORKING THE BOOT PUZZLE FOR GROUP SHOWING MOST PATIENCE AND GROUP SHOWING LEAST PATIENCE IN PUZZLE SOLVING

Kind of Reaction	Oral Remarks			Written Introspections		
	Group A (21 Children)	Group B (18 Children)	Diff.	Group A (21 Children)	Group B (18 Children)	Diff
Neutral	0.65	1.73	1.08	0.30	0.24	-0.06
Encouragement	0.65	0.95	0.30	0.35	0.82	0.47
Discouragement	1.50	4.94	3.44	1.50	1.31	-0.19
Determination	0.00	0.17	0.17	0.05	0.18	0.13
Total Emotional Remarks	2.80	7.78	4.98	2.20	2.53	0.33
Analytical Remarks	0.25	0.45	0.20	2.40	1.41	-0.99
Digression	0.00	0.23	0.23	0.30	0.30	0.00
Grimaces or Emotional Conduct	0.70	1.61	0.91	0.00	0.00	0.00

TABLE LXII

MEAN NUMBER OF REMARKS AND INTROSPECTIONS MADE WHILE WORKING THE T PUZZLE FOR GROUP SHOWING MOST PATIENCE AND GROUP SHOWING LEAST PATIENCE IN PUZZLE SOLVING

Kind of Reaction	Oral Remarks			Written Introspections		
	Group A (21 Children)	Group B (18 Children)	Diff.	Group A (21 Children)	Group B (18 Children)	Diff.
Neutral	1.05	0.39	-0.66	0.58	0.20	-0.38
Encouragement	0.15	0.17	0.02	0.50	0.10	-0.40
Discouragement	1.48	1.50	0.02	1.75	1.10	-0.65
Determination	0.05	0.00	-0.05	0.50	0.00	-0.50
Total Emotional Remarks	2.71	2.06	-0.65	3.33	1.40	-1.93
Analytical Remarks	0.38	0.17	-0.21	1.33	0.70	-0.63
Digression	0.10	0.00	-0.10	0.33	0.00	-0.33
Grimaces or Emotional Conduct	0.10	0.23	0.13	0.00	0.00	0.00

of discouragement. They made 1.33 analytical statements as compared with the 0.70 made by the B group. Emotional remarks should be expected in the introspections since they were written after giving up on the puzzle and therefore a feeling of failure existed while the introspections were being written. Since those in the A group had worked for a much longer time than the children of the B group, this feeling of distress was probably stronger with that group.

As a child worked on a puzzle his emotional reactions increased with every minute he worked until he finally gave up because the emotional element came ultimately to be in complete control while the reasoning, analytical phase of problem solving was completely eliminated. According to this interpretation one would expect the A group, which worked for a much longer period, to show far more emotional behavior and remarks than the B group. The fact that they did not do so indicates that the A group showed greater stability. This control is associated with perseverance or patience in problem solving.

Comparisons of Group A, Group B, and All the Subjects.- Table LXIII gives the mean number of oral remarks on the boot puzzle for all the subjects who worked the puzzle, for groups A and B, and the differences between these last two groups and all the subjects. It shows that group A

TABLE LXIII

MEAN NUMBER OF ORAL REMARKS MADE
WHILE WORKING THE BOOT PUZZLE,
FOR ALL SUBJECTS COMPARED WITH
GROUP SHOWING MOST PATIENCE AND GROUP SHOWING
LEAST PATIENCE IN PUZZLE SOLVING

Kind of Reaction	All Subjects (99 Children)	Group A (21 Children)	Diff.	Group B (18 Children)	Difference
Neutral	0.94	0.65	-0.29	1.73	0.79
Encouragement	0.81	0.65	-0.16	0.95	0.14
Discouragement	3.46	1.50	-1.96	4.94	1.48
Determination	0.11	0.00	-0.11	0.17	0.06
Total Emotional Remarks	5.32	2.80	-2.52	7.78	2.46
Analytical Remarks	0.49	0.25	-0.24	0.45	-0.04
Digression	0.13	0.00	-0.13	0.23	0.10
Grimaces or Emotional Conduct	0.84	0.70	-0.14	1.61	0.77

averaged 2.52 fewer emotional remarks than all the children who worked the boot puzzle while group B averaged 2.46 more emotional remarks. Group A made 1.96 fewer remarks of discouragement and group B 1.48 more such remarks than did the entire group. In expressions of emotional conduct group A averaged 0.14 below and Group B 0.77 above that of the entire group. In general, the data show that group A averaged fewer emotional remarks and group B more emotional remarks than all the subjects who worked on the boot puzzle.

Table LXIV gives mean number of written introspections for all the subjects and for group A and group B on the boot puzzle. In the introspections group A recorded 0.74 and group B 0.41 fewer emotional remarks than the average for all the children who wrote out their introspections while working the boot puzzle. Group A averaged 0.84 more analytical remarks while group B averaged 0.15 fewer such remarks than the entire group.

Table LXV gives the mean number of oral remarks made by all the subjects and groups A and B while working on the T puzzle. Group A made 0.31 more and group B 0.34 fewer emotional remarks than the whole group of children. It must be remembered that group A worked on this puzzle for a much longer period of time and really averaged fewer emotional remarks per minute of working time. Group A made 0.21 more analytical remarks than the entire group of

TABLE LXIV

MEAN NUMBER OF WRITTEN INTROSPECTIONS MADE WHILE WORKING THE BOOT PUZZLE, FOR ALL SUBJECTS COMPARED WITH GROUP SHOWING MOST PATIENCE AND GROUP SHOWING LEAST PATIENCE IN PUZZLE SOLVING

Kind of Reaction	All Subjects (99 Children)	Group A (21 Children)	Diff.	Group B (18 Children)	Difference
Neutral	0.57	0.30	-0.27	0.24	-0.33
Encouragement	0.79	0.35	-0.44	0.82	0.03
Discouragement	1.41	1.50	-0.09	1.31	-0.10
Determination	0.17	0.05	-0.12	0.18	0.01
Total Emotional Remarks	2.94	-2.20	-0.74	2.53	-0.41
Analytical Remarks	1.56	2.40	0.84	1.41	-0.15
Digression	0.27	0.30	0.03	0.30	0.03
Grimaces or Emotional Conduct	0.00	0.00	0.00	0.00	0.00

TABLE LXV

MEAN NUMBER OF ORAL REMARKS MADE WHILE WORKING THE T PUZZLE, FOR ALL SUBJECTS COMPARED WITH GROUP SHOWING MOST PATIENCE AND GROUP SHOWING LEAST PATIENCE IN PUZZLE SOLVING

Kind of Reaction	All Subjects (75 Children)	Group A (21 Children)	Diff.	Group B (18 Children)	Difference
Neutral	0.71	1.05	0.34	0.39	-0.32
Encouragement	0.13	0.15	0.02	0.17	0.04
Discouragement	1.39	1.48	0.09	1.50	0.11
Determination	0.04	0.05	0.01	0.00	-0.04
Total Emotional Remarks	2.40	2.71	0.31	2.06	-0.34
Analytical Remarks	0.17	0.38	0.21	0.17	0.00
Digression	0.00	0.10	0.10	0.00	0.00
Grimaces or Emotional Conduct	0.17	0.10	-0.07	0.23	0.06

children, while group B made the same average as the latter.

In the introspections (Table LXVI) while working the T puzzle, group A averaged 0.12 more emotional statements than the entire group of subjects while group B had 1.81 fewer such remarks. Group A made 0.53 more analytical statements and group B 0.10 fewer such statements, than all the children who recorded their introspections.

Summary.- A detailed analysis of the remarks and conduct made by children while working on the boot and T puzzles, and recorded by the investigator, and of the children's written introspections, shows that their remarks may be classified under such emotional statements as neutral remarks, encouragement, discouragement, and determination; and under analytical remarks, digression, and emotional conduct.

The analysis shows that:

1. The predominant remarks were of an emotional nature. Of these the greatest number were expressions of discouragement, although there were also some neutral statements, expressions of encouragement and of determination.

2. The children made about ten times as many emotional as analytical remarks.

3. Grimaces and emotional conduct were expressed.

4. Fewer emotional expressions were found in the children's written introspections than in the oral remarks.

TABLE LXVI

MEAN NUMBER OF WRITTEN INTROSPECTIONS MADE WHILE WORKING THE T PUZZLE, FOR ALL SUBJECTS COMPARED WITH GROUP SHOWING MOST PATIENCE AND GROUP SHOWING LEAST PATIENCE IN PUZZLE SOLVING

Kind of Reaction	All Subjects (75 Children)	Group A (21 Children)	Diff.	Group B (18 Children)	Difference
Neutral	0.54	0.58	0.04	0.20	-0.34
Encouragement	0.57	0.50	-0.07	0.10	-0.47
Discouragement	1.87	1.75	-0.12	1.10	-0.77
Determination	0.26	0.50	-0.24	0.00	-0.26
Total Emotional Remarks	3.21	3.33	0.12	1.40	-1.81
Analytical Remarks	0.80	1.33	0.53	0.70	-0.10
Digression	0.10	0.33	0.23	0.00	-0.10
Grimaces or Emotional Conduct	0.00	0.00	0.00	0.00	0.00

5. The boys made more oral emotional remarks than the girls. In the introspections they recorded slightly less emotional and more analytical reactions.

6. A comparison of group A with group B, and of both these groups with all the children who worked on the puzzles, shows that:
   (a) Group A made fewer and Group B more emotional remarks than the averages recorded for the total group.
   (b) Group A made fewer and Group B made more remarks showing discouragement than the average for the entire group of subjects.
   (c) Group A showed less and group B more emotional conduct than the group at large.

7. The findings seem to indicate that:
   (a) Problem solving as expressed through the working of puzzles is accompanied by a great deal of emotional feeling and only a relatively small amount of reasoning.
   (b) The children who showed more patience by sticking to the problem for a longer time made fewer emotional and more analytical remarks than those who worked for a shorter time, indicating that emotional feeling, especially that of discouragement, acts as a retarding factor in patience to stay with a problem and in problem solving. From this it might be assumed that a negative relationship exists between emotional instability as expressed by discouragement, and problem solving ability.
   (c) Children vary in the degree to which emotions and reasoning dominate a problem-solving situation.

The Actual Behavior Exhibited By Children in a Problem Solving Situation

1. Purpose and Procedure of this Section

The previous sections of this chapter dealt with a picture of the learning process as expressed in puzzle solving; individual and sex differences in ability and patience in solving puzzles; comparisons in various traits of children grouped on the basis of patience to work on puzzles; and statistical analyses of the children's remarks and introspections made while working the puzzles. This section is concerned with a somewhat different approach to the problem. Case studies and the presentation of some of the actual remarks made by the children will be given for the purpose of making the actual problem-solving situation more concrete to the reader. First a case study will be given showing all the remarks and conduct of an average child, together with his introspections expressed while working the puzzles. This will be followed by tables listing the remarks and introspections of all the subjects grouped according to the classifications listed in Table LXI (page 231). Some interesting case studies will then be given.

2. A Case Study of an Average Boy

Personal and Test Data For an Average Boy.- Before quoting some of the actual remarks made by the children the complete record of the remarks and introspections of an average boy will be given.

Table LXVII gives the personal and test data for Isadore B., an average boy. A comparison of the child's record with the means for the 140 boys of this study shows that he is somewhat below the group in chronological and mental age. His emotional and personality scores are close to the average on the Woodworth-Cady Questionnaire and in the teachers' rankings in emotionality and emotional instability. He scores lower in emotionality and higher in emotional instability on the tests used to measure those traits. He is somewhat more introverted, inconsistent, and pessimistic than the boys of his grade and shows a greater feeling of inferiority. He is below the mean for all the boys tested in the special problem test given, and in scholarship. His score on the Sims test is below the average for all the boys of his grade and his score on the Barr test is above that average. He is the fifth child in a family of five children. His social distance towards other races is greater than that of his group.

Basis for Selecting Average Case.- Isadore was selected as an average boy because he spent 34 minutes and 30

TABLE LXVII

PERSONAL AND TEST DATA FOR
ISADORE B., AN AVERAGE BOY

	Isadore	Mean For 140 Boys
1. Chronological Age.....	11- 2	11- 8
2. Mental Age.....	11-10	14- 0
3. Emotional and Personality Traits....		
(a) Woodworth-Cady Questionnaire..	15	114.5
(b) Emotionality Test.....	88	142
(c) Emotional Instability Test....	119	91
(d) Teachers' Ranking in Emotionality.....	51	50
(e) Teachers' Ranking in Emotional Instability.	51	50
(f) Introversion-Extroversion Test	48	42.4
(g) Inconsistency Test.....	21	18.1
(h) Pessimism-Optimism Test.....	10	5.8
(i) Superiority-Inferiority Feeling.....	1.80	2.50
(j) Problem Test.....	30	46.7
4. Educational Achievement.....		
(a) Teachers' Marks.....	1.62	1.90
(b) Grouping in School.....	C/	
5. Social Background.....		
(a) Sims Score Card for Socio-Economic Level.....	17	21.85
(b) Barr Scale for Occupational Status.....	13.30	11.59
(c) Number of Children in Family..	5	
(d) Order of Birth.....	5th	
(e) Racial Attitudes Indicator....	43	121

seconds on the boot puzzle before giving up. This figure is close to the norm for the children who gave up on the test. Isadore's scores in psychoneurotic tendencies and in teachers' ranking were also very close to the norms.

Remarks While Working Puzzle.- The exact remarks made by Isadore and recorded by the experimenter will be quoted in order to present a picture of a subject's reaction in a problem-solving situation.

> Oh, I got it to the top but I can't get the bars through. That is the hardest part. That's the whole puzzle....
> I can't get it but I won't quit. I'll get it if it's the last thing I do.....
> I don't understand this. Whenever I try to pull it one way it gets caught... I can't even do it. If I had the top one open I could get the bottom one. Something comes loose here, I know that, because you can't work it any other way....
> - Golly, it's the first time I've been puzzled so much in my life trying to work a puzzle....
> Oh, I don't like to give up anything that I know can be done...
> I give up! I just can't understand it!

Written Introspection Immediately After Working on Boot Puzzle.- Isadore wrote the following statement after working on the puzzle:

> I see this is a hard puzzle. I don't want to give up this funny puzzle. Maybe something opens. I'll try again. I am going to start all over. Maybe that piece opens. That's funny, when you open one part the other one closes. This is kind of funny. There is a trick to this.

Remarks While Working T Puzzle.- Isadore worked

on the T puzzle for 27 minutes and 35 seconds before giving up. His remarks were recorded as follows:

> It's hard to make a T out of four crooked pieces....I'm not going to give up on this test.....This is easier than the boot test but it is still hard....
> Do all the pieces fit? (Experimenter answers, "Yes.") I quit.

Introspection While Working T Puzzle.- The boy's written introspection was similar to his oral remarks.

> This seems easy yet hard. This point ought to work. Now I have it! No. So many of these don't fit. I'm mad. I'm going to try over again. I am going to give up. I don't think I will get it. I quit!

The case study just described should give some picture of the average child's reaction to a problem-solving situation.

3. The Actual Remarks Made by the Children While Working on Puzzles

Basis for Classification of Children's Remarks.- The general picture of a child's reaction to a problem-solving situation, just given, will now be followed by the remarks of all the subjects. These statements were tabulated and listed under the same classification given in the previous section, which dealt with the statistical analysis of the children's behavior while solving the puzzles. The classification consists of emotional remarks which include neutral remarks, remarks showing hope or encouragement, remarks showing discouragement, and remarks

showing determination; also analytical remarks, remarks showing digression, and emotional behavior.

Neutral Remarks.- Table LXVIII is a list of the neutral emotional remarks made by the children. The statements are of an emotional nature but their content does not indicate whether the feeling is associated with encouragement or discouragement.

Remarks of Encouragement.- When the subjects felt that they were getting the solution they often uttered joyful exclamations. These remarks indicate the pleasure and satisfaction that comes with progress. (Table LXIX)

Remarks Showing Discouragement.- There were more remarks showing discouragement than all the others put together. (Table LXX) It seems that this spirit exists in most cases in varying degrees. The discouraging remarks showed a variety of emotional responses. The desire to get away from the unpleasant situation and yet maintain self respect was expressed by such attempts at rationalization as:

> I'll have to give up or I'll get nearsighted working this.
>
> My hay fever is coming on.
>
> I'll have to give up, my finger is sore.

These responses are similar to those made by

TABLE LXVIII

NEUTRAL REMARKS
EXPRESSED BY CHILDREN WHILE IN
THE PROCESS OF SOLVING PUZZLES

1. Is this possible?
2. Did anybody get this?
3. Oh!
4. Oh gee!
5. Gosh!
6. Golly!
7. It's hard to see what you are doing.
8. A pretty clever puzzle.
9. I want to see someone work it.
10. I know one fellow who could work it.
11. Is something missing here?
12. Phew!
13. I'm still on it.
14. Goodness sakes!
15. Wheew!
16. Am I on the right track?
17. That's a cute puzzle.
18. My daddy could work it in a second.
19. After you know the trick I guess it is easy.
20. Will you show me how to do it if I can't get it?

TABLE LXIX

REMARKS SHOWING ENCOURAGEMENT EXPRESSED BY CHILDREN WHILE IN THE PROCESS OF SOLVING PUZZLES

1.	It's coming slowly but surely, I guess.
2.	I think I have it now!
3.	Are these easy, I have it half way!
4.	I've got it to the top!
5.	Ah, success!
6.	I'll find this mystery!
7.	Now, I discovered the secret!
8.	I catch on to the trick!
9.	Oh, I have an idea!
10.	Oh ho, now I see something!
11.	I'm getting there!
12.	I'm positive it will work like this.
13.	I think I might get it!
14.	I see the catch to it now!
15.	I bet it will work when I get this part back!
16.	Goodness sakes, I have it half way off already!
17.	Hurrah, I've got it off!
18.	I love to do tricks!
19.	It is easy to do!
20.	I believe I can get this if I try long enough!
21.	Hurrah, something is happening!
22.	Part of it is out already!
23.	Look here, I have it pretty far!
24.	Oh boy, I'm getting along swell!
25.	I think this will be easy!

TABLE LXX

REMARKS SHOWING DISCOURAGEMENT EXPRESSED BY CHILDREN WHILE IN THE PROCESS OF SOLVING PUZZLES

1. I am losing my patience on this!
2. I can't get this.
3. It seems almost impossible!
4. I don't want to give up but I am afraid that I'll have to soon.
5. I quit, I can't get it.
6. I give up.
7. My finger is sore from pushing!
8. I have been trying every which way but I don't see how to do it!
9. The only way is to break the thing apart.
10. I don't believe all the pieces are here.
11. This is hard.
12. This is the hardest thing I've ever tried.
13. There is no way to get this out!
14. I'm not good at this kind of stuff!
15. Oh nuts, it won't go!
16. This is a mess!
17. My hayfever is coming on!
18. I can't get the top part off!
19. I plan every way and it doesn't work!
20. It just won't come off!
21. This is worse than ever!
22. Something is wrong with this; it won't come off!
23. My, this is a tough one!
24. This thing has me puzzled!
25. You have to use force on this!
26. If it works it will be a miracle!
27. Gosh, what did they put in this thing!
28. It doesn't seem like I'm getting any place!
29. Are you sure that it is possible?
30. This time I'm stuck!
31. I always get back to the same place where I started!
32. There is no outlet!
33. Oh, something has to be done; I can't get it!

TABLE LXX (Continued)

34. There seems to be no possible chance!
35. This puzzle is getting me!
36. I'm so tired of messing with it!
37. I must be getting dumb!
38. I can't comprehend it!
39. I can't even move it!
40. I quit now but maybe I'll try it again some other day!
41. It's really tiresom when you try every possible way!
42. This is not so easy!
43. I wish I could get it but I can't!
44. This is as far as it will go!
45. I could use a can opener on this!
46. You get one part fixed and the other part won't come off!
47. Oh, shoot, shoot!
48. This is all Greek to me!
49. This has me tricked!
50. I'm beat on this puzzle!
51. I'm trying but I can't get these things straight!
52. Gosh dern it!
53. I'm the most hectic thing!
54. Oh gosh, my nerves are shattered!
55. It's hard to see what to do!
56. I'm disgustipated!
57. I would give a dollar to see someone work it!
58. It is getting complicated!
59. This must be broken!
60. This is worse than a cross-word puzzle!
61. Boy, I got myself into a mess!
62. You can't do this without using force!
63. Doggone, if I could only get into a certain place!
64. This is goofey!
65. I don't think that I'll ever get this!
66. I tried and tried but I can't budge it!
67. I am not making much headway!
68. It will take me twenty years to work this!

TABLE LXX (Continued)

69.	I have no luck with these things!
70.	I'll take a hammer and chop off a piece!
71.	I'll have to give up or I'll get near-sighted working this!
72.	There must be something wrong with me!
73.	I'm falling asleep trying to do this!
74.	I don't think anyone can get this!
75.	I'm rotten at this!

Alpert's (79) subjects. Some of the remarks showed impatience and the desire to do something drastic to the annoying puzzle. Illustrations of such remarks are:

> I'll take a hammer and chop off a piece.
>
> The only way is to break the thing apart.
>
> I could use a can opener on this.

Lack of self confidence is expressed by a number of children through such responses as:

> I must be getting dumb!
>
> I'm not good at this kind of stuff!
>
> It doesn't seem like I'm getting any place!
>
> I don't think that I'll ever get these.

The following remarks show that some of the children were upset emotionally.

> I'm the most hectic thing.
>
> Oh gosh, my nerves are shattered!
>
> I'm disgustipated.

These selected quotations, and the entire seventy-five responses listed in Table LXX give some insight into the discouragement that is often part of a problem-solving situation. They also show how emotional and personality traits of individuals are related to the problem-solving situation.

Remarks Showing Determination.- Some of the children expressed determination to stick to the puzzle until they solved it. Often, those who did express determination gave up as readily as the others. Table LXXI contains twenty-five responses showing determination. One child showed that she realized the importance of emotional control for success when she said, "I'll not get excited and take it easy, then I'll get it!"

Remarks Showing Analysis.- The children varied in the number of analytical remarks they made while working the puzzles. A few made only such remarks, many made only emotional statements, while some children combined emotional with analytical remarks. The analyses included the observation of difficulties, such as:

> Whenever you try to pull it this way it gets caught.
>
> I can't get the bars through.

Possible suggestions for solution, as:

> Maybe I can get it off through the bottom.
>
> Maybe this piece will fit into here.
>
> I must try to get it over the notch.

Special observations of parts of the puzzle were noted and an effort was made to find the significance of those facts to the solution.

TABLE LXXI

REMARKS SHOWING DETERMINATION EXPRESSED BY CHILDREN WHILE IN THE PROCESS OF SOLVING PUZZLES

1. I will not give up but I'll keep on trying!
2. I don't want to give up!
3. I am going to get this before I leave!
4. I will be patient!
5. I'll stick to it until I get it!
6. If I try long enough I can get it!
7. Something inside me tells me not to give up!
8. I'll get it because nothing is impossible!
9. I've made up my mind to get it!
10. I'll not get excited and take it easy, then I'll get it!
11. I'll try again!
12. I'll find this mystery!
13. I'll work until I get this puzzle!
14. If it's possible to do I won't quit!
15. I'll do it if it takes me all day!
16. I can't get it but I won't quit!
17. I'll get it if it is the last thing I do!
18. I'm going to make up my mind to get it off!
19. I will not get discouraged but I'll keep on trying!
20. I won't give up until I get it off!
21. I won't be a quitter!
22. If one human being can get it I'll get it too!
23. I'll keep on working because if I give up everything I can't do at first I'll never get anywhere in this world!
24. I'll work very hard and maybe I'll be able to get it!
25. I can't give up now!

I just discovered that one piece is thinner than the other.

I didn't see this before, where it catches.

As I got to the top I wondered what held it. I learned that this was done by the little piece of metal that was on top of the boot.

These quotations and the others given in Table LXXII illustrate the various steps of a learning situation requiring the solution of problems, while the earlier quotations show the feeling tone that accompanies the learning process.

Remarks Showing Digression.- Some of the remarks and introspections show that several of the subjects often digressed from the task at hand, (Table LXXIII).

Emotional Behavior.- Some children made many remarks while trying to work the puzzles while others said very little. However, many indicated by their non-verbal conduct that they were reacting emotionally to the situation. Their behavior showed restlessness and annoyance. A record was kept of the subjects' emotional reactions and non-verbal conduct in general. These are listed in Table LXXIV.

Summary.- The oral remarks, written introspections, and non-verbal behavior expressed by the children were classified. The data represent concrete evidence of the

TABLE LXXII

REMARKS SHOWING ATTEMPTS
TO ANALYSE PUZZLE,
EXPRESSED BY CHILDREN WHILE IN
THE PROCESS OF SOLVING PUZZLES

1. I'll try different ways.
2. Will this hook come off?
3. Should I turn the bottle forwards or backwards?
4. This top thing won't let it through.
5. I won't work backwards.
6. The top is the hardest part to get off.
7. Maybe I can get it off through the bottom.
8. If I could turn it upside down it would come off.
9. There must be a piece missing here.
10. The little thing on top is in the way.
11. Why does it always go down when I push that thing that turns?
12. What makes it get stuck?
13. I didn't see this before where it catches.
14. Can it get through this passage?
15. I just discovered that one piece is thinner than the other.
16. I'll put it on the bottom and see why it won't come out.
17. One of these holes is in the way.
18. Down into the notch, then pull down the lever, down again, turn it upside down, into the notch, move the lever, and it is out.
19. Maybe this little piece will fit into here.
20. I must try to get it over the notch.
21. As I worked the puzzle I thought, "What place shall I move next? How can I get the back end in? Why won't the front end go in through that slit? What is that little piece on top for? If I get the back in front what will my next move be? If I can get one end out I can always get the other end out."

TABLE LXXII (Continued)

22. I see the trick to it now!
23. I have ot lift this part up and the other part down.
24. I can't get the bars through.
25. Whenever you try to pull it this way it gets caught.
26. Something comes loose here, I know that, because you can't work it any other way.
27. When you open this part the other part closes.
28. Do you pull anything here?
29. Shall I turn the bottle upside down or leave it straight?
30. Which slot should I use?
31. I placed the gadget at the bottom of the boot so that I could move it up and down; then I slowly moved it towards the left. After that I placed it so that I could move it up and down. I moved it to the top of the shoe, then to the left and released the catch at the top. I moved it a little to the right and then towards the left. I moved the catch again and pulled the gadget. It then slipped right through.
32. I am going to try all the different ways that it could be put together.
33. The gate is open as far as it will go and it can't go through.
34. When you push this over the bottom goes back.
35. This back part is thinner than the front part.
36. Push it in the little place, turn it around backwards, and slip it out.
37. As I got to the top I wondered what held it. I learned that this was done by the little piece of metal that was at the top of the boot. I also wondered why it sometimes slipped to the bottom while at other times it did not fall.
38. First I looked over the puzzle real good. Then I figured the different

TABLE LXXII (Continued)

escapes of the bottle. Then I worked the bottle out towards the best escape I could think of. Then I worked it up to the top where there was a little semi-circle piece of metal which interfered with the escaping of the bottle. Then I let the bottle down a piece to figure out the way the semi-circle piece of metal would work in letting out the bottle. I had a little idea how it would work. I slowly lifted the bottle out of the escaping road which I had planned for it.

39. I must get one side out at a time.

40. The thoughts that came to my head was to try to turn the bottle around, the top facing the top part of the boot. When I could not do that, I immediately tried to find an outlet but that seemed impossible. I turned it around and jerked it up and down. Since that did not work I thought I would try once more. I pushed it to the bottom, turned it around and pushed up, using no strength, and it yielded perfectly.

41. How can I get it to the top? Maybe if I put the bottom into this channel, it will help. Ah! now it's up at the top! Hmm! What's this little gadget? Oh boy, now all I have to do is get the bottom out. Now how can I do that? Maybe if I put the top into this little channel - nope, it won't fit. I'll try turning the bottle upside-down. Ah! now it's out.

42. This looks easy. This fits right into here. Now I've got two pieces together. I can't get the cross piece. Maybe if I turn this piece around - no, that's not right, either. Maybe I have the stem wrong. Ah, now I've got it!

TABLE LXXII (Continued)

43. Try this end - Can't squeeze it through. Try this end. Nope, can't do it either. Turn it around - push - there, it's in the catch now. I must get it out. Stuck again, push. There, it's free of that catch! Now the first bar is out. It's stuck again. Move it. Now it's free. Push, and the bottle tumbles to the floor. Looking closer to the bottle I noticed one rung was bigger than the other.
44. I thought, what was the certain move that would open the puzzle. Each opening has a certain purpose. My next thought was to move the bottle into the unused portion of the boot and from there out.
45. The first thought that came into my mind was that those alleys all connected to the opening of letting the bottle out. I did this and the bottle came off.
46. I have to get this part a little higher in order to move it out.
47. It will come out if I push it through that little hole.

TABLE LXXIII

REMARKS SHOWING DIGRESSIONS
EXPRESSED BY CHILDREN DURING
THE PROCESS OF SOLVING PUZZLES

1. I wonder if I am going to get home in time for supper.
2. I was thinking, "Did I get any samples from the mail-man?"
3. What would we have for lunch?
4. I wish that mother would get a maid so I would not have to help with the dishes.
5. I wonder if my girl friend had to do this.
6. I was thinking why I didn't get a bicycle for my birthday. -On Christmas I wanted a typewriter but instead I get a new dress.
7. I was thinking if everybody I know is well. If I would sing over the radio on Saturday. If I would sing good.
8. I was thinking if I could quit biting my nails. If I could get my hair waved. If I could get away in time to go downtown.
9. I was thinking of the fun we had at the food show.
10. I wonder why opening a puzzle would help a teacher with her work.

TABLE LXXIV

EMOTIONAL, NON-VERBAL
BEHAVIOR OF CHILDREN
EXPRESSED DURING THE
PROCESS OF SOLVING PUZZLES

1. Sighs
2. Shakes the puzzle frantically
3. Makes all kinds of grimaces
4. Jerks himself around
5. Shakes head discouragingly
6. Is very quiet
7. Sits and dreams
8. Throws up his hands in despair
9. Wiggles the puzzle restlessly and aimlessly
10. Snaps his fingers
11. Stretches himself
12. Walks around the room
13. Jumps up
14. Rests his head on his hands
15. Laughs
16. Looks around
17. Waves hands in air
18. Frowns
19. Smiles
20. Looks tired
21. Gives sigh of relief and joy
22. Smiles cheerfully
23. Shows much effort
24. Concentrates
25. Struggles with it
26. Expends much energy
27. Shows impatience
28. Talks to himself
29. Sings to himself
30. Just sits and does nothing
31. Looks discouraged
32. Uses force
33. Impatient manipulation
34. Looks worried and bothered
35. Looks disgusted
36. Whistles
37. Bites his teeth

TABLE LXXIV (Continued)

38. Jumps up and down
39. Stamps his feet
40. Bangs the puzzle
41. Sits and plays with puzzle
42. Seems excited

emotional nature of a problem-solving situation. The evidence shows that general excitement, feelings of encouragement, feelings of discouragement, determination, analysis, digression, and non-verbal emotional behavior are expressed in a problem-solving situation. The findings suggest the importance of emotional and personality factors to learning as expressed in the solving of puzzles.

4. Descriptions of Unusual Cases

Purpose of Case Reports.- The purpose of reporting case studies is to present additional concrete, synthetic pictures of children actually participating in the process of solving problems, and thereby illustrating the emotional, personality, and rational constituents of a problem-solving situation. Another reason for studying some special cases was to see whether the evidence obtained from the child's behavior in the problem-solving situation and from his personal and test data, was in keeping with the child's general conduct in school. Special cases for more detailed study will be presented.

Basis of Selecting Special Cases.- Some of the cases were selected because the behavior of the children while solving the puzzles, was unusual; others because

their work or attitudes in school differed from the average child. In many instances a combination of the two reasons just mentioned was the cause for selecting those cases.

Case 1: Louis M.- Louis M. showed highly excitable conduct during his learning. His progress was marked by great irregularities. Table LXXV presents the essential personal and test data for Louis M. His record on the boot puzzle appears in Table LXXVI.

Comparison of Problem Solving Data with School Attitudes.- The irregular learning curve and highly excitable conduct of this child is in line with the findings on the various tests. His school marks average slightly below that of the average for the 285 subjects studied although his mental age is somewhat higher. His score on the Woodworth-Cady Questionnaire is far above that of the average for his group. In fact, a score of 26 is considered a sign of emotional instability. This is in keeping with the teachers' ranking of emotional instability of 61 and a slightly higher than average score in introversion-extroversion.

The test and learning material of Louis M. corroborates his conduct and general attitude in school. He gets excited very easily, at the slightest provocation. His school work shows unevenness. Sometimes he presents work

TABLE LXXV

PERSONAL AND TEST DATA FOR
SPECIAL CASE 1. LOUIS M.

	Louis	Mean For 140 Boys
1. Chronological Age	11- 7	11- 8
2. Mental Age	14- 3	14- 0
3. Emotional and Personality Traits		
(a) Woodworth-Cady Questionnaire	26	15- 0
(b) Emotionality Test	117	142
(c) Emotional Instability Test	113	91
(d) Teachers' Ranking in Emotionality	60	50
(e) Teachers' Ranking in Emotional Instability	61	50
(f) Introversion-Extroversion Test.	45	41.7
(g) Inconsistency Test	19	18.1
(h) Pessimism-Optimism Test	5	6.0
(i) Superiority-Inferiority Feeling	2.50	2.46
(j) Problem Test	50	46.7
4. Educational Achievement		
(a) Teachers' Marks	1.83	1.81
(b) Monroe's Silent Reading	19	14.6
(c) Grouping in School	B	
5. Social Background		
(a) Sims Score Card for Socio-Economic Level	13	22.5
(b) Barr Scale for Occupational Level	11.51	11.59
(c) Number of Children in Family	2	2.5
(d) Order of Birth	2nd	
(e) Average Hours of Sleep	10- 0	10-23
(f) Racial Attitudes Indicator	52	121

TABLE LXXVI

NUMBER OF SECONDS PER TRIAL, ON BOOT PUZZLE, FOR SPECIAL CASE 1, LOUIS M.

Taking out the Bottle		Putting in the Bottle	
Trials	Seconds	Trials	Seconds
1	1440	1	840
2	1080	2	300
3	80	3	60
4	80	4	970
5	715	5	30
6	330	6	35
7	1565 (Gives up here)		

showing sustained effort while at other times it shows hasty and careless preparation. Although Louis is a rather noisy boy, and talks out whenever he has something to say, still he is not an unpleasant or anti-social child.

Remarks and Conduct.- The remarks and conduct of Louis M. demonstrates his highly excitable nature and help to explain the irregularity of his learning progress.

> It gets stuck up here. I can't get it to the bottom...Here it is! No - Yes!...Golly, I'll find this mystery...
> (Child stamps his foot. He seems tremendously excited most of the time.)
> I can't understand it...I think I've got it but I can't get it into a certain place....
> Oh, here it is! Just wait a little more! In this puzzle you have to be careful what you are doing!...I'm the most hectic thing. One time I can't get it and another time I slip it off easy... Now, I discovered the secret!...
> I'm a lost man!...
> Oh gosh, I give up till some other time! My nerves are shattered!

Written Introspection of Louis M.- The following written introspection of Louis M. reveals his insight into his own excited nature and the realization of the need for maintaining emotional control in order to solve the puzzle.

> I tried to use force at first. When I thought I had the bottle in good position to take it off I would get excited and get it out of that certain position by either wriggling it hard or by pushing the wheel wrong. But now I am cool and can get it off without so much trouble.
> When writing this I had no hidden thoughts.

Case 2, Robert S.- The personal and test data for Robert S. is given in table LXXVII. This case is of special interest because it shows a combination of low mentality with favorable emotional and personality traits and a good environment.

Robert succeeded in solving the puzzle after working on it for 38 minutes and 40 seconds. Table LXXVIII shows the number of seconds for the different trials. After the first solution he had little difficulty during the other trials, with one exception in the fourth trial.

Robert's Woodworth-Cady score in emotional instability is only 7, showing high stability. On the other hand, the teachers' ranking in emotional instability is 61, a score which indicates instability. It is possible that the teachers get the idea that the child expresses instability because he is overly eager to answer. This attitude may have been developed as a result of the necessity to work hard in order to achieve what his classmates acquire through less effort because of superior native ability. His introversion-extroversion score and his feeling of superiority as judged by his comparison of self with ideal are both better than the average for the 285 subjects. The child showed no pessimistic feelings. This case supports the theory, brought out in chapter four, that slow children may compensate for

TABLE LXXVII

PERSONAL AND TEST DATA FOR
SPECIAL CASE 2, ROBERT S.

	Robert	Mean For 140 Boys
1. Chronological Age	11- 9	11- 8
2. Mental Age	10- 9	14- 0
3. Emotional and Personality Traits		
(a) Woodworth-Cady Questionnaire	7	15- 0
(b) Emotionality Test	150	142
(c) Emotional Instability Test	95	91
(d) Teachers' Ranking in Emotionality	49	50
(e) Teachers' Ranking in Emotional Instability	61	50
(f) Introversion-Extroversion Test.	35	41.7
(g) Inconsistency	20	18.1
(h) Pessimism-Optimism Test	0	6
(i) Superiority-Inferiority Feeling	2.94	2.46
(j) Problem Test	10	46.7
4. Educational Achievement		
(a) Teachers' Marks	1.65	1.81
(b) Monroe Silent Reading Test	8	14.6
(c) Grouping in School	B-	
5. Social Background		
(a) Sims Score Card for Socio-Economic Status	27	22.5
(b) Barr Scale for Occupational Level	13.31	11.59
(c) Number of Children in Family	3	2.5
(d) Order of Birth	2nd	
(e) Average Hours of Sleep	10-30	10-23
(f) Racial Attitudes Indicator	237	121

TABLE LXXVIII

NUMBER OF SECONDS PER TRIAL, ON BOOT PUZZLE, FOR SPECIAL CASE 2, ROBERT S.

Taking out the Bottle		Putting in the Bottle	
Trials	Seconds	Trials	Seconds
1	2320	1	184
2	60	2	160
3	95	3	180
4	130	4	1080
5	95	5	155

their low mentality by exerting greater effort in order to accomplish the tasks set before them. It shows how a child with an I. Q. below normal and far below that of the group with which he has to work, can be successful if personality factors and home background are favorable. The fact that he worked a whole hour on the T puzzle before giving up suggests that he probably works harder on other things than does the average sixth grade child.

Remarks and Conduct While Working Boot Puzzle.- Robert's remarks and conduct show intense effort and determination. The emotional nature of the problem-solving situation is vividly portrayed by the record of his behavior which follows:

> Is it possible?...(Sighs deeply.) Are you sure when you do it right that it comes off? (Answer, "Yes.")....
> Is there a secret trick to this? (Answer, "No.") (The subject sighs. He seems tired and wants to give up.)... I got it out!!! Oh! (He almost falls over. Gives a sigh of relief and joy. He smiles cheerfully.)(Second trial, Excitedly) It's out. Hurrah....
> (Child shows much effort, concentrates, sighs, struggles with puzzle. He makes faces and waves his hand frantically.).....
> Oh, just in the middle of it too! (Keeps sighing, uses force, struggles.. He expends much energy. Then he seems all worn out.) Oh, something has to be done, I can't get it.....
> (Fourth trial. Child starts to put puzzle in his mouth but doesn't do it. Uses force. Sighs. Shakes his head; sighs; laughs.) It's off....(His struggle

> at the end is almost the same as at the beginning.) (Later) I bet I am the worst that you ever had.

Written Introspection After Working Boot Puzzle.- The written introspection that follows shows that the boy is afraid he will be unable to solve the problem.

> I thought that I would never get done. I thought that it would take me two hours. I got into one notch and I wondered how I would get to the other. I said over and over that I would never get done. I was saying, "Will I get in," for at least a hundred times. And then I was still wondering if I was going to get home in time for supper. I said a lot of times that I would give up but I didn't. I thought that it would take me an hour but it didn't.

Remarks and Conduct While Working T Puzzle.- R Robert's patience and determination to win is demonstrated by the fact that he worked an hour on the T puzzle before giving up.

> Did anyone ever get it? (Answer, "Yes.") If I had one more piece to fit in here I could do it...I don't see how to do it....(Sighs.) If I had one more piece I could do it...I give up, I can't do it.

Written Introspection While Working T Puzzle.- Although Robert stayed with the problem for an hour, his introspections show a feeling of inability to solve the problem.

> I said I would never get it done, over and over again. I was thinking, "Did I get any samples from the mailman?"

> What are we going to have for supper? I was wishing that mother would get a maid so I would not have to wash the dishes.

Comparison of Problem Solving Data With School Attitudes.- This child acted very much like he does in the schoolroom. He showed an intense effort and eagerness to achieve. Although he is a year retarded mentally he gets along in his work in a class where most of the children are superior to him in intelligence.

Case 3, Leslie S.- The case of Leslie is most unusual. This boy is superior in most of the factors tested, as shown in table LXXIX. Still, he was unable to solve the puzzles given him.

Remarks and Conduct While Working Boot Puzzle.- Leslie showed an unusual amount of patience on both puzzles. He worked for 71 minutes and 30 seconds before giving up the boot puzzle. He sat quietly and manipulated the puzzle without saying a word. A description of his conduct is here given.

> Child pauses, looks around, then goes back to the puzzle...He frowns a little; seems discouraged....He plays with it aimlessly....Now he looks at it a little more carefully...He shakes his head and just sits there.

Introspection While Working Boot Puzzle.- The child's introspection shows little imagination. He is a

TABLE LXXIX

PERSONAL AND TEST DATA FOR
SPECIAL CASE 3, LESLIE S.

	Leslie	Mean For 140 Boys
1. Chronological Age	11-10	11- 8
2. Mental Age ... Above	16- 0	14- 0
3. Emotional and Personality Traits		
(a) Woodworth-Cady Questionnaire	5	15
(b) Emotionality Test	126	142
(c) Emotional Instability Test	80	91
(d) Teachers' Ranking in Emotionality	36	50
(e) Teachers' Ranking in Emotional Instability	41.0	50
(f) Introversion-Extroversion Test.	36	41.7
(g) Inconsistency Test	13	18.1
(h) Pessimism-Optimism Test	3	6.0
(i) Superiority-Inferiority Feeling	2.68	2.46
(j) Problem Test	50	46.7
4. Educational Achievement		
(a) Teachers' Marks	2.26	1.81
(b) Monroe's Silent Reading	18	14.6
(c) Grouping in School	A	
5. Social Background		
(a) Sims Score Card for Socio-Economic Status	28.0	22.5
(b) Barr Scale for Occupational Level	11.51	11.59
(c) Number of Children in Family	1	2.5
(d) Order of Birth	1st	
(e) Average Hours of Sleep	10.15	10.23
(f) Racial Attitudes Indicator	170	114

boy who probably inhibits the expression of his feeling.

> I was thinking how it could be worked. Wishing I could work it. I was telling myself not to give up but to keep on trying. I wondered what was the object of working it.

Remarks and Conduct While Working T Puzzle.- The child worked 134 minutes and 40 seconds before giving up on this puzzle. He said very little during that time.

> Is this possible? (Answer, "Yes.") Isn't there a piece missing? (No.)

Introspection While Working T Puzzle.-

> How to make the letter T. Put different pieces together. Keep on trying.

Comparison of Problem-Solving Data With School Attitudes.- This child worked much longer on both puzzles than did theaaverage child of the group studied, yet he failed to solve either puzzle. He has a rating that is superior to that of the average of the 285 subjects in every test given but is below the average in teachers' ranking in emotionality. It may be that his failure to solve the puzzles is due to lack of interest or emotionality and self confidence. In school this boy is very quiet. He is reliable and always has his work.

Case 4, Beverly T.- Table LXXX gives the personal and test data for Beverly T. The data show that she is superior to the average of the 140 girls of this

TABLE LXXX

PERSONAL AND TEST DATA FOR
SPECIAL CASE 4, BEVERLY T.

	Beverly	Mean For 140 Girls
1. Chronological Age.....	11- 6	11- 8
2. Mental Age.....Above.	16- 0	13-11
3. Emotional and Personality Traits		
(a) Woodworth-Cady Questionnaire..	17	14.5
(b) Emotionality Test.....	170	159
(c) Emotional Instability Test....	137	134
(d) Teachers' Ranking in Emotionality.....	51.0	50
(e) Teachers' Ranking in Emotional Instability.....	42.0	50
(f) Introversion-Extroversion Test	46.0	43.1
(g) Inconsistency.....	17	17.7
(h) Pessimism-Optimism Test.....	20	5.6
(i) Superiority-Inferiority Feeling.....	2.11	2.54
(j) Problem Test.....	20	44.6
4. Educational Achievement		
(a) Teachers' Marks.....	2.26	1.97
(b) Monroe Silent Reading.....	20	14.0
(c) Grouping in School.....	B/	
5. Social Background		
(a) Sims Score Card for Socio-Economic Status.....	19	21.1
(b) Barr Scale for Occupational Level.....	11.17	11.09
(c) Number of Children in Family..	2	2.9
(d) Order of Birth.....	2nd	
(e) Average Hours of Sleep.....	9-30	10-25
(f) Racial Attitudes Indicator....	236	114

study in mental age, scholarship and reading. She is close to the group mean in scores on the emotional instability test, teachers' ranking in emotionality, inconsistency, and social background. Her score in pessimism is 20 as compared with 5.6, the mean for the group. She shows a feeling of inferiority and a tendency towards introversion.

Remarks and Conduct While Working Boot Puzzle.- Beverly showed unusual patience when working on the boot puzzle. It took her 92 minutes and 20 seconds to solve it the first time. Table LXXXI shows that after the first trial she had little difficulty in repeating the solution. During the process of working on the boot puzzle she seemed pessimistic about her ability to succeed. This is expressed in her remarks.

> It doesn't seem like I'm getting any place....It doesn't look like it's going to work...Oh, I'm not getting any place... Hmm (Sighs).
>
> Are you sure it comes off? (Answer, "Yes,") I got to the top of it...I don't see how it can work out....Gosh!...
>
> (Pauses a while, smiles, then goes back to work. Sits dreamily playing with puzzle. Looks at it but doesn't really try.)
>
> I don't want to give up. I want to work it if I ever can....(Works a while.) Hurrah, I got it off! I can't believe that I got it off!

Written Introspection While Working Boot Puzzle.- Beverly's introspection shows a tendency to rationalize.

> My finger is sore. The first part is

TABLE LXXXI

NUMBER OF SECONDS PER TRIAL, ON BOOT PUZZLE, FOR SPECIAL CASE 4, BEVERLY T.

Taking out the Puzzle		Putting in the Bottle	
Trials	Seconds	Trials	Seconds
1	5540	1	120
2	120	2	100
3	60	3	45
4	425	4	60
5	100	5	45

> easy but the last part, oh! I wish I could hurry up and get done. I think I know the solution but I can't make it work. I'll push the bottle back and see if I can figure it out! I wonder if it's possible. I feel like giving up but I won't.

Remarks and Conduct While Working T Puzzle.- The child worked on the T puzzle for 45 minutes and 15 seconds before giving up.

> None of these fit...Oh, gee!..(Frowns.) Gosh!...(Child stops working and looks around the room. She works slowly and looks around. She sits and dreams as if her mind isn't on the job at hand. Then she goes back to it and tries again.) I give up because I don't get any place!

Written Introspection While Working T Puzzle.- Beverly's written introspection shows her tendency not to say much.

> It's the dumbest puzzle I ever came across. Gee, none of the pieces fit. How am I supposed to work this. I know I'm a baby if I give up but I am going to do it.

Comparison of Problem-Solving Data With School Attitudes.- Beverly is a rather quiet self-conscious girl. She is dependable and cooperative. Her ability to stick to a job is shown by her school work. Her average of the six years of school is above that of the average ofthe subjects studied. Her persistence in sticking to the puzzle is in line with her method of doing her school work.

Case 5, Bernard K.- Table LXXXII gives the personal and test data for Bernard K. It shows that the child is superior in intelligence but is just average in school achievement. In teachers' rankings in emotional instability and emotionality his scores are a little above average. His score of 19 on the Woodworth-Cady Questionnaire indicates some slight psychoneurotic tendencies. According to the tests he is more introverted, more inconsistent, and more pessimistic than the average sixth grade child of this study.

Remarks and Conduct While Working Boot Puzzle.- The child spent 36 minutes and 35 seconds before giving up on the boot puzzle.

> It's pretty hard..Did you get it? (Answer, "Yes.") I bet it's easy when you know how...I give up. It seems impossible. (Answer, "Try again.") (Child tries again.) If I try long enough I can get this...I have the idea now...When you get the first thing through is the rest easy? ("I can't tell you.")
> I give up. It seems impossible. (Child is calm throughout.)

Written Introspection After Working Boot Puzzle.- In his written introspection Bernard shows his pessimistic attitude.

> I was trying to slowly push the bottle upside down and get it through. I was thinking that it was impossible. I kept thinking this over and over again.

TABLE LXXXII

PERSONAL AND TEST DATA FOR
SPECIAL CASE 5, BERNARD K.

	Bernard	Mean For 140 Boys
1. Chronological Age	11- 5	11- 8
2. Mental Age.....Above	16- 0	14- 0
3. Emotional and Personality Traits		
(a) Woodworth-Cady Questionnaire	19	15-0
(b) Emotionality Test	101	142
(c) Emotional Instability Test	147	91
(d) Teachers' Ranking in Emotionality	52	50
(e) Teachers' Ranking in Emotional Instability	52	50
(f) Introversion-Extroversion Test	47	41.7
(g) Inconsistency Test	26	18.1
(h) Pessimism-Optimism Test	13	6.0
(i) Superiority-Inferiority Feeling	2.64	2.46
(j) Problem Test	100	46.7
4. Educational Achievement		
(a) Teachers' Marks	1.96	181
(b) Monroe's Silent Reading	15	14.6
(c) Grouping in School	B/	
5. Social Background		
(a) Sims Score Card for Socio-Economic Status	15	22.5
(b) Barr Scale for Occupational Level	11.74	11.59
(c) Number of Children in Family	4	2.5
(d) Order of Birth	4th	
(e) Average Hours of Sleep	10-5	10-23
(f) Racial Attitudes Indicator	224	121

Remarks and Conduct While Working T Puzzle.- The child worked on the T puzzle for 11 minutes and 30 seconds before giving up. He made no remarks while working on the puzzle.

Comparison of Problem Solving Data With School Attitude.- Bernard is a calm, pleasant chap who doesn't bother to over-exert himself about anything. He has no difficulty in accomplishing the minimum requirements in his school work and he does not bother to do much more. His method of giving up too easily and not working to his full capacity, as shown by his conduct while trying to work the puzzles, is similar to his methods of attacking school problems.

Case 6, Elaine S.- Table LXXXIII gives the personal and test data for Elaine S. It shows that the child is superior in intelligence but her scholarship is not in keeping with her ability. Her high scores on Sims Score Card for Socio-Economic Status and on the Barr Scale of Occupational Level indicate a favorable social background. Elaine is very attractive physically. Psychoneurotic tendencies in this child are indicated by high scores on the Woodworth-Cady Questionnaire, and for teachers' ranking in emotional instability. She is more introverted and more pessimistic, and has a greater feeling of inferiority than the average girl of this study.

TABLE LXXXIII

PERSONAL AND TEST DATA FOR
SPECIAL CASE 6, ELAINE S.

	Elaine	Mean For 140 Girls
1. Chronological Age	12- 0	11- 8
2. Mental Age.....Above	16- 0	13-11
3. Emotional and Personality Traits		
(a) Woodworth-Cady Questionnaire	20	14.5
(b) Emotionality Test	149	159
(c) Emotional Instability Test	149	134
(d) Teachers' Ranking in Emotionality	36	50
(e) Teachers' Ranking in Emotional Instability	65	50
(f) Introversion-Extroversion Test	50	43.1
(g) Inconsistency	18	17.7
(h) Pessimism-Optimism Test	12	5.6
(i) Superiority-Inferiority Feeling	2.25	2.54
(j) Problem Test	15	44.6
4. Educational Achievement		
(a) Teachers' Marks	2.10	1.97
(b) Monroe Silent Reading	16	14.0
(c) Grouping in School	A	
5. Social Background		
(a) Sims Score Card for Socio-Economic Status	31	21.1
(b) Barr Scale of Occupational Level	16.28	11.09
(c) Number of Children in Family	2	2.9
(d) Order of Birth	1st	
(e) Average Hours of Sleep	10-30	10-25
(f) Racial Attitudes Indicator	100	114

Remarks and Conduct While Working Boot Puzzle.- Elaine worked on the boot puzzle for 24 minutes before giving up. Her remarks and conduct show her impatience.

> This is hard...Does it really come off? (Answer, "Yes.")...This is the hardest thing I've ever tried....There is no way to get it out...Ch! if I ever get this off!....
> I don't want to give up. This is the hardest puzzle I've ever worked.... I give up. Will you do it for me? (Answer, "No.")

Written Introspection After Working Boot Puzzle.- Elaine's introspection shows a tendency to digress from the task at hand.

> I must try to stick to it till I get it. I wonder why I have to do it. I wonder how this was made. How does this have anything to do with school work?

Remarks While Working T Puzzle.- The child worked on this puzzle for 8 minutes and 30 seconds before giving up. She made no remarks while working on this puzzle.

Written Introspection After Working T Puzzle.- Elaine's introspection supports the indifference with which she worked on the problem.

> I must figure out a way how to make the T....How shall I fit the pieces of metal together?

Comparison of Problem-Solving Data With School Attitudes.- The outstanding fact about this child is that she gave up in a short time. The fact that she failed to

get the boot puzzle seems to indicate that the puzzle is to a large extent dependent upon patience and problem-solving rather than on manipulation. This child is an unusually gifted pianist and is very skillful with her fingers. Her method of attacking the problems was similar to her attitude of indifference and unreliability in her school work.

Case 7, Suzanne K.- In Table LXXXIV will be found the personal and test data for Suzanne K. Her mental age of 13-1 is a little below the mean for the 140 girls of this study. Her school work is also below the mean. Suzanne's social background is very good. That this child had psychoneurotic tendencies is suggested by high scores on the Woodworth-Cady Questionnaire, in introversion, pessimism, and inconsistency and in teachers' ranking for emotional instability.

Remarks and Conduct While Working Boot Puzzle.- This girl worked on the boot puzzle for 20 minutes and 30 seconds before giving up.

> How did they get the bottle on here? I can't get this...Oh!...(Sighs.) Oh, I can't get this...My finger is so sore from pushing. I've been trying every which way....I don't see how you can get it out. I don't think there is a way unless you break the thing apart.....
>
> I can't get this puzzle. Can I try another kind? (Answer, "No, not until you do this one.") I give up. I can't do it.

TABLE LXXXIV

PERSONAL AND TEST DATA FOR
SPECIAL CASE 7, SUZANNE K.

	Suzanne	Mean For 140 Girls
1. Chronological Age.....	11- 1	11- 8
2. Mental Age.....	13- 1	13-11
3. Emotional and Personality Traits		
(a) Woodworth-Cady Questionnaire...	30	14.5
(b) Emotionality Test.....	163	159
(c) Emotional Instability Test.....	111	134
(d) Teachers' Ranking in Emotionality.....	51	50
(e) Teachers' Ranking in Emotional Instability.....	81	50
(f) Introversion-Extroversion Test.	52	43.1
(g) Inconsistency Test.....	22	17.7
(h) Pessimism-Optimism Test.....	11	5.6
(i) Superiority-Inferiority Feeling.....	1.83	2.54
(j) Problem Test.....	25	44.6
4. Educational Achievement		
(a) Teachers' Marks.....	1.65	1.97
(b) Monroe's Silent Reading.....	17	14.0
(c) Grouping in School.....	B-	
5. Social Background.....		
(a) Sims Score Card for Socio-Economic Status.....	26	21.1
(b) Barr Scale of Occupational Level.....	13.31	11.09
(c) Number of Children in Family...	2	2.9
(d) Order of Birth.....	2nd	
(e) Average Hours of Sleep.....	10-20	10-25
(f) Racial Attitudes Indicator.....	116	114

Written Introspection After Working Boot Puzzle.- Suzanne's introspection indicates that she tried to analyse the problem.

> I thought that I must try hard to get it out. I must be patient. I thought there was only one screw but I discovered that there were two. I thought at first the bottle would be easy to get out. I thought of every way to get it out.

Remarks and Conduct While Working T Puzzle.- The child gave up after working on the T puzzle for 15 minutes and 50 seconds.

> Are you sure all the pieces are here? (Child seems unable to concentrate.) You would think it would be easier with only four pieces to put together.
> I don't think that all the pieces are here. I can't do it. I give up.

Written Introspection After Working on T Puzzle.- Suzanne's written introspections are very short.

> I thought of all the different ways that they could be put together.

Comparison of Problem-Solving Data With School Attitudes.- Suzanne exhibited the same flighty, unsteady, impatient attitude in working the puzzles that she expressed during school hours at her studies. Her homework also showed hasty and careless preparation.

5. Summary of Actual Behavior and Introspection During Puzzle Solving

Procedure.- The actual remarks and conduct of all the subjects were recorded while they were working on the puzzles. Immediately after working on the puzzles the children wrote their introspections. The data obtained from the children's behavior and from their introspections were classified under emotional remarks, which include neutral remarks, remarks showing encouragement, remarks showing discouragement and remarks showing determination; also analytical remarks; digressions; and emotional behavior.

A case study of an average boy was followed by a discussion of the classified remarks and introspections. Descriptions of unusual cases were given.

Findings.- The data obtained from the classified oral remarks, written introspections, and non-verbal behavior of the children, represent concrete evidence of the emotional nature of a problem-solving situation. Most of the remarks were expressions of encouragement or discouragement while only a small number reflected reasoning or analysis. The findings suggest the importance of emotional and personality factors to learning as expressed in the solving of puzzles.

Unusual Cases.- Descriptions of unusual cases show concretely the emotional and analytical elements involved in

a problem solving situation. The evidence obtained from the case studies is in keeping with the attitudes and achievement of those children in school. The materials suggest the need for training children to attack problems in a controlled and rational way with the attention focused not on the self but on the problem at hand.

Group Comparisons in Regard to Nervousness

Olson's Check List.- Olson (139) devised a method of checking specific reactions of children which he believes indicate nervousness. He classified nervous conduct under oral, nasal, hirsutal, irritational, manual, ocular, aural, and facial reactions. His method consisted in having an observer check the number of nervous signs expressed by a child during a stated period of time.

Nervous Signs While Working Puzzles.- The subjects of the present study were checked according to Olson's list, while they were working the puzzles. Table LXXXV shows that fewer children of those who were successful in solving the boot puzzle showed nervous signs than of those who failed to solve the puzzle. But the average working time was somewhat longer for the latter, thereby allowing a longer time to show those signs. Still, the small difference in time is not

TABLE LXXXV

OLSON'S NERVOUS SIGNS EXHIBITED, WHILE WORKING THE BOOT PUZZLE, BY CHILDREN WHO WERE SUCCESSFUL AND THOSE WHO WERE UNSUCCESSFUL IN SOLVING BOOT PUZZLE

	Successful in Boot Puzzle			Unsuccessful in Boot Puzzle			Grand Total
	Boys	Girls	Total	Boys	Girls	Total	
Nervous	6	2	8	12	12	24	32
Not Nervous	24	21	45	12	11	23	68
Total	30	23	53	24	23	47	100

enough to explain the discrepancy in nervousness.

Nervous Signs While Working T Puzzle.- According to Table LXXXVI, those who were successful in the boot puzzle showed more nervous signs while working on the T puzzle than those who failed in the boot puzzle. But the former worked on the T puzzle for a longer time than on the latter.

Nervous Signs in Group A and Group B.- Table LXXXVII shows the number of nervous signs for the group that worked on the T puzzle over forty minutes and the group that gave up in less than eighteen minutes. Seven children in group A and two in group B showed nervousness. Since the A group worked for a much longer time, the period for expressing nervous signs was increased so that there was more chance of expressing such signs. Also with increasing time, it is probable that the subjects increased in their annoyance and irritability at not being able to solve the puzzle, so that it is logical to have more children in the A group than in the B group express nervous signs.

Summary.- A comparison of the children who were successful on the boot puzzle with those who were not successful shows that there were fewer children in the first group who expressed nervous signs than in the latter. More of the children who worked on the T puzzle, who had succeeded on the boot puzzle, showed nervous signs than of those who

TABLE LXXXVI

OLSON'S NERVOUS SIGNS EXHIBITED, WHILE WORKING THE T PUZZLE, BY CHILDREN WHO WERE SUCCESSFUL AND THOSE WHO WERE UNSUCCESSFUL IN SOLVING BOOT PUZZLE

	Successful in Boot Puzzle			Unsuccessful in Boot Puzzle			Grand Total
	Boys	Girls	Total	Boys	Girls	Total	
Nervous	9	5	14	3	2	5	19
Not Nervous	17	13	30	14	13	27	57
Total	26	18	44	17	15	32	76

TABLE LXXXVII

OLSON'S NERVOUS SIGNS EXHIBITED BY GROUP SHOWING THE MOST PATIENCE AND GROUP SHOWING THE LEAST PATIENCE IN PUZZLE SOLVING

	Group A	Group B	Total
Nervous	7	2	9
Not Nervous	14	16	30
Total	21	18	39

failed on the boot puzzle. But the former worked much longer on the T puzzle thereby having a longer time in which to express their nervous reactions. Group A had more children who expressed nervous signs than group B, but that can also be explained on the basis of working for a longer time. Considering all factors, the tendency seems to be for those who are unsuccessful to show more nervous signs, but the total number of children showing nervous signs were too few and the period of observation too short, to make the evidence conclusive.

Summary of Chapter

Purpose and Procedure of Experiment.- The earlier chapters of this investigation dealt with a survey of emotional and personality traits and the relation of those traits to learning. The present chapter reports an experimental approach to the problem. In this chapter the term "learning" is restricted to problem solving as expressed in the solving of puzzles. The purpose of the experimental approach was to see how the specific data fit in with the evidence obtained from the survey.

The Method.- The method consisted in noting children's success, patience, and emotional reactions while solving puzzles known as the boot puzzle, the T puzzle, and the triangle puzzle.

Analysis of Data.- The data were analyzed through

(1) a description of learning involved in solving puzzles, (2) individual and sex differences as these are related to ability and patience in working at difficult puzzles, (3) comparisons of children grouped according to the patience they expressed in puzzle solving, (4) a statistical analysis of the children's remarks and behavior while solving puzzles, (5) a study of the actual remarks and behavior expressed by the children while solving puzzles, through a classification of those remarks and through case studies, (6) and a study of the nervous signs exhibited by the children.

The Picture of Learning Presented by the Solving of Puzzles.- The evidence from the learning of the subjects who solved the puzzles indicates that learning to solve a puzzle requires a relatively much longer time for the first trial than for later trials. The behavior of the subjects included a combination of random activity, indifference, and analyses, ending with sudden solution.

Individual and Sex Differences.- Individual and sex differences in ability to solve puzzles and in patience to work at difficult puzzles were noted. Over half of the children were able to solve the boot puzzle and only four out of eighty succeeded in solving the T puzzle. Those who were successful on the boot puzzle showed more patience on the T puzzle than those who failed on the boot puzzle. The boys were able to solve the boot puzzle in less time than

the girls.

Comparisons of Group Showing Most Patience with Group Showing Least Patience.- A comparison of those who showed the most patience as expressed by the time they worked on the puzzle before giving up, with those who showed the least patience in working on the T puzzle, reveals interesting differences. Both groups are similar in mental age and in the size of family to which they belong. The group showing the least patience is slightly superior in economic status. In all other factors, covering various emotional and personality traits and educational achievement, the group showing the most patience is superior. The data suggest that perhaps educators have laid too much stress on intelligence and have not given due consideration to the importance of non-intellectual characteristics for school success.

Analysis of Remarks and Conduct.- A statistical analysis of the children's remarks and conduct while solving the puzzles shows that the predominant remarks were of an emotional nature. The boys made more oral emotional remarks than the girls. The group showing the most patience in working on the puzzle made fewer emotional remarks, fewer remarks showing discouragement, and expressed less emotional conduct than the group that showed the least patience.

The Nature of the Actual Remarks and Behavior.- The

children's behavior was classified under emotional remarks which included remarks showing encouragement, discouragement, and determination, analytical remarks, digressions, and grimaces or emotional conduct. The data show concretely the emotional setting of the problem solving situation. The predominant expressions were those of discouragement while analysis played only a minor role.

The children's behavior during the problem solving situation reflected their emotional and personality traits.

Special case studies were presented in order to give more complete pictures of children's behavior while in a learning situation. The children's emotional responses and patience while working on the puzzles corresponded closely with their general attitudes and achievement in school.

Nervous Signs.- The subjects were checked according to Olson's check list of nervous conduct. There seemed to be a tendency for those who were unsuccessful to show more nervous signs than those who were successful, but the total number of children showing nervous signs were too few and the period of observation too short to make the evidence conclusive.

Conclusions

The following conclusions may be made, limited to

the conditions and subjects of this study.

1. Puzzle solving situations are useful in studying the emotional responses of children to a learning situation.

2. Much variability is found in children's ability to solve problems and in their patience to work at difficult problems. Boys are able to solve puzzles more quickly than girls.

3. Groups showing much patience in problem solving are superior in emotional and personality traits and in educational achievement to groups showing little patience.

4. Children's remarks and non-verbal behavior, during a problem solving situation, show a predominance of emotional over rational behavior.

5. The actual remarks and conduct of the children give concrete evidence of the feelings of discouragement which exist in a problem solving situation.

6. Special case studies show common elements in children's emotional and personality traits as expressed in a problem solving situation and in their attitudes and achievement in school.

7. The results suggest the need for training children to approach problems in a calm, patient, and analytical manner.

8. The data of the experiment support the evidence found in the survey by showing:
   (a) The importance of emotional and personality traits to learning.
   (b) The importance of patience or perseverance to learning.

CHAPTER VII

SUMMARY AND CONCLUSION

Problem and General Procedure

The Problem.- The aim of this investigation is to gain some insight into the personality and emotional factors of sixth grade children and to note the influence of those factors upon the children's school achievement and their solution of problems.

The General Procedure.- Both the survey and experimental methods were used. The general procedure consisted, first, in the development and administration of a series of group tests, and second, in an intensive study of children's behavior during the process of solving puzzles, with particular attention to factors of personality and emotions.

Treatment of Data.- A variety of methods were used in analyzing the data. The methods include:

1. Extensive comparisons of ability groups in regard to emotional and personality traits, educational factors, and social background.
2. A study of the relationships of these factors by the use of the correlation technique.
3. An analysis of children's learning and behavior as exhibited while working puzzles with special

attention to:

(a) The general nature of the learning involved;
(b) Individual differences in ability to solve puzzles and in time spent before giving up;
(c) A comparison of the personality, emotional, educational, and social traits of the group that worked longest before giving up a puzzle with the group that gave up most quickly;
(d) The nature of their remarks and behavior;
(e) The actual remarks and behavior of the children;
(f) The expression of nervousness.

Because little conclusive evidence concerning the relation of emotions to learning is found in the literature, it was felt that a variety of approaches to the problem would supplement each other and make the picture more complete. An approach by means of group comparisons in personality and emotional traits involved ability groups that differed in intelligence and scholarship, and also groups classified on the basis of the length of time they stayed with a problem. A more rigid statistical approach was the study of relationships of the different factors by the use of the Pearson product-moment correlation technique. Other approaches involved the actual conduct expressed while solving puzzles and the learning that took place.

The Subjects.- The subjects of this study comprised 286 sixth grade boys and girls from two suburban, elementary public schools of Cincinnati, the Avondale Public School and

the Pleasant Ridge Public School. All the subjects from the Avondale School were classified into six ability groups based on intelligence and achievement. The Pleasant Ridge class represented the upper middle sixth grade group of that school, classified on the same basis as the Avondale children. The averages for the children of the two schools were practically the same in chronological and mental age, socio-economic status and occupational level of the father.

Survey of the Literature.- A survey of the literature describes studies of learning related to personality, learning experiments, and methods and techniques used to test various personality traits. The material shows the need for further research for the purpose of improving and refining tools and of acquiring additional data. The existence of an ever-growing realization of the importance of emotions and personality in relation to learning and to social adjustment is seen in a review of the literature.

Techniques and Procedure for Survey

The two major approaches to the problem consisted of a testing program and an experiment. It was necessary to develop several new testing instruments for the purpose of measuring certain emotional and personality traits.

The Emotionality Test.- An Emotionality Test was

devised which consisted of a number of experiences that make up the daily life of a sixth grade child. Separate tests were made for boys and girls. On this test the children recorded their feelings towards the various items by encircling one of the expressions, "Like much," "Like," "don't mind," "Don't like," and "Hate," for every experience listed in the test.

The Emotional Instability Test.- The same method was used with an Emotional Instability Test made up of the experiences which many of the children did not like. The degrees of feeling which could be recorded on this test were, "Like," "Don't mind," "Don't like," "Hate," and "Hate much," Scores were obtained for the two tests and for boys and girls in Emotionality and Emotional Instability.

The validity of the Emotionality Test and the Emotional Instability Test was checked by correlating the scores with teachers' rankings. The reliability was established by the retesting method.

The Introversion-Extroversion Test.- Fifty characteristics of introversion-extroversion, as listed by Freyd, were put in the form of questions that are within the experiences of sixth grade children, and were used as a test of introversion-extroversion. Two forms of this test were used. The reliability of these tests was established by

the retesting method.

Measurement of Inconsistency.- The disagreement on the two forms of the introversion-extroversion test was used as a measurement of inconsistency.

Pessimism-Optimism Test.- A test of pessimism-optimism was devised which consisted of twenty-five very short stories that have two possible endings, a happy one and a sad one.

Superiority-Inferiority Feeling.- The children's self rating in comparison with their ideal sixth grade child was used as a measurement of superiority-inferiority feeling.

Written Problem Test.- A paper and pencil problem test was devised for the purpose of testing the patience of the subjects in problem solving.

Other Tests and Sources of Data.- Other tests and sources of data consisted of a Racial Attitudes Indicator for testing racial tolerance; the Monroe Silent Reading Test, for testing reading comprehension; teachers' report marks as a measure of scholarship; the Sims Score Card for Socio-Economic Status; the Barr Scale of Occupational Level, records of the amount of sleep taken by the children, and the number of children in the family, for measuring the home background of the subjects.

Procedure for Experimental Program

The Problem.- The experimental part of the study dealt more specifically with learning as expressed through the solving of puzzles. The object was to record the children's progress and conduct while they were actually at work for the purpose of observing the emotional and rational nature of their reactions.

The Puzzles.- The puzzles used were (1) the boot puzzle, a flat metal boot two and one half inches long from which a metal bottle had to be separated; a T puzzle made up of four flat pieces which to be put together to form the letter T; and a triangle puzzle made up of seven pieces of cardboard which enclosed a triangle when put together correctly.

Experimental Procedure.- The children were tested individually on the puzzles which they were asked to solve. The amount of time they worked on the problem before giving up, and their remarks and emotional conduct were recorded. They were also asked to write their introspections immediately after giving up on the puzzles. Comparisons were made of the twenty-one children who worked longer than forty minutes with the eighteen children who gave up in less than eighteen minutes. The two groups were compared in terms of all the factors for which data were available as a result

of the various tests described in the first part of this investigation.

The remarks and introspections of the children were tabulated under various emotional and analytical remarks. Normal and unusual case studies were presented. The actual remarks and introspections were listed.

Summary of Major Findings

It is understood that the results of this study are limited to the 286 subjects used and may differ from the findings of similar studies made with other subjects. The present investigation leads to the following conclusions.

I. Comparisons of seven ability groups in emotion
emotional and personality traits, educational achievement and social background show:

A. Personality Tests

1. A direct relationship exists between mental age and class status.

2. Little relationship is found between class status and psychoneurotic tendencies as expressed by scores on the Woodworth-Cady Questionnaire.

3. No significant differences are found on the Emotionality Test scores.

4. Little variability among classes is found on the Emotional Instability Test except for a slight tendency for the upper groups to score somewhat higher in the number of dislikes, and for the girls to be more easily annoyed than the boys.

5. Class status based on achievement is not related to class averages in introversion.

6. There is little class difference in inconsistency except that the lower classes are somewhat more inconsistent.

7. The upper groups are somewhat more pessimistic.

8. The lower groups score only very slightly lower in the feeling of inferiority.

B. Educational Factors

1. Consistently diminishing averages from the upper to the lower group are found in teachers' marks and in reading.

2. Results from a specially devised problem test show a tendency for the upper classes to attain higher marks.

C. Social Factors

1. The Barr ratings follow the ranking of the classes more closely than do the Sims scores.

2. There is a tendency for the upper groups to belong to smaller families.

3. No difference between the groups is found in racial tolerance except that the two lowest groups show less tolerance.

II. Intercorrelations of seventeen factors dealing with intelligence, emotional and personality traits, educational achievement, and social background, yield the following results:

A. In general, very low intercorrelations are found.

B. Mental age shows little correlation with personality factors but is related to teachers' marks, reading ability, and socio-economic status.

C. There is a tendency for psychoneurotic qualities to be associated with introversion, inconsistency, pessimism, and inferiority feeling, and to be negatively associated with time spent on T puzzle and emotionality.

D. School success is not at all related to scores on the Woodworth-Cady Questionnaire but is related to patience as expressed by time spent on the T puzzle.

III. The following evidence was obtained from the experimental approach through puzzle solving in which the children's success, patience, and emotional reactions were noted:

A. The group expressing the most patience in puzzle solving showed definite superiority in most of the tests used to investigate the emotional and personality characteristics of the subjects; in scholarship and reading ability; and in puzzle solving.

B. This superiority was found despite the fact that both groups were of the same average mental and chronological ages and social background.

C. The superiority of the most patient group in most of the tests helps to support the validity of those tests.

D. Analysis of children's remarks and conduct while working puzzles shows concretely and vividly the emotional setting of a problem solving situation, with discouragement as the major emotional reaction.

E. Case studies show that children's conduct while working the puzzles was in keeping with their general conduct and attitude in school.

General Conclusions

A few outstanding general conclusions of the investigation are herewith presented.

1. Comparisons of ability groups show no significant group differences in the non-intellectual traits studied. The findings suggest that for superior children the present method of grouping does not stimulate growth in desirable personality traits and in emotional maturity.

2. On the other hand, comparisons of groups of similar mental ability but differing in patience, show that the most patient group is superior in emotional and personality traits and in educational achievement. The findings suggest the importance of emotional maturity to school success.

3. Much variability is found in children's ability to solve problems and in their patience in working at difficult problems.

4. Children's remarks and non-verbal behavior, during a problem solving situation, show a predominance of emotional over rational behavior.

5. Emotional feeling, especially that of discouragement, acts as a retarding factor in problem solving.

6. Common elements are found in children's emotional and personality traits as expressed in a problem solving situation and in their attitudes and achievement in school.

Educational Implications

The following educational implications grow out of the investigation:

1. Children should be given early, definite, and continuous training in emotional control in relation to problem solving. This applies to formal school problems and to more personal and social problems.

2. Training children to work at a task more persistently and in a calm, patient, and analytical manner, will aid them to succeed in school and to gain confidence in their own ability.

3. Children should be trained from infancy not to dissipate their emotions in situations which are beyond their control but to adjust themselves to the conditions which they have to face. Such training should be definite and concrete with little children, and more general only with those who can apply generalizations.

4. The combination of an intelligence test, with a child's patience and emotional reaction on a puzzle, should be helpful in predicting the child's success in school.

5. Education for emotional maturity of children should not be the result of haphazard and occasional instruction, but should follow a definite program based on the problems children must face at different age levels.

6. Emotional and social maturity should be regarded as of fundamental significance in the grouping of children and educational tasks should be based on the individual differences in mentality. The activity program is the suggested solution since it enables children to work together at tasks requiring cooperation, patience, and emotional control of all, and allows for differences in intellectual ability to fit the various phases of the unit of work.

7. Standards in emotional maturity, as well as scholastic attainment in accordance with each child's ability, should be set up as requirements for promotion from grade to grade.

Suggested Problems

The following problems are suggested as an outgrowth of the present investigation.

1. Have children of two groups work difficult puzzles. Say nothing to the first group and give the second group a talk on the importance of emotional control, analysis, and patience in problem solving. Compare results in time and achievement.

2. Develop a program for training in emotional maturity for home and school, at the different age levels.

3. Develop a course for parents and teachers in how to direct the emotional needs of children.

4. Test children of different age levels, and also adults, on the puzzle problem and compare results.

5. Give children tests in psychoneurotic tendencies, introversion-extroversion, emotionality, emotional instability, and educational achievement. Select the specific test items that indicate poor emotional attitudes and develop specific methods to re-educate the children expressing the poor attitudes. Note the effect on the personality and educational achievement of the children.

6. Use the puzzle test with problem children, children of widely different economic levels, children of different racial groups, rural and city children. Compare the results.

7. Give children a series of various problems and note whether those who show patience in one problem tend to express the same attitude in other problems. Note whether improvement in emotional control and method of attack results from experience with many problems.

8. Tabulate the items listed by the children in their "Ideal Sixth Grade Child" in order to get an idea of the standards sixth grade children admire.

9. Tabulate the worries listed by sixth grade children in order to find out what children worry about and to correct it where possible.

10. Test children of the same grade in achievement, and in non-intellectual traits as measured by the tests used in this study and by their reaction on the puzzles. Group them on the basis of their scores in the non-intellectual traits. Develop a unit of study which will permit each child to work to his fullest potentialities. Retest at the end of the year and note growth in achievement and in emotional and personality traits.

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A P P E N D I X

NAME_____ AGE____ GRADE____ BOY OR GIRL____ DATE____ ROOM____

APPENDIX A. BOYS' EMOTIONAL INSTABILITY TEST

DIRECTIONS.- We would like to know how children feel about different things. In these lists of different things put a circle around the word or words which best tells how you feel about each thing on the list. Be sure to put your true feelings.
If you like something nn this list put a circle around Like. If you don't care either way put a circle around Don't mind. If you don't like The thing mentioned put a circle around Don't like. If you hate the thing put a circle around Hate. If you Hate the thing terribly put a circle around Hate much. Use only one circle for each thing mentioned. Answer everything on the list. Be sure to give your true feelings.

1. To get angry	Like	Don't mind	Don't like	Hate	Hate much
2. To attract attention	Like	Don't mind	Don't like	Hate	Hate much
3. Autumn	Like	Don't mind	Don't like	Hate	Hate much
4. Accidents	Like	Don't mind	Don't like	Hate	Hate much
5. Have people angry at me	Like	Don't mind	Don't like	Hate	Hate much
6. Ants	Like	Don't mind	Don't like	Hate	Hate much
7. People who always argue	Like	Don't mind	Don't like	Hate	Hate much
8. To ride a bike up a hill	Like	Don't mind	Don't like	Hate	Hate much
9. Ride bike in the street	Like	Don't mind	Don't like	Hate	Hate much
10. Go to baseball games	Like	Don't mind	Don't like	Hate	Hate much
11. Take brother to school	Like	Don't mind	Don't like	Hate	Hate much
12. Let brother break my games	Like	Don't mind	Don't like	Hate	Hate much
13. To be interrupted	Like	Don't mind	Don't like	Hate	Hate much
14. To break windows	Like	Don't mind	Don't like	Hate	Hate much
15. Bad smells	Like	Don't mind	Don't like	Hate	Hate much
16. To be still	Like	Don't mind	Don't like	Hate	Hate much
17. To be scolded	Like	Don't mind	Don't like	Hate	Hate much
18. To be nagged	Like	Don't mind	Don't like	Hate	Hate much
19. To bite my nails.	Like	Don't mind	Don't like	Hate	Hate much
20. To take a bath	Like	Don't mind	Don't like	Hate	Hate much
21. To be bothered when doing something	Like	Don't mind	Don't like	Hate	Hate much
22. To be blamed for something I didn't do	Like	Don't mind	Don't like	Hate	Hate much
23. Certain boys.	Like	Don't mind	Don't like	Hate	Hate much
24. Certain girls	Like	Don't mind	Don't like	Hate	Hate much
25. Little brothers	Like	Don't mind	Don't like	Hate	Hate much
26. My brother	Like	Don't mind	Don't like	Hate	Hate much
27. My sister	Like	Don't mind	Don't like	Hate	Hate much
28. My sister's singing	Like	Don't mind	Don't like	Hate	Hate much
29. To borrow money	Like	Don't mind	Don't like	Hate	Hate much
30. To brag	Like	Don't mind	Don't like	Hate	Hate much
31. A flat tire on my bike	Like	Don't mind	Don't like	Hate	Hate much
32. A bully	Like	Don't mind	Don't like	Hate	Hate much
33. Bugs	Like	Don't mind	Don't like	Hate	Hate much
34. Flies	Like	Don't mind	Don't like	Hate	Hate much
35. To clean the cellar	Like	Don't mind	Don't like	Hate	Hate much
36 climb steps	Like	Don't mind	Don't like	Hate	Hate much
37. To bathe the dog	Like	Don't mind	Don't like	Hate	Hate much
38. To cross streets	Like	Don't mind	Don't like	Hate	Hate much
39. To go to concerts	Like	Don't mind	Don't like	Hate	Hate much
40. To curse	Like	Don't mind	Don't like	Hate	Hate much

41. Cats	Like	Don't mind	Don't like	Hate	Hate much
42. Take castor oil	Like	Don't mind	Don't like	Hate	Hate much
43. Listen to concerts	Like	Don't mind	Don't like	Hate	Hate much
44. Dark clouds	Like	Don't mind	Don't like	Hate	Hate much
45. Cold weather	Like	Don't mind	Don't like	Hate	Hate much
46. Take care of my cousin	Like	Don't mind	Don't like	Hate	Hate much
47. Clean the goldfish bowl	Like	Don't mind	Don't like	Hate	Hate much
48. To clean the house	Like	Don't mind	Don't like	Hate	Hate much
49. To clean the machine	Like	Don't mind	Don't like	Hate	Hate much
50. Cross bridges with water below	Like	Don't mind	Don't like	Hate	Hate much
51. To climb poles	Like	Don't mind	Don't like	Hate	Hate much
52. To see people crying	Like	Don't mind	Don't like	Hate	Hate much
53. To cry	Like	Don't mind	Don't like	Hate	Hate much
54. People who cheat	Like	Don't mind	Don't like	Hate	Hate much
55. Unfair things	Like	Don't mind	Don't like	Hate	Hate much
D 56. To dance	Like	Don't mind	Don't like	Hate	Hate much
57. To wash and dry dishes	Like	Don't mind	Don't like	Hate	Hate much
58. Dead dogs	Like	Don't mind	Don't like	Hate	Hate much
59. Dead animals	Like	Don't mind	Don't like	Hate	Hate much
60. Going to the dentist	Like	Don't mind	Don't like	Hate	Hate much
61. Dirty teeth	Like	Don't mind	Don't like	Hate	Hate much
62. People on diets	Like	Don't mind	Don't like	Hate	Hate much
63. Soiled books	Like	Don't mind	Don't like	Hate	Hate much
64. Dirt	Like	Don't mind	Don't like	Hate	Hate much
65. Dirty hands	Like	Don't mind	Don't like	Hate	Hate much
66. Dirty people	Like	Don't mind	Don't like	Hate	Hate much
67. Going with dirty children	Like	Don't mind	Don't like	Hate	Hate much
68. Doing things I don't like	Like	Don'tmind	Don't like	Hate	Hate much
69. To go to a doctor	Like	Don't mind	Don't like	Hate	Hate much
70. A strong draught (wind)	Like	Don't mind	Don't like	Hate	Hate much
71. To get dressed	Like	Don't mind	Don't like	Hate	Hate much
72. A biting dog	Like	Don't mind	Don't like	Hate	Hate much
73. A dog barking	Like	Don't mind	Don't like	Hate	Hate much
74. To have dimples	Like	Don't mind	Don't like	Hate	Hate much
75. To see dry plays	Like	Don't mind	Don't like	Hate	Hate much
76. To have disappointments	Like	Don't mind	Don't like	Hate	Hate much
77. To be stupid	Like	Don'tmind	Don't like	Hate	Hate much
78. Stupid people	Like	Don't mind	Don't like	Hate	Hate much
E 79. To eat	Like	Don't mind	Don't like	Hate	Hate much
80. To eat candy	Like	Don't mind	Don't like	Hate	Hate much
81. To eat cereal	Like	Don't mind	Don't like	Hate	Hate much
82. To eat fried eggs	Like	Don't mind	Don't like	Hate	Hate much
83. To eat roast chicken	Like	Don't mind	Don't like	Hate	Hate much
84. To eat corn	Like	Don't mind	Don't like	Hate	Hate much
85. To eat liver	Like	Don't mind	Don't like	Hate	Hate much
86. To eat potato salad	Like	Don't mind	Don't like	Hate	Hate much
87. To eat radishes	Like	Don't mind	Don't like	Hate	Hate much
88. Eat cheese sandwiches	Like	Don't mind	Don't like	Hate	Hate much
89. Eat turnips	Like	Don't mind	Don't like	Hate	Hate much
90. Eat carrots	Like	Don't mind	Don't like	Hate	Hate much
91. Eat cauliflower	Like	Don't mind	Don't like	Hate	Hate much
92. Eat meat	Like	Don't mind	Don't like	Hate	Hate much
93. Eat string beans	Like	Don't mind	Don't like	Hate	Hate much
94. Drink cider	Like	Don't mind	Don't like	Hate	Hate much
95. Eat asparagus	Like	Don't mind	Don't like	Hate	Hate much
96. Eat Brussel sprouts	Like	Don't mind	Don't like	Hate	Hate much
97. Eat cabbage	Like	Don't mind	Don't like	Hate	Hate much
98. Eat sour crout	Like	Don't mind	Don't like	Hate	Hate much
99. Eat cheese	Like	Don't mind	Don't like	Hate	Hate much
100. Eat potatoes	Like	Don't mind	Don't like	Hate	Hate much

101. Eat cottage cheese	Like	Don't mind	Don't like	Hate	Hate much
102. To eat onions	Like	Don't mind	Don't like	Hate	Hate much
103. To drink milk	Like	Don't mind	Don't like	Hate	Hate much
104. To eat mayonaise	Like	Don't mind	Don't like	Hate	Hate much
105. To eat spinach	Like	Don't mind	Don't like	Hate	Hate much
106. To eat lima beans	Like	Don't mind	Don't like	Hate	Hate much
107. To eat pickles	Like	Don't mind	Don't like	Hate	Hate much
108. To eat vegetables	Like	Don't mind	Don't like	Hate	Hate much
109. To wait for lunch	Like	Don't mind	Don't like	Hate	Hate much
110. When I can't get a drink	Like	Don't mind	Don't like	Hate	Hate much
111. To eat things I don't like	Like	Don't mind	Don't like	Hate	Hate much
112. An electric shock	Like	Don't mind	Don't like	Hate	Hate much
113. To run errands	Like	Don't mind	Don't like	Hate	Hate much
114. To fight	Like	Don't mind	Don't like	Hate	Hate much
115. To lose in a fight	Like	Don't mind	Don't like	Hate	Hate much
116. To fall down	Like	Don't mind	Don't like	Hate	Hate much
117. To fix a bicycle	Like	Don't mind	Don't like	Hate	Hate much
118. Fat people	Like	Don't mind	Don't like	Hate	Hate much
119. To fight with brother	Like	Don't mind	Don't like	Hate	Hate much
120. To fight for brother	Like	Don't mind	Don't like	Hate	Hate much
121. To fight little boys	Like	Don't mind	Don't like	Hate	Hate much
122. To fix anything	Like	Don't mind	Don't like	Hate	Hate much
123. To sleep in afternoon	Like	Don't mind	Don't like	Hate	Hate much
124. To go with girls	Like	Don't mind	Don't like	Hate	Hate much
125. To cut grass	Like	Don't mind	Don't like	Hate	Hate much
126. To work in a garden	Like	Don't mind	Don't like	Hate	Hate much
127. See girls act grown up	Like	Don't mind	Don't like	Hate	Hate much
128. Girls	Like	Don't mind	Don't like	Hate	Hate much
129. Some girls	Like	Don't mind	Don't like	Hate	Hate much
130. A gloomy day	Like	Don't mind	Don't like	Hate	Hate much
131. Hear someone grit teeth	Like	Don't mind	Don't like	Hate	Hate much
132. When I can't go anyplace	Like	Don't mind	Don't like	Hate	Hate much
133. Gold teeth	Like	Don't mind	Don't like	Hate	Hate much
134. Get snow down my back	Like	Don't mind	Don't like	Hate	Hate much
135. A guilty conscience	Like	Don't mind	Don't like	Hate	Hate much
136. To go to bed	Like	Don't mind	Don't like	Hate	Hate much
137. To go to bed early	Like	Don't mind	Don't like	Hate	Hate much
138. To go to bed late	Like	Don't mind	Don't like	Hate	Hate much
139. To get up late	Like	Don't mind	Don't like	Hate	Hate much
140. Ride up slippery mountains	Like	Don't mind	Don't like	Hate	Hate much
141. To wash my hair	Like	Don't mind	Don't like	Hate	Hate much
142. To bite my nails	Like	Don't mind	Don't like	Hate	Hate much
143. To hurt someone	Like	Don't mind	Don't like	Hate	Hate much
144. To dust furniture	Like	Don't mind	Don't like	Hate	Hate much
145. To scrub	Like	Don't mind	Don't like	Hate	Hate much
146. Go to Sunday school or Religious school	Like	Don't mind	Don't like	Hate	Hate much
147. To wear a hat	Like	Don't mind	Don't like	Hate	Hate much
148. To wear high shoes	Like	Don't mind	Don't like	Hate	Hate much
149. Hair that is not combed	Like	Don't mind	Don't like	Hate	Hate much
150. To get a hair cut	Like	Don't mind	Don't like	Hate	Hate much
151. To be in the hospital	Like	Don't mind	Don't like	Hate	Hate much
152. To have headaches	Like	Don't mind	Don't like	Hate	Hate much
153. Scorching hot days	Like	Don't mind	Don't like	Hate	Hate much
154. To get hurt	Like	Don't mind	Don't like	Hate	Hate much
155. To be slapped	Like	Don't mind	Don't like	Hate	Hate much
156. To itch	Like	Don't mind	Don't like	Hate	Hate much
157. Insects	Like	Don't mind	Don't like	Hate	Hate much
158. Have my bad habits imitated	Like	Don't mind	Don't like	Hate	Hate much
159. To kiss people	Like	Don't mind	Don't like	Hate	Hate much
160. To tell lies	Like	Don't mind	Don't like	Hate	Hate much

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161. To listen to comedians	Like	Don't mind	Don't like	Hate	Hate much	
162. People who tell lies	Like	Don't mind	Don't like	Hate	Hate much	
163. To eat lunch in school	Like	Don't mind	Don't like	Hate	Hate much	
164. Be accused of lying	Like	Don't mind	Don't like	Hate	Hate much	
165. To lose someone's thing	Like	Don't mind	Don't like	Hate	Hate much	
166. To lose a fountain pen	Like	Don't mind	Don't like	Hate	Hate much	
167. To lose anything	Like	Don't mind	Don't like	Hate	Hate much	
168. To lose money	Like	Don't mind	Don't like	Hate	Hate much	
169. To lose in a ball game	Like	Don't mind	Don't like	Hate	Hate much	
170. To lose in any game	Like	Don't mind	Don't like	Hate	Hate much	
171. To lose in marbles	Like	Don't mind	Don't like	Hate	Hate much	
172. To lose in card games	Like	Don't mind	Don't like	Hate	Hate much	
173. To get a whipping	Like	Don't mind	Don't like	Hate	Hate much	
174. To get a whipping for something I didn't do	Like	Don't mind	Don't like	Hate	Hate much	
175. To be thrown in a lake	Like	Don't mind	Don't like	Hate	Hate much	
176. People laughing when I get hurt	Like	Don't mind	Don't like	Hate	Hate much	
177. Hear loud radios	Like	Don't mind	Don't like	Hate	Hate much	
178. Love	Like	Don't mind	Don't like	Hate	Hate much	
179. Love movies	Like	Don't mind	Don't like	Hate	Hate much	
M 180. To go to meetings	Like	Don't mind	Don't like	Hate	Hate much	
181. To build a bonfire	Like	Don't mind	Don't like	Hate	Hate much	
182. A mean person	Like	Don't mind	Don't like	Hate	Hate much	
183. To take medicine	Like	Don't mind	Don't like	Hate	Hate much	
184. Censored shows	Like	Don't mind	Don't like	Hate	Hate much	
185. To listen to music	Like	Don't mind	Don't like	Hate	Hate much	
186. To water mother's plants	Like	Don't mind	Don't like	Hate	Hate much	
187. Read about ShirleyTemple	Like	Don't mind	Don't like	Hate	Hate much	
188. Mosquitoes	Like	Don't mind	Don't like	Hate	Hate much	
189. Monday morning	Like	Don't mind	Don't like	Hate	Hate much	
190. To be poor	Like	Don't mind	Don't like	Hate	Hate much	
191. To have nothing to do	Like	Don't mind	Don't like	Hate	Hate much	
N 192. Noise	Like	Don't mind	Don't like	Hate	Hate much	
193. Nurses	Like	Don't mind	Don't like	Hate	Hate much	
194. Night-mares	Like	Don't mind	Don't like	Hate	Hate much	
O 195. Old jokes	Like	Don't mind	Don't like	Hate	Hate much	
196. To hear operas	Like	Don't mind	Don't like	Hate	Hate much	
197. Old maids	Like	Don't mind	Don't like	Hate	Hate much	
198. To be operated on	Like	Don't mind	Don't like	Hate	Hate much	
P 199. To practice the piano	Like	Don't mind	Don't like	Hate	Hate much	
200. To play violin	Like	Don't mind	Don't like	Hate	Hate much	
201. To play bridge	Like	Don't mind	Don't like	Hate	Hate much	
202. To plant things	Like	Don't mind	Don't like	Hate	Hate much	
203. To go to parties	Like	Don't mind	Don't like	Hate	Hate much	
204, To paste pictures	Like	Don't mind	Don't like	Hate	Hate much	
205. To have no time for play	Like	Don't mind	Don't like	Hate	Hate much	
206. Not to be in plays	Like	Don't mind	Don't like	Hate	Hate much	
207. To give a party	Like	Don't mind	Don't like	Hate	Hate much	
208. To come in after playing	Like	Don't mind	Don't like	Hate	Hate much	
209. Not get what was promised	Like	Don't mind	Don't like	Hate	Hate much	
210. To be punished	Like	Don't mind	Don't like	Hate	Hate much	
211. To see ugly pictures	Like	Don't mind	Don't like	Hate	Hate much	
212. To get poison ivy	Like	Don't mind	Don't like	Hate	Hate much	
213. To take piano lessons	Like	Don't mind	Don't like	Hate	Hate much	
214. Banging on the piano	Like	Don't mind	Don't like	Hate	Hate much	
215. People who act funny	Like	Don't mind	Don't like	Hate	Hate much	

216. Read boring books	Like	Don't mind	Don't like	Hate	Hate much
217. Read mystery books	Like	Don't mind	Don't like	Hate	Hate much
218. Read fairy stories	Like	Don't mind	Don't like	Hate	Hate much
219. Ride on a wagon	Like	Don't mind	Don't like	Hate	Hate much
220. To rake the yard	Like	Don't mind	Don't like	Hate	Hate much
221. Rain	Like	Don't mind	Don't like	Hate	Hate much
222. To be rediculed	Like	Don't mind	Don't like	Hate	Hate much
223. Sarcastic remarks	Like	Don't mind	Don't like	Hate	Hate much
224. Rats	Like	Don't mind	Don't like	Hate	Hate much
225. To rake leaves	Like	Don't mind	Don't like	Hate	Hate much
226. Radio on while studying	Like	Don't mind	Don't like	Hate	Hate much
227. Roaches	Like	Don't mind	Don't like	Hate	Hate much
228. To read	Like	Don't mind	Don't like	Hate	Hate much
229. To have relics	Like	Don't mind	Don't like	Hate	Hate much
230. To hear Bing Crosby	Like	Don't mind	Don't like	Hate	Hate much
231. Spelling	Like	Don't mind	Don't like	Hate	Hate much
232. To read my compositions	Like	Don't mind	Don't like	Hate	Hate much
233. To pass rooms in school	Like	Don't mind	Don't like	Hate	Hate much
234. To write book reports	Like	Don't mind	Don't like	Hate	Hate much
235. To learn poems	Like	Don't mind	Don't like	Hate	Hate much
236. To take gym	Like	Don't mind	Don't like	Hate	Hate much
237. To sew	Like	Don't mind	Don't like	Hate	Hate much
238. Geography	Like	Don't mind	Don't like	Hate	Hate much
239. To take tests	Like	Don't mind	Don't like	Hate	Hate much
240. To be in stuffy rooms	Like	Don't mind	Don't like	Hate	Hate much
241. To stay in the house	Like	Don't mind	Don't like	Hate	Hate much
242. To go shopping	Like	Don't mind	Don't like	Hate	Hate much
243. To take care of the house	Like	Don't mind	Don't like	Hate	Hate much
244. To tie my shoe strings	Like	Don't mind	Don't like	Hate	Hate much
245. To have to miss school	Like	Don't mind	Don't like	Hate	Hate much
246. To go to school	Like	Don't mind	Don't like	Hate	Hate much
247. To get low marks	Like	Don't mind	Don't like	Hate	Hate much
248. Certain teachers	Like	Don't mind	Don't like	Hate	Hate much
249. Mean teachers	Like	Don't mind	Don't like	Hate	Hate much
250. Teachers who have pets	Like	Don't mind	Don't like	Hate	Hate much
251. Teachers who don't like me	Like	Don't mind	Don't like	Hate	Hate much
252. Writing lessons	Like	Don't mind	Don't like	Hate	Hate much
253. To write compositions	Like	Don't mind	Don't like	Hate	Hate much
254. To memorize poems	Like	Don't mind	Don't like	Hate	Hate much
255. Arithmetic	Like	Don't mind	Don't like	Hate	Hate much
256. Grammar	Like	Don't mind	Don't like	Hate	Hate much
257. History	Like	Don't mind	Don't like	Hate	Hate much
258. Singing in school	Like	Don't mind	Don't like	Hate	Hate much
259. High singing	Like	Don't mind	Don't like	Hate	Hate much
260. Be sent to Principal	Like	Don't mind	Don't like	Hate	Hate much
261. To hear teachers preach	Like	Don't mind	Don't like	Hate	Hate much
262. To give talks	Like	Don't mind	Don't like	Hate	Hate much
263. To take art	Like	Don't mind	Don't like	Hate	Hate much
264. Manual training	Like	Don't mind	Don't like	Hate	Hate much
265. Long religious sermons	Like	Don't mind	Don't like	Hate	Hate much
266. To cook	Like	Don't mind	Don't like	Hate	Hate much
267. To do nightwork	Like	Don't mind	Don't like	Hate	Hate much
268. To set the table	Like	Don't mind	Don't like	Hate	Hate much
269. To sweep floors	Like	Don't mind	Don't like	Hate	Hate much
270. To go to the store	Like	Don't mind	Don't like	Hate	Hate much
271. To shovel snow	Like	Don't mind	Don't like	Hate	Hate much
272. To write letters	Like	Don't mind	Don't like	Hate	Hate much
273. Snow	Like	Don't mind	Don't like	Hate	Hate much
274. To have secrets	Like	Don't mind	Don't like	Hate	Hate much
275. To wrestle	Like	Don't mind	Don't like	Hate	Hate much

BOYS E-O-M INS. 6

276. To be sick	Like	Don't mind	Don't like	Hate	Hate much
277. To have a stomache ache	Like	Don't mind	Don't like	Hate	Hate much
278. To have scarlet fever	Like	Don't mind	Don't like	Hate	Hate much
279. To be scolded	Like	Don't mind	Don't like	Hate	Hate much
280. Squeeky seats	Like	Don't mind	Don't like	Hate	Hate much
281. People who show off	Like	Don't mind	Don't like	Hate	Hate much
282. A sissy	Like	Don't mind	Don't like	Hate	Hate much
283. To stop playing	Like	Don't mind	Don't like	Hate	Hate much
284. To have tricks played on me	Like	Don't mind	Don't like	Hate	Hate much
285. To go to someone's house	Like	Don't mind	Don't like	Hate	Hate much
286. To take Chances	Like	Don't mind	Don't like	Hate	Hate much
287. To be teased	Like	Don't mind	Don't like	Hate	Hate much
288. Two against one	Like	Don't mind	Don't like	Hate	Hate much
289. People who talk too much	Like	Don't mind	Don't like	Hate	Hate much
290. People who talk too slowly	Like	Don't mind	Don't like	Hate	Hate much
291. People who talk too fast	Like	Don't mind	Don't like	Hate	Hate much
292. To put my hand in a spider web	Like	Don't mind	Don't like	Hate	Hate much
293. To talk on the telephone	Like	Don't mind	Don't like	Hate	Hate much
294. Tattle tales	Like	Don't mind	Don't like	Hate	Hate much
295. To answer the telephone	Like	Don't mind	Don't like	Hate	Hate much
296. To get in trouble	Like	Don't mind	Don't like	Hate	Hate much
297. Ugly people	Like	Don't mind	Don't like	Hate	Hate much
298. To wear a coat	Like	Don't mind	Don't like	Hate	Hate much
299. To carry an umbrella	Like	Don't mind	Don't like	Hate	Hate much
300. To wear knickers	Like	Don't mind	Don't like	Hate	Hate much
301. Wear rubbers or galoshes	Like	Don't mind	Don't like	Hate	Hate much
302. To wear glasses	Like	Don't mind	Don't like	Hate	Hate much
303. To wear a tie	Like	Don't mind	Don't like	Hate	Hate much
304. To wash my face and hands	Like	Don't mind	Don't like	Hate	Hate much
305. To watch my dog	Like	Don't mind	Don't like	Hate	Hate much
306. To wash bath tub	Like	Don't mind	Don't like	Hate	Hate much
307. To wait for someone	Like	Don't mind	Don't like	Hate	Hate much
308. To wait in store while mother shops	Like	Don't mind	Don't like	Hate	Hate much
309. To walk under a ladder	Like	Don't mind	Don't like	Hate	Hate much
310. War	Like	Don't mind	Don't like	Hate	Hate much
311. To work around the house	Like	Don't mind	Don't like	Hate	Hate much
312. To walk home from school	Like	Don't mind	Don't like	Hate	Hate much
313. Winter	Like	Don't mind	Don't like	Hate	Hate much
314. To wear torn clothes	Like	Don't mind	Don't like	Hate	Hate much
315. To wear tight clothes	Like	Don't mind	Don't like	Hate	Hate much
316. To be alone	Like	Don't mind	Don't like	Hate	Hate much
317. To attract attention	Like	Don't mind	Don't like	Hate	Hate much
318. Have a date with a girl	Like	Don't mind	Don't like	Hate	Hate much
319. Hear talk of self control	Like	Don't mind	Don't like	Hate	Hate much
320. To be hurried	Like	Don't mind	Don't like	Hate	Hate much

Name _____ AGE ____ GRADE ____ BOY OR GIRL _____ DATE ____ ROOM ____

APPENDIX B. GIRLS' EMOTIONAL INSTABILITY TEST

DIRECTIONS.-We would like to know how children feel about different things. In these lists of different things put a circle around the word or words which best tells how you feel about each thing on the list. Be sure to put your true feelings.
If you like something on this list put a circle around Like. If you don't care either way put a circle around Don't mind. If you don't like the thing put a circle Don't like. If you hate the thing put a circle around Hate. If you hate the thing terribly put a circle around Hate much. Use only one circle for each thing mentioned. Answer everything on the list. Be sure to give your true feelings.

1. Have accidents	Like	Don't mind	Don't like	Hate	Hate much
2. Answer the telephone	Like	Don't mind	Don't like	Hate	Hate much
3. Be accused of something I didn't do	Like	Don't mind	Don't like	Hate	Hate much
4. Dangerous animals	Like	Don't mind	Don't like	Hate	Hate much
5. To get angry at someone	Like	Don't mind	Don't like	Hate	Hate much
6. Smart person acting dumb	Like	Don't mind	Don't like	Hate	Hate much
7. People minding my business	Like	Don't mind	Don't like	Hate	Hate much
8. To be nervous	Like	Don't mind	Don't like	Hate	Hate much
9. Play with little brother	Like	Don't mind	Don't like	Hate	Hate much
10. Play with little sister	Like	Don't mind	Don't like	Hate	Hate much
11. Take care of sister	Like	Don't mind	Don't like	Hate	Hate much
12. See little brother cry	Like	Don't mind	Don't like	Hate	Hate much
13. Have bad habits	Like	Don't mind	Don't like	Hate	Hate much
14. To be mean	Like	Don't mind	Don't like	Hate	Hate much
15. To be bad	Like	Don't mind	Don't like	Hate	Hate much
16. Bats	Like	Don't mind	Don't like	Hate	Hate much
17. Go to the barber	Like	Don't mind	Don't like	Hate	Hate much
18. Be overheated	Like	Don't mind	Don't like	Hate	Hate much
19. Have a brace on my teeth	Like	Don't mind	Don't like	Hate	Hate much
20. Babies	Like	Don't mind	Don't like	Hate	Hate much
21. Children acting like babies	Like	Don't mind	Don't like	Hate	Hate much
22. To take a bath	Like	Don't mind	Don't like	Hate	Hate much
23. To have my things bothered	Like	Don't mind	Don't like	Hate	Hate much
24. My brother	Like	Don't mind	Don't like	Hate	Hate much
25. Be bothered by brother	Like	Don't mind	Don't like	Hate	Hate much
26. Take care of little brother	Like	Don't mind	Don't like	Hate	Hate much
27. Be stuck with a needle	Like	Don't mind	Don't like	Hate	Hate much
28. A bully	Like	Don't mind	Don't like	Hate	Hate much
29. Burglars	Like	Don't mind	Don't like	Hate	Hate much
30. To bite my finger nails	Like	Don't mind	Don't like	Hate	Hate much
31. See people biting their finger nails	Like	Don't mind	Don't like	Hate	Hate much
32. To see animals bleeding	Like	Don't mind	Don't like	Hate	Hate much
33. Certain boys	Like	Don't mind	Don't like	Hate	Hate much
34. Be bothered by sister	Like	Don't mind	Don't like	Hate	Hate much
35. My sister's singing	Like	Don't mind	Don't like	Hate	Hate much
36. To miss a bus	Like	Don't mind	Don't like	Hate	Hate much
37. People who brag	Like	Don't mind	Don't like	Hate	Hate much
38. A dry speech	Like	Don't mind	Don't like	Hate	Hate much
39. To have my bicycle break	Like	Don't mind	Don't like	Hate	Hate much
40. To be treated like baby	Like	Don't mind	Don't like	Hate	Hate much

41. To be made fun of	Like	Don't mind	Don't like	Hate	Hate much
42. To be called names	Like	Don't mind	Don't like	Hate	Hate much
43. To be scolded	Like	Don't mind	Don't like	Hate	Hate much
44. People who scold	Like	Don't mind	Don't like	Hate	Hate much
45. To be botheredor pestered	Like	Don't mind	Don't like	Hate	Hate much
46. Be teased about boy friend	Like	Don't mind	Don't like	Hate	Hate much
47. Boys who make love to me	Like	Don't mind	Don't like	Hate	Hate much
48. Be bothered when reading	Like	Don't mind	Don't like	Hate	Hate much
49. See big boys bother dogs	Like	Don't mind	Don't like	Hate	Hate much
50. Young girl s who go with boys	Like	Don't mind	Don't like	Hate	Hate much
51. To ride on street cars	Like	Don't mind	Don't like	Hate	Hate much
52. People who are cross	Like	Don't mind	Don't like	Hate	Hate much
53. My cousin	Like	Don't mind	Don't like	Hate	Hate much
54. To be coaxed	Like	Don't mind	Don't like	Hate	Hate much
55. Certain children	Like	Don't mind	Don't like	Hate	Hate much
56. To take care of children	Like	Don't mind	Don't like	Hate	Hate much
57. Children who cheat	Like	Don't mind	Don't like	Hate	Hate much
58. Conceited people	Like	Don't mind	Don't like	Hate	Hate much
59. Discourteous Children	Like	Don't mind	Don't like	Hate	Hate much
60. Amusement parks	Like	Don't mind	Don't like	Hate	Hate much
61. Cats	Like	Don't mind	Don't like	Hate	Hate much
62. To clean the house	Like	Don't mind	Don't like	Hate	Hate much
63. To go to concerts	Like	Don't mind	Don't like	Hate	Hate much
64. To go to children's matinees	Like	Don't mind	Don't like	Hate	Hate much
65. See a crippled person	Like	Don't mind	Don't like	Hate	Hate much
66. Be called a cheater	Like	Don't mind	Don't like	Hate	Hate much
67. To go shopping	Like	Don't mind	Don't like	Hate	Hate much
68. Certain dresses	Like	Don't mind	Don't like	Hate	Hate much
69. See children show off	Like	Don't mind	Don't like	Hate	Hate much
70. To have company at home	Like	Don't mind	Don't like	Hate	Hate much
71. To hold a conversation	Like	Don't mind	Don't like	Hate	Hate much
72. To climb trees	Like	Don't mind	Don't like	Hate	Hate much
73. Stuffy places	Like	Don't mind	Don't like	Hate	Hate much
74. To change clothes often	Like	Don't mind	Don't like	Hate	Hate much
75. To keep clean	Like	Don't mind	Don't like	Hate	Hate much
76. To carry water in camp	Like	Don't mind	Don't like	Hate	Hate much
D 77. To darn socks	Like	Don't mind	Don't like	Hate	Hate much
78. To see dead people	Like	Don't mind	Don't like	Hate	Hate much
79. To dance	Like	Don't mind	Don't like	Hate	Hate much
80. Do something I don't like	Like	Don't mind	Don't like	Hate	Hate much
81. To wash dishes	Like	Don't mind	Don't like	Hate	Hate much
82. A dirty yard	Like	Don't mind	Don't like	Hate	Hate much
83. Dirty people	Like	Don't mind	Don't like	Hate	Hate much
84. To be dirty myself	Like	Don't mind	Don't like	Hate	Hate much
85. People who don't like to do anything	Like	Don't mind	Don't like	Hate	Hate much
86. When I can't do as I like	Like	Don't mind	Don't like	Hate	Hate much
87. To drink hot water	Like	Don't mind	Don't like	Hate	Hate much
88. Dead things	Like	Don't mind	Don't like	Hate	Hate much
89. To keep a diary	Like	Don't mind	Don't like	Hate	Hate much
90. To get a dress fitted	Like	Don't mind	Don't like	Hate	Hate much
91. Hear that someone has died	Like	Don't mind	Don't like	Hate	Hate much
92. See dead snakes	Like	Don't mind	Don't like	Hate	Hate much
93. Talk long on one subject	Like	Don't mind	Don't like	Hate	Hate much
94. Get dressed in the morning	Like	Don't mind	Don't like	Hate	Hate much
95. Be disturbed when I study	Like	Don't mind	Don't like	Hate	Hate much

GIRLS	E-M-O ING.				
96. Go to the dentist	Like	Don't mind	Don't like	Hate	Hate much
97. Have teeth pulled	Like	Don't mind	Don't like	Hate	Hate much
98. Go to the doctor	Like	Don't mind	Don't like	Hate	Hate much
99. Not to buy the dresses I want	Like	Don't mind	Don't like	Hate	Hate much
100. Not to go to dancing school	Like	Don't mind	Don't like	Hate	Hate much
101. To play with dolls	Like	Don't mind	Don't like	Hate	Hate much
102. To dust furniture	Like	Don't mind	Don't like	Hate	Hate much
103. To be disturbed	Like	Don't mind	Don't like	Hate	Hate much
104. To be disappointed	Like	Don't mind	Don't like	Hate	Hate much
105. To dream bad dreams	Like	Don't mind	Don't like	Hate	Hate much
106. To hear dogs bark	Like	Don't mind	Don't like	Hate	Hate much
107. To get near a dog	Like	Don't mind	Don't like	Hate	Hate much
108. Have my dog run away	Like	Don't mind	Don't like	Hate	Hate much
109. To eat	Like	Don't mind	Don't like	Hate	Hate much
110. To eat breakfast	Like	Don't mind	Don't like	Hate	Hate much
111. Eat things I don't like	Like	Don't mind	Don't like	Hate	Hate much
112. Go home for lunch	Like	Don't mind	Don't like	Hate	Hate much
113. To eat corn	Like	Don't mind	Don't like	Hate	Hate much
114. To eat soup	Like	Don't mind	Don't like	Hate	Hate much
115. To eat tomatoes	Like	Don't mind	Don't like	Hate	Hate much
116. Eat sweet potatoes	Like	Don't mind	Don't like	Hate	Hate much
117. To eat peas	Like	Don't mind	Don't like	Hate	Hate much
118. To eat lima beans	Like	Don't mind	Don't like	Hate	Hate much
119. To eat lettuce	Like	Don't mind	Don't like	Hate	Hate much
120. Eat mock turtle soup	Like	Don't mind	Don't like	Hate	Hate much
121. To eat vegetables	Like	Don't mind	Don't like	Hate	Hate much
122. Eat unstrained soup	Like	Don't mind	Don't like	Hate	Hate much
123. To eat beets	Like	Don't mind	Don't like	Hate	Hate much
124. To eat meat	Like	Don't mind	Don't like	Hate	Hate much
125. Eat black walnuts	Like	Don't mind	Don't like	Hate	Hate much
126. To drink milk	Like	Don't mind	Don't like	Hate	Hate much
127. To drink water	Like	Don't mind	Don't like	Hate	Hate much
128. To drink beer	Like	Don't mind	Don't like	Hate	Hate much
129. To eat too much	Like	Don't mind	Don't like	Hate	Hate much
130. Eat in school lunchroom	Like	Don't mind	Don't like	Hate	Hate much
131. Eat whole wheat bread	Like	Don't mind	Don't like	Hate	Hate much
132. To eat tomato soup	Like	Don't mind	Don't like	Hate	Hate much
133. To eat chopsuey	Like	Don't mind	Don't like	Hate	Hate much
134. To eat sour crout	Like	Don't mind	Don't like	Hate	Hate much
135. To eat tongue	Like	Don't mind	Don't like	Hate	Hate much
136. To eat spinach	Like	Don't mind	Don't like	Hate	Hate much
137. To eat rhubarb	Like	Don't mind	Don't like	Hate	Hate much
138. To eat carrots	Like	Don't mind	Don't like	Hate	Hate much
139. To eat apple sauce	Like	Don't mind	Don't like	Hate	Hate much
140. To eat prunes	Like	Don't mind	Don't like	Hate	Hate much
141. To eat limberger cheese	Like	Don't mind	Don't like	Hate	Hate much
142. To eat asparagus	Like	Don't mind	Don't like	Hate	Hate much
143. Eat food I don't like	Like	Don't mind	Don't like	Hate	Hate much
144. To be ambarrassed	Like	Don't mind	Don't like	Hate	Hate much
145. To run errands	Like	Don't mind	Don't like	Hate	Hate much
146. To fight	Like	Don't mind	Don't like	Hate	Hate much
147. To get fat	Like	Don't mind	Don't like	Hate	Hate much
148. To forget things	Like	Don't mind	Don't like	Hate	Hate much
149. People who act funny	Like	Don't mind	Don't like	Hate	Hate much
150. To be unreliable	Like	Don't mind	Don't like	Hate	Hate much
151. People who are fakers	Like	Don't mind	Don't like	Hate	Hate much
152. Stubborn people	Like	Don't mind	Don't like	Hate	Hate much
153. A bad fountain pen	Like	Don't mind	Don't like	Hate	Hate much
154. A foggy day	Like	Don't mind	Don't like	Hate	Hate much
155. An untrue friend	Like	Don't mind	Don't like	Hate	Hate much
156. When friends act foolish	Like	Don't mind	Don't like	Hate	Hate much

157. When friends get sick	Like	Don't mind	Don't like	Hate	Hate much
158. To see dogs fight	Like	Don't mind	Don't like	Hate	Hate much
159. First row of a show	Like	Don't mind	Don't like	Hate	Hate much
G 160. Go to a department store	Like	Don't mind	Don't like	Hate	Hate much
161. To get dressed	Like	Don't mind	Don't like	Hate	Hate much
162. To be a girl	Like	Don't mind	Don't like	Hate	Hate much
163. To get up on cold days	Like	Don't mind	Don't like	Hate	Hate much
164. To go to religious affairs	Like	Don't mind	Don't like	Hate	Hate much
165. To have an operation	Like	Don't mind	Don't like	Hate	Hate much
166. To take medicine	Like	Don't mind	Don't like	Hate	Hate much
167. Take cod liver oil	Like	Don't mind	Don't like	Hate	Hate much
168. To gargle my throat	Like	Don't mind	Don't like	Hate	Hate much
169. Stay home on sunny days	Like	Don't mind	Don't like	Hate	Hate much
170. To get hurt	Like	Don't mind	Don't like	Hate	Hate much
171. See anyone get hurt	Like	Don't mind	Dont like	Hate	Hate much
172. Have hair cut	Like	Don't mind	Don't like	Hate	Hate much
173. To wash my hair	Like	Don't mind	Don't like	Hate	Hate much
174. To go on hikes	Like	Don't mind	Don't like	Hate	Hate much
175. Some girls	Like	Don't mind	Don't like	Hate	Hate much
176. Lights on when I sleep	Like	Don't mind	Don't like	Hate	Hate much
177. Grouchy children	Like	Don't mind	Don't like	Hate	Hate much
178. Grave yards	Like	Don't mind	Don't like	Hate	Hate much
179. People who gossip	Like	Don't mind	Don't like	Hate	Hate much
180. To have to stay in bed	Like	Don't mind	Don't like	Hate	Hate much
181. To go to bed late	Like	Don't mind	Don't like	Hate	Hate much
182. To go to bed	Like	Don't mind	Don't like	Hate	Hate much
183. To hear people grit their teeth	Like	Don't mind	Don't like	Hate	Hate much
184. Be awakened from sleep	Like	Don't mind	Don't like	Hate	Hate much
H 185. Go to Sundayschool or Religious school	Like	Don't mind	Don't like	Hate	Hate much
186. To have fever blisters	Like	Don't mind	Don't like	Hate	Hate much
187. To be sick	LLike	Don't mind	Don't like	Hate	Hate much
188. To have measles	Like	Don't mind	Don't like	Hate	Hate much
189. To have mumps	Like	Don't mind	Don't like	Hate	Hate much
190. To have chicken pox	Like	Don't mind	Don't like	Hate	Hate much
191. To have scarlet fever	Like	Don't mind	Don't like	Hate	Hate much
192. To have headaches	Like	Don't mind	Don't like	Hate	Hate much
193. To have a stomach ache	Like	Don't mind	Don't like	Hate	Hate much
194. To take castor oil	Like	Don't mind	Don't like	Hate	Hate much
195. To take shots for health	Like	Don't mind	Don't like	Hate	Hate much
196. To take pills	Like	Don't mind	Don't like	Hate	Hate much
197. To have a cold	LLike	Don't Mind	Don't like	Hate	Hate much
198. A hairy actor	Like	Don't mind	Don't like	Hate	Hate much
199. Have my hair pulled	Like	Don't mind	Don't like	Hate	Hate much
200. To have my hair washed	Like	Don't mind	Don't like	Hate	Hate much
201. Comb and brush my hair	Like	Don't mind	Don't like	Hate	Hate much
202. Not to help mother	Like	Don't mind	Don't like	Hate	Hate much
203. To hear people yell	Like	Don't mind	Don't like	Hate	Hate much
204. To be insulted	Like	Don't mind	Don't like	Hate	Hate much
205. Icy streets	Like	Don't mind	Don't like	Hate	Hate much
206. To be idle or lazy	Like	Don't mind	Don't like	Hate	Hate much
207. To be interrupted when doing something	Like	Don't mind	Don't like	Hate	Hate much
208. Ants	Like	Don't mind	Don't like	Hate	Hate much
209. Bugs	Like	Don't mind	Don't like	Hate	Hate much
210. Bugs crawl down my back	Like	Don't mind	Don't like	Hate	Hate much

211. Be stung by bees	Like	Don't mind	Don't like	Hate	Hate much
212. Flies	Like	Don't mind	Don't like	Hate	Hate much
213. Mosquitoes	Like	Don't mind	Don't like	Hate	Hate much
214. Mosquitoe bites	Like	Don't mind	Don't like	Hate	Hate much
215. Spiders	Like	Don't mind	Don't like	Hate	Hate much
216. Itches	Like	Don't mind	Don't like	Hate	Hate much
217. Jealous people	Like	Don't mind	Don't like	Hate	Hate much
218. A stale joke	Like	Don't mind	Don't like	Hate	Hate much
K 219. See people getting killed	Like	Don't mind	Don't like	Hate	Hate much
220. Tell lies	Like	Don't mind	Don't like	Hate	Hate much
221. Go to the library	Like	Don't mind	Don't like	Hate	Hate much
222. To lose my dog	Like	Don't mind	Don't like	Hate	Hate much
223. To lose something	Like	Don't mind	Don't like	Hate	Hate much
224. To lose a game	Like	Don't mind	Don't like	Hate	Hate much
225. People who lie	Like	Don't mind	Don't like	Hate	Hate much
226. Be accused of lying	Like	Don't mind	Don't like	Hate	Hate much
227. The lady next door	Like	Don't mind	Don't like	Hate	Hate much
228. Love stories	Like	Don't mind	Don't like	Hate	Hate much
229. Listen to lectures	Like	Don't mind	Don't like	Hate	Hate much
230. To make beds	Like	Don't mind	Don't like	Hate	Hate much
231. Jazz music	Like	Don't mind	Don't like	Hate	Hate much
232. To go to meetings	Like	Don't mind	Don't like	Hate	Hate much
233. Monotonous speeches	Like	Don't mind	Don't like	Hate	Hate much
234. To get married	Like	Don't mind	Don't like	Hate	Hate much
235. To drop a mirror	Like	Don't mind	Don't like	Hate	Hate much
236. A spooky movie	Like	Don't mind	Don't like	Hate	Hate much
237. Love movies	Like	Don't mind	Don't like	Hate	Hate much
238. Not to go to movies	Like	Don't mind	Don't like	Hate	Hate much
239. Play with mean children	Like	Don't mind	Don't like	Hate	Hate much
240. To irritate my mother	Like	Don't mind	Don't like	Hate	Hate much
241. When mother won't buy things I want	Like	Don't mind	Don't like	Hate	Hate much
242. New shoes	Like	Don't mind	Don't like	Hate	Hate much
243. Have nothing to do	Like	Don't mind	Don't like	Hate	Hate much
244. Neighbors	Like	Don't mind	Don't like	Hate	Hate much
245. Constant nagging	Like	Don't mind	Don't like	Hate	Hate much
246. Nasty people	Like	Don't mind	Don't like	Hate	Hate much
247. To be called names	Like	Don't mind	Don't like	Hate	Hate much
248. Noise when I sleep	Like	Don't mind	Don't like	Hate	Hate much
249. Go down a dark cellar	Like	Don't mind	Don't like	Hate	Hate much
250. To go to operas	Like	Don't mind	Don't like	Hate	Hate much
251. Listen to orchestras	Like	Don't mind	Don't like	Hate	Hate much
252. Play piano for people	Like	Don't mind	Don't like	Hate	Hate much
253. To put on my snow suit	Like	Don't mind	Don't like	Hate	Hate much
254. To put on shoes	Like	Don't mind	Don't like	Hate	Hate much
255. To plant flowers	Like	Don't mind	Don't like	Hate	Hate much
256. To be in plays	Like	Don't mind	Don't like	Hate	Hate much
257. To go to noisy parties	Like	Don't mind	Don't like	Hate	Hate much
258. Play with someone I don't like	Like	Don't mind	Don't like	Hate	Hate much
259. Play with little children	Like	Don't mind	Don't like	Hate	Hate much
260. To play indoors	Like	Don't mind	Don't like	Hate	Hate much
261. To play leap frog	Like	Don't mind	Don't like	Hate	Hate much
262. To play mothers	Like	Don't mind	Don't like	Hate	Hate much
263. To touch dusty potatoes	Like	Don't mind	Don't like	Hate	Hate much
264. Certain people	Like	Don't mind	Don't like	Hate	Hate much
265. To always want things	Like	Don't mind	Don't like	Hate	Hate much
266. Persisting people	Like	Don't mind	Don't like	Hate	Hate much
267. Kissing games in parties	Like	Don't mind	Don't like	Hate	Hate much
268. A dull party	Like	Don't mind	Don't like	Hate	Hate much
269. To be punished	Like	Don't mind	Don't like	Hate	Hate much
270. To practice piano	Like	Don't mind	Don't like	Hate	Hate much

271. To practice violin	Like	Don't mind	Don't like	Hate	Hate much
272. To recite	Like	Don't mind	Don't like	Hate	Hate much
273. Play scales on piano	Like	Don't mind	Don't like	Hate	Hate much
274. Take piano lessons	Like	Don't mind	Don't like	Hate	Hate much
275. To have pain	Like	Don't mind	Don't like	Hate	Hate much
276. To be patronized	Like	Don't mind	Don't like	Hate	Hate much
277. To make plans and then drop them	Like	Don't mind	Don't like	Hate	Hate much
278. To stop when playing	Like	Don't mind	Don't like	Hate	Hate much
279. To talk long on phone	Like	Don't mind	Don't like	Hate	Hate much
280. People who are pests	Like	Don't mind	Don't like	Hate	Hate much
281. Not to go to parties	Like	Don't mind	Don't like	Hate	Hate much
282. See a child whipped	Like	Don't mind	Don't like	Hate	Hate much
283. Make parents unhappy because of poor report	Like	Don't mind	Don't like	Hate	Hate much
284. See people suffer	Like	Don't mind	Don't like	Hate	Hate much
285. When I can't play out	Like	Don't mind	Don't like	Hate	Hate much
286. Have privileges takenaway	Like	Dont mind	Don't like	Hate	Hate much
287. Quarrel with boy friend	Like	Don't mind	Don't like	Hate	Hate much
288. Be blamed for something I didn't do	Like	Don't mind	Don't like	Hate	Hate much
289. Pay full car fare	Like	Don't mind	Don't like	Hate	Hate much
290. To be punched	Like	Don't mind	Don't like	Hate	Hate much
291. To hear mystery stories	Like	Don't mind	Don't like	Hate	Hate much
292. Read crime stories	Like	Don't mind	Don't like	Hate	Hate much
293. To be rich	Like	Don't mind	Don't like	Hate	Hate much
294. Have big responsibilities	Like	Dont mind	Don't like	Hate	Hate much
295. Visit relatives	Like	Don't mind	Don't like	Hate	Hate much
296. To rake leaves	Like	Don't mind	Don't like	Hate	Hate much
297. Change rooms in school	Like	Don't mind	Don't like	Hate	Hate much
298. To have it rain	Like	Don't mind	Don't like	Hate	Hate much
299. Rain on Saturday or Sunday	Like	Dontmind	Don't like	Hate	Hate much
300. To walk in rain	Like	Don't mind	Don't like	Hate	Hate much
301. Not to see relatives	Like	Don't mind	Don't like	Hate	Hate much
302. People who are rough	Like	don't mind	Don't like	Hate	Hate much
303. To take revenge	Like	Don't mind	Don't like	Hate	Hate much
304. Radio advertisements	Like	Don't mind	Don't like	Hate	Hate much
305. Some newspaper ads.	Like	Don't mind	Don't like	Hate	Hate much
306. Certain radio programs	Like	Don't mind	Don't like	Hate	Hate much
307. To play in recitals	Like	Don't mind	Don't like	Hate	Hate much
308. Robbers	Like	Don't mind	Don't like	Hate	Hate much
309. To read books	Like	Don't mind	Don't like	Hate	Hate much
310. To read dry books	Like	Don't mind	Don't like	Hate	Hate much
311. Not toread funnies	Like	Don't mind	Don't like	Hate	Hate much
312. Have someone read over my shoulder	Like	Don't mind	Don't like	Hate	Hate much
313. Not to do right	Like	Don't mind	Don't like	Hate	Hate much
314. Certain teachers	Like	Don't mind	Don't like	Hate	Hate much
315. Teachers who scold	Like	Don't mind	Don't like	Hate	Hate much
316. Long lectures by teachers	Like	Don't mind	Don't like	Hate	Hate much
317. To make teachers angry	Like	Don't mind	Don't like	Hate	Hate much
318. When I can't answer a teacher's question	Like	Don't mind	Don't like	Hate	Hate much
319. When mother has to come to school	Like	Don't mind	Don't like	Hate	Hate much
320. To be scolded	Like	Don't mind	Don't like	Hate	Hate much
321. Not to have my lessons	Like	Don't mind	Don't like	Hate	Hate much
322. Teachers who don't mark papers	Like	Don't mind	Don't like	Hate	Hate much
323. Bad report marks	Like	Don't mind	Don't like	Hate	Hate much
324. To study	Like	Don't mind	Don't like	Hate	Hate much
325. To have tests	Like	Don't mind	Don't like	Hate	Hate much

326. Not to know my lessons	Like	Don't mind	Don't like	Hate	Hate much
327. To do hard lessons	Like	Don't mind	Don't like	Hate	Hate much
328. To memorize lessons	Like	Don't mind	Don't like	Hate	Hate much
329. To discuss poems	Like	Don't mind	Don't like	Hate	Hate much
330. To memorize poems	Like	Don't mind	Don't like	Hate	Hate much
331. To make book reports	Like	Don't mind	Don't like	Hate	Hate much
332. Geography	Like	Don't mind	Don't like	Hate	Hate much
333. English	Like	Don't mind	Don't like	Hate	Hate much
334. History	Like	Don't mind	Don't like	Hate	Hate much
335. Arithmetic	Like	Don't mind	Don't like	Hate	Hate much
336. To write compositions	Like	Don't mind	Don't like	Hate	Hate much
337. Spelling tests	Like	Don't mind	Don't like	Hate	Hate much
338. Drawing	Like	Don't mind	Don't like	Hate	Hate much
339. Grammar	Like	Don't mind	Don't like	Hate	Hate much
340. Singing, in school	Like	Don't mind	Don't like	Hate	Hate much
341. To have nightwork to do	Like	Don't mind	Don't like	Hate	Hate much
342. Too much night work	Like	Don't mind	Don't like	Hate	Hate much
343. To be bad in school	Like	Don't mind	Don't like	Hate	Hate much
344. Writing lessons	Like	Don't mind	Don't like	Hate	Hate much
345. To read books	Like	Don't mind	Don't like	Hate	Hate much
346. To carry books	Like	Don't mind	Don't like	Hate	Hate much
347. People who are stuck up	Like	Don't mind	Don't like	Hate	Hate much
348. People who use big words	Like	Don't mind	Don't like	Hate	Hate much
349. People Who show off	Like	Don't mind	Don't like	Hate	Hate much
350. Silly people	Like	Don't mind	Don't like	Hate	Hate much
351. To have school over	Like	Don't mind	Don't like	Hate	Hate much
352. When I can't go swimming	Like	Don't mind	Don't like	Hate	Hate much
353. To take gym	Like	Don't mind	Don't like	Hate	Hate much
354. To hear speeches	Like	Don't mind	Don't like	Hate	Hate much
355. To get nervous in a test	Like	Don't mind	Don't like	Hate	Hate much
356. To stay home from school	Like	Don't mind	Don't like	Hate	Hate much
357. To copy things over	Like	Don't mind	Don't like	Hate	Hate much
358. To sit still	Like	Don't mind	Don't like	Hate	Hate much
359. To save money	Like	Don't mind	Don't like	Hate	Hate much
360. To sweep	Like	Don't mind	Don't like	Hate	Hate much
361. To scrub	Like	Don't mind	Don't like	Hate	Hate much
362. Pirate stories	Like	Don't mind	Don't like	Hate	Hate much
363. Sit at home on Sunday	Like	Don't mind	Don't like	Hate	Hate much
364. Bad smells	Like	Don't mind	Don't like	Hate	Hate much
365. To smell dead rats	Like	Don't mind	Don't like	Hate	Hate much
366. Sissies	Like	Don't mind	Don't like	Hate	Hate much
367. To stay out late	Like	Don't mind	Don't like	Hate	Hate much
368. Talk about self control	Like	Don't mind	Don't like	Hate	Hate much
369. To sew	Like	Don't mind	Don't like	Hate	Hate much
370. Smart people	Like	Don't mind	Don't like	Hate	Hate much
371. Studious people	Like	Don't mind	Don't like	Hate	Hate much
372. Selfish people	Like	Don't mind	Don't like	Hate	Hate much
373. Sloppy people	Like	Don't mind	Don't like	Hate	Hate much
374. Stupid people	Like	Don't mind	Don't like	Hate	Hate much
375. To be yelled at	Like	Don't mind	Don't like	Hate	Hate much
376. To see someone suffer	Like	Don't mind	Don't like	Hate	Hate much
377. Squeeky chalk	Like	Don't mind	Don't like	Hate	Hate much
378. Just sitting and talking	Like	Don't mind	Don't like	Hate	Hate much
379. To sit in perfect silence	Like	Don't mind	Don't like	Hate	Hate much
380. My sister	Like	Don't mind	Don't like	Hate	Hate much
381. When sister sings	Like	Don't mind	Don't like	Hate	Hate much
382. A self conscious feeling	Like	Don't mind	Don't like	Hate	Hate much
383. A scratching sound	Like	Don't mind	Don't like	Hate	Hate much
384. Spider webs	Like	Don't mind	Don't like	Hate	Hate much
385. A spanking	Like	Don't mind	Don't like	Hate	Hate much

386. Be called a poor sport	Like	Don't mind	Don't like	Hate	Hate much
387. To have sores	Like	Don't mind	Don't like	Hate	Hate much
388. Stop in middle of story	Like	Don't mind	Don't like	Hate	Hate much
389. Take a child to school	Like	Don't mind	Don't like	Hate	Hate much
390. To try on new things	Like	Don't mind	Don't like	Hate	Hate much
391. To wear tie shoes	Like	Don't mind	Don't like	Hate	Hate much
392. To get in trouble	Like	Don't mind	Don't like	Hate	Hate much
393. To take dog for a walk	Like	Don't mind	Don't like	Hate	Hate much
394. Associate with dirty people	Like	Don't mind	Don't like	Hate	Hate much
395. To wash my teeth	Like	Don't mind	Don't like	Hate	Hate much
396. To talk out in school	Like	Don't mind	Don't like	Hate	Hate much
397. Things I can't do	Like	Don't mind	Don't like	Hate	Hate much
398. People who talk too much	Like	Don't mind	Don't like	Hate	Hate much
399. People who talk in movies	Like	Don't mind	Don't like	Hate	Hate much
400. Thoughtless people	Like	Don't mind	Don't like	Hate	Hate much
401. When mother is angry	Like	Don't mind	Don't like	Hate	Hate much
402. To be called a Tomboy	Like	Don't mind	Don't like	Hate	Hate much
403. To be teased	Like	Don't mind	Don't like	Hate	Hate much
404. Nicknames	Like	Don't mind	Don't like	Hate	Hate much
405. To carry an umbrella	Like	Don't mind	Don't like	Hate	Hate much
406. To visit sick adults	Like	Don't mind	Don't like	Hate	Hate much
407. To go visiting	Like	Don't mind	Don't like	Hate	Hate much
408. Visits to boring people	Like	Don't mind	Don't like	Hate	Hate much
409. To wash and iron clothes	Like	Don't mind	Don't like	Hate	Hate much
410. To wash my face	Like	Don't mind	Don't like	Hate	Hate much
411. To wear short dresses	Like	Don't mind	Don't like	Hate	Hate much
412. To wear a snow suit	Like	Don't mind	Don't like	Hate	Hate much
413. Wear a sweater under coat	Like	Don't mind	Don't like	Hate	Hate much
414. To wear a hat	Like	Don't mind	Don't like	Hate	Hate much
415. To wear torn clothing	Like	Don't mind	Don't like	Hate	Hate much
416. To wear high shoes	Like	Don't mind	Don't like	Hate	Hate much
417. To wear high heeled shoes	Like	Don't mind	Don't like	Hate	Hate much
418. To wear certain clothes	Like	Don't mind	Don't like	Hate	Hate much
419. To wear a scarf	Like	Don't mind	Don't like	Hate	Hate much
420. To wash behind my ears	Like	Don't mind	Don't like	Hate	Hate much
421. To wash stockings	Like	Don't mind	Don't like	Hate	Hate much
422. To wear stockings	Like	Don't mind	Don't like	Hate	Hate much
423. To wear woolen clothes	Like	Don't mind	Don't like	Hate	Hate much
424. To wear galoshes	Like	Don't mind	Don't like	Hate	Hate much
425. To wear glasses	Like	Don't mind	Don't like	Hate	Hate much
426. To wait for something to do	Like	Don't mind	Don't like	Hate	Hate much
427. Weeds in woods	Like	Don't mind	Don't like	Hate	Hate much
428. To walk to school	Like	Don't mind	Don't like	Hate	Hate much
429. To walk long distances	Like	Don't mind	Don't like	Hate	Hate much
430. Not to win in contests	Like	Don't mind	Don't like	Hate	Hate much
431. When someone watches me draw	Like	Don't mind	Don't like	Hate	Hate much
432. When I do wrong	Like	Don't mind	Don't like	Hate	Hate much
433. Very hot days	Like	Don't mind	Don't like	Hate	Hate much
434. To be wakened from sleep	Like	Don't mind	Don't like	Hate	Hate much
435. To write letters	Like	Don't mind	Don't like	Hate	Hate much
436. To work	Like	Don't mind	Don't like	Hate	Hate much
437. Hail	Like	Don't mind	Don't like	Hate	Hate much
438. When wind howls at night	Like	Don't mind	Don't like	Hate	Hate much
439. Cold weather	Like	Don't mind	Don't like	Hate	Hate much
440. To be cold	Like	Don't mind	Don't like	Hate	Hate much
441. Go out in cold weather	Like	Don't mind	Don't like	Hate	Hate much
442. To work in garden	Like	Don't mind	Don't like	Hate	Hate much
443. To water plants	Like	Don't mind	Don't like	Hate	Hate much
444. To watch men work	Like	Don't mind	Don't like	Hate	Hate much
445. To wait a long time	Like	Don't mind	Don't like	Hate	Hate much

NAME_____ AGE____ GRADE____ BOY or GIRL____ DATE____ ROOM____ 343

APPENDIX C. BOYS' EMOTIONALITY TEST

DIRECTIONS.- We would like to know how children feel about different things. In these lists of different things put a circle around the word or words which best tells how you feel about each thing on the list. Be sure to put your true feelings.

EXAMPLE

Spring sunshine (Like much) Like Don't mind Don't like Hate

Here there is a circle around Like much because the person who answered this question likes sunshine very much.

If you like something on this list very much put a circle around Like much. If you like the thing some put a circle around Like. If you don't care either way put a circle around Don't mind. If you don't like the thing mentioned put a circle around the words Don't like. If you hate the thing mentioned put a circle around Hate. Use only one circle for each thing mentioned. Answer everything on the list. Be sure to give your true feelings.

1. Attract attention	Like much	Like	Don't mind	Don't like	Hate
2. Talk to airplane pilot	Like much	Like	Don't mind	Don't like	Hate
3. Ride in airplane	Like much	Like	Don't mind	Don't like	Hate
4. Be aviator	Like much	Like	Don't mind	Don't like	Hate
5. Visit aquarium	Like much	Like	Don't mind	Don't like	Hate
6. To be alone	Like much	Like	Don't mind	Don't like	Hate
7. Act in plays	Like much	Like	Don't mind	Don't like	Hate
8. Go to amusement parks	Like much	Like	Don't mind	Don't like	Hate
9. Drive an automobile	Like much	Like	Don't mind	Don't like	Hate
10. Own an automobile	Like much	Like	Don't mind	Don't like	Hate
11. Ride in an automobile	Like much	Like	Don't mind	Don't like	Hate
12. Be athletic	Like much	Like	Don't mind	Don't like	Hate
13. Think of my ambition	Like much	Like	Don't mind	Don't like	Hate
14. Have allowance	Like much	Like	Don't mind	Don't like	Hate
15. Have ability	Like much	Like	Don't mind	Don't like	Hate
16. Am erica	Like much	Like	Don't mind	Don't like	Hate
B 17. Go out with boys	Like much	Like	Don't mind	Don't like	Hate
18. Be bigger than I am now	Like much	Like	Don't mind	Don't like	Hate
19. Go out with older boys	Like much	Like	Don't mind	Don't like	Hate
20. Play baseball	Like much	Like	Don't mind	Don't like	Hate
21. Keep baseball score	Like much	Like	Don't mind	Don't like	Hate
22. Watch baseball game	Like much	Like	Don't mind	Don't like	Hate
23. Own baseball mit	Like much	Like	Don't mind	Don't like	Hate
24. Know Baseball players	Like much	Like	Don't mind	Don't like	Hate
25. Play basket ball	Like much	Like	Don't mind	Don't like	Hate
26. Play kickball	Like much	Like	Don't mind	Don't like	Hate
27. Make boats	Like much	Like	Don't mind	Don't like	Hate
28. Play with little bboats	Like much	Like	Don't mind	Don't like	Hate
29. Row boats or canoes	Like much	Like	Don't mind	Don't like	Hate
30. Ride a bicycle	Like much	Like	Don't mind	Don't like	Hate
31. To box with someone	Like much	Like	Don't mind	Don't like	Hate
32. Build a shack	Like much	Like	Don't mind	Don't like	Hate
33. Build models of things	Like much	Like	Don't mind	Don't like	Hate
34. Have a birthday	Like much	Like	Don't mind	Don't like	Hate
35. Be a Boy Scout	Like much	Like	Don't mind	Don't like	Hate

36. Go to sleep	Like much	Like	Don't mind	Don't like	Hate
37. Glad I am a boy	Like much	Like	Don't mind	Don't like	Hate
38. Collect buttons	Like much	Like	Don't mind	Don't like	Hate
39. Go barefooted	Like much	Like	Don't mind	Don't like	Hate
40. Take a bath	Like much	Like	Don't mind	Don't like	Hate
41. See a bonfire	Like much	Like	Don't mind	Don't like	Hate
42. Have a brother	Like much	Like	Don't mind	Don't like	Hate
43. See beautiful things	Like much	Like	Don't mind	Don't like	Hate
44. See a young baby	Like much	Like	Don't mind	Don't like	Hate
C 45. Chew gum	Like much	Like	Don't mind	Don't like	Hate
46. To cook	Like much	Like	Don't mind	Don't like	Hate
47. To see clean children	Like much	Like	Don't mind	Don't like	Hate
48. Belong to clubs	Like much	Like	Don't mind	Don't like	Hate
49. Go to camp	Like much	Like	Don't mind	Don't like	Hate
50. To climb	Like much	Like	Don't mind	Don't like	Hate
51. To climb poles	Like much	Like	Don't mind	Don't like	Hate
52. To climb trees	Like much	Like	Don't mind	Don't like	Hate
53. To climb hills	Like much	Like	Don't mind	Don't like	Hate
54. Play in a cave	Like much	Like	Don't mind	Don't like	Hate
55. Play cops and robbers	Like much	Like	Don't mind	Don't like	Hate
56. Play with chemicals	Like much	Like	Don't mind	Don't like	Hate
57. Carve things	Like much	Like	Don't mind	Don't like	Hate
58. Collect coins	Like much	Like	Don't mind	Don't like	Hate
59. Camp fires	Like much	Like	Don't mind	Don't like	Hate
60. Be captain of a team	Like much	Like	Don't mind	Don't like	Hate
61. Make ice tea	Like much	Like	Don't mind	Don't like	Hate
62. Go to Coney Island	Like much	Like	Don't mind	Don't like	Hate
63. Go on Roller Coaster	Like much	Like	Don't mind	Don't like	Hate
64. Play cards	Like much	Like	Don't mind	Don't like	Hate
65. To be confirmed	Like much	Like	Don't mind	Don't like	Hate
66. Be in contests	Like much	Like	Don't mind	Don't like	Hate
67. Be an ideal child	Like much	Like	Don't mind	Don't like	Hate
68. Have cousins	Like much	Like	Don't mind	Don't like	Hate
69. Go to a circus	Like much	Like	Don't mind	Don't like	Hate
70. Get new clothes	Like much	Like	Don't mind	Don't like	Hate
71. Be clean	Like much	Like	Don't mind	Don't like	Hate
72. Cats	Like much	Like	Don't mind	Don't like	Hate
D 73. Go down town	Like much	Like	Don't mind	Don't like	Hate
74. To dream	Like much	Like	Don't mind	Don't like	Hate
75. To dive	Like much	Like	Don't mind	Don't like	Hate
76. To have a dog	Like much	Like	Don't mind	Don't like	Hate
77. To dig in the ground	Like much	Like	Don't mind	Don't like	Hate
78. My Dad	Like much	Like	Don't mind	Don't like	Hate
79. To go out	Like much	Like	Don't mind	Don't like	Hate
80. Have a date with a girl	Like much	Like	Don't mind	Don't like	Hate
81. Do good deeds	Like much	Like	Don't mind	Don't like	Hate
82. A nice warm day	Like much	Like	Don't mind	Don't like	Hate
83. To be a doctor	Like much	Like	Don't mind	Don't like	Hate
84. To be a detective	Like much	Like	Don't mind	Don't like	Hate
E 85. To run errands	Like much	Like	Don't mind	Don't like	Hate
86. To eat	Like much	Like	Don't mind	Don't like	Hate
87. Eat asparagus	Like much	Like	Don't mind	Don't like	Hate
88. Eat bananas	Like much	Like	Don't mind	Don't like	Hate
89. Eat breakfast	Like much	Like	Don't mind	Don't like	Hate
90. Eat carrots	Like much	Like	Don't mind	Don't like	Hate
91. Eat chocolate	Like much	Like	Don't mind	Don't like	Hate
92. Eat cookies	Like much	Like	Don't mind	Don't like	Hate
93. Eat liver	Like much	Like	Don't mind	Don't like	Hate
94. Eat eggs on toast	Like much	Like	Don't mind	Don't like	Hate
95. Eat good food	Like much	Like	Don't mind	Don't like	Hate

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96. Eat fruit	Like much	Like	Don't mind	Don't like	Hate
97. Eat wieners	Like much	Like	Don't mind	Don't like	Hate
98. Eat lettuce	Like much	Like	Don't mind	Don't like	Hate
99. Eat pie	Like much	Like	Don't mind	Don't like	Hate
100. Eat meat	Like much	Like	Don't mind	Don't like	Hate
101. Eat pineapple	Like much	Like	Don't mind	Don't like	Hate
102. Eat potatoes	Like much	Like	Don't mind	Don't like	Hate
103. Eat steak and potatoes	Like much	Like	Don't mind	Don't like	Hate
104. Raid the ice box	Like much	Like	Don't mind	Don't like	Hate
105. Eat roast beef	Like much	Like	Don't mind	Don't like	Hate
106. Eat toast	Like much	Like	Don't mind	Don't like	Hate
107. Eat spaghetti	Like much	Like	Don't mind	Don't like	Hate
108. Eat veal chops	Like much	Like	Don't mind	Don't like	Hate
109. Eat watermelon	Like much	Like	Don't mind	Don't like	Hate
110. Eat vegetables	Like much	Like	Don't mind	Don't like	Hate
111. Drink milk	Like much	Like	Don't mind	Don't like	Hate
112. Drink pop	Like much	Like	Don't mind	Don't like	Hate
113. Drink beer	Like much	Like	Don't mind	Don't like	Hate
114. Eat turkey	Like much	Like	Don't mind	Don't like	Hate
115. Eat spinach	Like much	Like	Don't mind	Don't like	Hate
116. Eat fish	Like much	Like	Don't mind	Don't like	Hate
117. Eat cak e	Like much	Like	Don't mind	Don't like	Hate
118. Eat chocolate pudding	Like much	Like	Don't mind	Don't like	Hate
119. Eat sandwiches	Like much	Like	Don't mind	Don't like	Hate
120. Eat ice cream	Like much	Like	Don't mind	Don't like	Hate
121. Eat candy	Like much	Like	Don't mind	Don't like	Hate
122. Eat dainties	Like much	Like	Don't mind	Don't like	Hate
123. Eat out	Like much	Like	Don't mind	Don't like	Hate
124. Eat jellies	Like much	Like	Don't mind	Don't like	Hate
125. Eat nuts	Like much	Like	Don't mind	Don't like	Hate
126. Go exploring	Like much	Like	Don't mind	Don't like	Hate
127. Pass examinations	Like much	Like	Don't mind	Don't like	Hate
128. Have a job	Like much	Like	Don't mind	Don't like	Hate
E 129. Shoot fire crackers	Like much	Like	Don't mind	Don't like	Hate
130. Play football	Like much	Like	Don't mind	Don't like	Hate
131. See football games	Like much	Like	Don't mind	Don't like	Hate
132. Fix things	Like much	Like	Don't mind	Don't like	Hate
133. To fight	Like much	Like	Don't mind	Don't like	Hate
134. Win a fight	Like much	Like	Don't mind	Don't like	Hate
135. Play wild cat	Like much	Like	Don't mind	Don't like	Hate
136. Have water fights	Like much	Like	Don't mind	Don't like	Hate
137. Fall from tree on something soft	Like much	Like	Don't mind	Don't like	Hate
138. Snow ball fights	Like much	Like	Don't mind	Don't like	Hate
139. Play in snow	Like much	Like	Don't mind	Don't like	Hate
140. Go fishing	Like much	Like	Don't mind	Don't like	Hate
141. Walk in snow shoes	Like much	Like	Don't mind	Don't like	Hate
142. Be on a farm	Like much	Like	Don't mind	Don't like	Hate
143. Have friends	Like much	Like	Don't mind	Don't like	Hate
144. Have a girl friend	Like much	Like	Don't mind	Don't like	Hate
145. Flowers	Like much	Like	Don't mind	Don't like	Hate
G 146. Play games	Like much	Like	Don't mind	Don't like	Hate
147. Be older than I am now	Like much	Like	Don't mind	Don't like	Hate
148. Shoot a gun	Like much	Like	Don't mind	Don't like	Hate
149. Get presents	Like much	Like	Don't mind	Don't like	Hate
150. Plant a garden	Like much	Like	Don't mind	Don't like	Hate
151. Go out	Like much	Like	Don't mind	Don't like	Hate
H 152. Help mother	Like much	Like	Don't mind	Don't like	Hate
153. Go horseback riding	Like much	Like	Don't mind	Don't like	Hate
154. Hear operas	Like much	Like	Don't mind	Don't like	Hate
155. Go hunting	Like much	Like	Don't mind	Don't like	Hate

156. Play hockey	Like much	Like	Don't mind	Don't like	Hate	
157. See horse racing	Like much	Like	Don't mind	Don't like	Hate	
158. Go on hikes	Like much	Like	Don't mind	Don't like	Hate	
159. Play handball	Like much	Like	Don't mind	Don't like	Hate	
160. Play the harmonica	Like much	Like	Don't mind	Don't like	Hate	
161. Play hide and seek	Like much	Like	Don't mind	Don't like	Hate	
162. Be strong	Like much	Like	Don't mind	Don't like	Hate	
163. Special holidays	Like much	Like	Don't mind	Don't like	Hate	
164. Saturday and Sunday	Like much	Like	Don't mind	Don't like	Hate	
165. My home	Like much	Like	Don't mind	Don't like	Hate	
166. Happiness	Like much	Like	Don't mind	Don't like	Hate	
167. To help others	Like much	Like	Don't mind	Don't like	Hate	
168. See some one honored	Like much	Like	Don't mind	Don't like	Hate	
169. Be a hero	Like much	Like	Don't mind	Don't like	Hate	
170. Honest people	Like much	Like	Don't mind	Don't like	Hate	
I 171. To use imagination	Like much	Like	Don't mind	Don't like	Hate	
J 172. To hear jokes	Like much	Like	Don't mind	Don't like	Hate	
173. Jigsaw puzzles	Like much	Like	Don't mind	Don't like	Hate	
174. To jump	Like much	Like	Don't mind	Don't like	Hate	
K 175. Kissing	Like much	Like	Don't mind	Don't like	Hate	
176. Kite flying	Like much	Like	Don't mind	Don't like	Hate	
L 177. Play leap frog	Like much	Like	Don't mind	Don't like	Hate	
178. Get letters	Like much	Like	Don't mind	Don't like	Hate	
179. Be a lawyer	Like much	Like	Don't mind	Don't like	Hate	
M 180. Make things of clay	Like much	Like	Don't mind	Don't like	Hate	
181. Make a house	Like much	Like	Don't mind	Don't like	Hate	
182. Make things	Like much	Like	Don't mind	Don't like	Hate	
183. Earn money	Like much	Like	Don't mind	Don't like	Hate	
184. Get a million dollars	Like much	Like	Don't mind	Don't like	Hate	
185. Conduct a club meeting	Like much	Like	Don't mind	Don't like	Hate	
186. Marry a princess	Like much	Like	Don't mind	Don't like	Hate	
187. See Jackie Cooper	Like much	Like	Don't mind	Don't like	Hate	
188. Go to the movies	Like much	Like	Don't mind	Don't like	Hate	
189. Play marbles	Like much	Like	Don't mind	Don't like	Hate	
190. I like myself	Like much	Like	Don't mind	Don't like	Hate	
191. My mother	Like much	Like	Don't mind	Don't like	Hate	
192. Sell magazines	Like much	Like	Don't mind	Don't like	Hate	
193. Belong to clubs	Like much	Like	Don't mind	Don't like	Hate	
194. See army marching	Like much	Like	Don't mind	Don't like	Hate	
195. To move fast	Like much	Like	Don't mind	Don't like	Hate	
196. To listen to music	Like much	Like	Don't mind	Don't like	Hate	
197. Be mother's pet	Like much	Like	Don't mind	Don't like	Hate	
198. See beautiful pictures	Like much	Like	Don't mind	Don't like	Hate	
199. Go to museums	Like much	Like	Don't mind	Don't like	Hate	
200. Own a theater	Like much	Like	Don't mind	Don't like	Hate	
O 201. Obey mother	Like much	Like	Don't mind	Don't like	Hate	
P 202. Play tag	Like much	Like	Don't mind	Don't like	Hate	
203. Play in school yard	Like much	Like	Don't mind	Don't like	Hate	
204. Play checkers	Like much	Like	Don't mind	Don't like	Hate	
205. Play out of doors	Like much	Like	Don't mind	Don't like	Hate	
206. Play with sister	Like much	Like	Don't mind	Don't like	Hate	
207. Play with brother	Like much	Like	Don't mind	Don't like	Hate	
208. Play thepiano	Like much	Like	Don't mind	Don't like	Hate	
209. Play with trains	Likemuch	Like	Don't mind	Don't like	Hate	
210. Be in plays	Like much	Like	Don't mind	Don't like	Hate	
211. Say prayers	Like much	Like	Don't mind	Don't like	Hate	
212. Pop pop corn	Like much	Like	Don't mind	Don't like	Hate	
213. Please somebody	Like much	Like	Don't mind	Don't like	Hate	
214. Play golf	Like much	Like	Don't mind	Don't like	Hate	
215. Play store	Like much	Like	Don't mind	Don't like	Hate	

216. Have recess in school	Like Much	Like	Don't mind	Don't like	Hate
217. Read the funnies	Like much	Like	Don't mind	Don't like	Hate
218. Read the newspapers	Like much	Like	Don't mind	Don't like	Hate
219. Go to a party	Like much	Like	Don't mind	Don't like	Hate
220. To play	Like much	Like	Don't mind	Don't like	Hate
221. Go on picnics	Like much	Like	Don't mind	Don't like	Hate
222. Have pillow fights	Like much	Like	Don't mind	Don't like	Hate
223. Be President of U.S.	Like much	Like	Don't mind	Don't like	Hate
224. Have pets	Like much	Like	Don't mind	Don't like	Hate
225. Have pet store	Like much	Like	Don't mind	Don't like	Hate
226. Play in the woods	Likemuch	Like	Don't mind	Don't like	Hate
227. Jump in a parachute	Like much	Like	Don't mind	Don't like	Hate
228. See plays	Like much	Like	Don't mind	Don't like	Hate
229. Play mysterious things	Like much	Like	Don't mind	Don't like	Hate
230. Some people	Like much	Like	Don't mind	Don't like	Hate
231. Lie on grass	Like much	Like	Don't mind	Don't like	Hate
232. Happy people	Likemuch	Like	Don't mind	Don't like	Hate
R 233. Read magazines	Like much	Like	Don't mind	Don't like	Hate
234. Read Tom Swift Books	Like much	Like	Don't mind	Don't like	Hate
235. Read bad books	Like much	Like	Don't mind	Don't like	Hate
236. Read football stories	Like much	Like	Don't mind	Don't like	Hate
237. Power of resistance	Like much	Like	Don't mind	Don't like	Hate
238. Listen to radio	Like much	Like	Don't mind	Don't like	Hate
239. Run races	Like much	Like	Don't mind	Don't like	Hate
240. My relatives	Like much	Like	Don't mind	Don't like	Hate
241. Rain	Like much	Like	Don't mind	Don't like	Hate
242. Read war books	Like much	Like	Don't mind	Don't like	Hate
243. Read exciting books	Like much	Like	Don't mind	Don't like	Hate
244. Have a book store	Like much	Like	Don't mind	Don't like	Hate
245. Read books	Like much	Like	Don't mind	Don't like	Hate
S 246. Go home from school	Like much	Like	Don't mind	Don't like	Hate
247. Do nightwork	Like much	Like	Don't mind	Don't like	Hate
248. Sing songs	Like much	Like	Don't mind	Don't like	Hate
249. Have snow fights	Like much	Like	Don't mind	Don't like	Hate
250. Throw snow balls	Like much	Like	Don't mind	Don't like	Hate
251. Hear stories	Like much	Like	Don't mind	Don't like	Hate
252. Religious or Sunday School	Like much	Like	Don't mind	Don't like	Hate
253. Go to church or temple	Like much	Like	Don't mind	Don't like	Hate
254. Watch smoke	Like much	Like	Don't mind	Don't like	Hate
255. Stay with sister	Like much	Like	Don't mind	Don't like	Hate
256. Go to history class	Like much	Like	Don't mind	Don't like	Hate
257. Writing lesson	Like much	Like	Don't mind	Don't like	Hate
258. Some of my teachers	Like much	Like	Don't mind	Don't like	Hate
259. Go to school	Like much	Like	Don't mind	Don't like	Hate
260. Go to Junior High S.	Like much	Like	Don't mind	Don't like	Hate
261. Get good report	Like much	Like	Don't mind	Don't like	Hate
262. Pass every year	Like much	Like	Don't mind	Don't like	Hate
263. English club	Like much	Like	Don't mind	Don't like	Hate
264. English	Like much	Like	Don't mind	Don't like	Hate
265. Arithmetic	Like much	Like	Don't mind	Don't like	Hate
266. Composition	Like much	Like	Don't mind	Don't like	Hate
267. Geography	Like much	Like	Don't mind	Don't like	Hate
268. Spelling	Like much	Like	Don't mind	Don't like	Hate
269. Manual Training	Like much	Like	Don't mind	Don't like	Hate
270. Art	Like much	Like	Don't mind	Don't like	Hate
271. Gym	Like much	Like	Don't mind	Don't like	Hate
272. Get a hundred in tests	Like much	Like	Don't mind	Don't like	Hate
273. My teachers	Like much	Like	Don't mind	Don't like	Hate
274. When school starts in September	Like much	Like	Don't mind	Don't like	Hate
275. When school ends in June	Likemuch	Like	Don't mind	Don't like	Hate

276.	Success	Like much	Like	Don't mind	Don't like	Hate
277.	Belong to School council	Like much	Like	Don't mind	Don't like	Hate
278.	Watch my own progress	Like much	Like	Don't mind	Don't like	Hate
279.	Collect stamps	Like much	Like	Don't mind	Don't like	Hate
280.	Think back on history	Like much	Like	Don't mind	Don't like	Hate
281.	Go ice skating	Like much	Like	Don't mind	Don't like	Hate
282.	Sports	Like much	Like	Don't mind	Don't like	Hate
283.	Go sled riding	Like much	Like	Don't mind	Don't like	Hate
284.	Roller skating	Like much	Like	Don't mind	Don't like	Hate
285.	Skiing	Like much	Like	Don't mind	Don't like	Hate
286.	Swimming	Likemuch	Like	Don't mind	Don't like	Hate
287.	Spear throwing	Like much	Like	Don't mind	Don't like	Hate
288.	Stone collection	Like much	Like	Don't mind	Don't like	Hate
289.	Have steam engine	Like much	Like	Don't mind	Don't like	Hate
290.	Shelter	Like much	Like	Don't mind	Don't like	Hate
291.	Sleep on Pullman trains	Likemuch	Like	Don't mind	Don't like	Hate
292.	Sleep out-of-doors	Like much	Like	Don't mind	Don't like	Hate
293.	Stay up late	Like much	Like	Don't mind	Don't like	Hate
294.	Sleep late	Likemuch	Like	Don't mind	Don't like	Hate
295.	Get up early	Like much	Like	Don't mind	Don't like	Hate
296.	Summer	Like much	Like	Don't mind	Don't like	Hate
297.	Self control	Like much	Like	Don't mind	Don't like	Hate
298.	Pupular songs	Like much	Like	Don't mind	Don't like	Hate
299.	Sunshine	Like much	Like	Don't mind	Don't like	Hate
300.	Sight-seeing	Like much	Like	Don't mind	Don't like	Hate
T 301.	Travel in a Steamer	Like much	Like	Don't mind	Don't like	Hate
302.	To travel	Like much	Like	Don't mind	Don't like	Hate
303.	Visit certain cities	Like much	Like	Don't mind	Don't like	Hate
304.	Go touring	Like much	Like	Don't mind	Don't like	Hate
305.	Go to Europe	Like much	Like	Don't mind	Don't like	Hate
306.	Go to the mountains	Like much	Like	Don't mind	Don't like	Hate
307.	Have a typewriter	Like much	Like	Don't mind	Don't like	Hate
308.	Ride on trains	Like much	Like	Don't mind	Don't like	Hate
309.	Play tennis	Like much	Like	Don't mind	Don't like	Hate
310.	Have a tennis court	Like much	Like	Don't mind	Don't like	Hate
311.	See a tennis match	Like much	Like	Don't mind	Don't like	Hate
312.	Trees	Like much	Like	Don't mind	Don't like	Hate
313.	Play with tops	Like much	Like	Don't mind	Don't like	Hate
314.	Have toys	Like much	Like	Don't mind	Don't like	Hate
315.	Play tick-tock	Like much	Like	Don't mind	Don't like	Hate
316.	Play tag	Like much	Like	Don't mind	Don't like	Hate
317.	Tease someone	Like much	Like	Don't mind	Don't like	Hate
V 318.	Visit friends	Like much	Like	Don't mind	Don't like	Hate
319.	Have a vacation	Like much	Like	Don't mind	Don't like	Hate
320.	Play volley ball	Like much	Like	Don't mind	Don't like	Hate
321.	Play violin	Like much	Like	Don't mind	Don't like	Hate
322.	When homework is done	Like much	Like	Don't mind	Don't like	Hate
323.	To have something to do	Likemuch	Like	Don't mind	Don't like	Hate
W 324.	To take walks	Like much	Like	Don't mind	Don't like	Hate
325.	Go to the woods	Like much	Like	Don't mind	Don't like	Hate
326.	To wrestle	Like much	Like	Don't mind	Don't like	Hate
327.	Work with electricity	Like much	Like	Don't mind	Don't like	Hate
328.	To go to work	Like much	Like	Don't mind	Don't like	Hate
329.	To work with wood	Like much	Like	Don't mind	Don't like	Hate
330.	To own a yacht	Likemuch	Like	Don't mind	Don't like	Hate
331.	Visit the Zoo	Likemuch	Like	Don't mind	Don't like	Hate

GIRLS E-M-O

NAME _____ BOY OR GIRL _____ AGE ____ GRADE ____ DATE ____ ROOM ____

APPENDIX D. GIRLS' EMOTIONALITY TEST

DIRECTIONS. We would like to know how children feel about different things. In these lists put a circle around the word which best tells how you feel about each thing on the list. Be sure to put your true feelings.

Example

Spring sunshine (Like much) Like Don't mind Don't like Hate

Here there is a circle around Like much because the person who answered this question likes sunshine very much.

If you like something on this list very much put a circle around Like much. If you like the thing some put a circle around Like. If you dont care either way put a circle around Don't mind. If you don't like the thing mentioned put a circle around the words Don't like. If you hate the thing mentioned put a circle around Hate. Use only one circle for each thing mentioned. Answer everything on the list. Be sure to give your true feelings.

1. Adventures	Like much	Like	Don't mind	Don't like	Hate
2. Make things in arts and crafts	Like much	Like	Don't mind	Don't like	Hate
3. Study astronomy	Like much	Like	Don't mind	Don't like	Hate
4. Ride in Airplanes	Like much	Like	Don't mind	Don't like	Hate
5. Watch airplanes	Like much	Like	Don't mind	Don't like	Hate
6. Have allowance	Like much	Like	Don't mind	Don't like	Hate
7. Be Aviator	Like much	Like	Don't mind	Don't like	Hate
8. Have nice aunts and uncles	Like much	Like	Don't mind	Don't like	Hate
9. See aunt who is away	Like much	Like	Don't mind	Don't like	Hate
10. Be an actress	Like much	Like	Don't mind	Don't like	Hate
11. Act in school plays	Like much	Like	Don't mind	Don't like	Hate
12. Be an artist	Like much	Like	Don't mind	Don't like	Hate
13. Go on Loop de Loop	Like much	Like	Don't mind	Don't like	Hate
14. Own an automobile	Like much	Like	Don't mind	Don't like	Hate
15. Drive an automobile	Like much	Like	Don't mind	Don't like	Hate
16. Go to amusement parks	Like much	Like	Don't mind	Don't like	Hate
B 17. Take a bath	Like much	Like	Don't mind	Don't like	Hate
18. Be alone	Like much	Like	Don't mind	Don't like	Hate
19. Be clean	Like much	Like	Don't mind	Don't like	Hate
20. Make beds	Like much	Like	Don't mind	Don't like	Hate
21. Blow bubbles	Like much	Like	Don't mind	Don't like	Hate
22. Care for babies	Like much	Like	Don't mind	Don't like	Hate
23. Have baby sister	Like much	Like	Don't mind	Don't like	Hate
24. Have baby brother	Like much	Like	Don't mind	Don't like	Hate
25. Have a nice brother	Like much	Like	Don't mind	Don't like	Hate
26. Bake a cake	Like much	Like	Don't mind	Don't like	Hate
27. Talk about lovely things	Like much	Like	Don't mind	Don't like	Hate
28. Beautiful things	Like much	Like	Don't mind	Don't like	Hate
29. Bathe a dog	Like much	Like	Don't mind	Don't like	Hate
30. Play baseball	Like much	Like	Don't mind	Don't like	Hate

31. Have a bicycle	Like much	Like	Don't mind	Don't like	Hate	
32. Own a big bank	Like much	Like	Don't mind	Don't like	Hate	
33. Play basket ball	Like much	Like	Don't mind	Don't like	Hate	
34. Have a boy friend	Like much	Like	Don't mind	Don't like	Hate	
35. Drink beer	Like much	Like	Don't mind	Don't like	Hate	
36. Get letter from boy friend	Like much	Like	Don't mind	Don't like	Hate	
37. Buy presents for others	Like much	Like	Don't mind	Don't like	Hate	
38. Be a boy	Like much	Like	Don't mind	Don't like	Hate	
39. Go to beaches	Like much	Like	Don't mind	Don't like	Hate	
40. See World's Series	Like much	Like	Don't mind	Don't like	Hate	
41. My birthday	Like much	Like	Don't mind	Don't like	Hate	
C 42. Play cards	Like much	Like	Don't mind	Don't like	Hate	
43. To Crochet	Like much	Like	Don't mind	Don't like	Hate	
44. Have a camp fire	Like much	Like	Don't mind	Don't like	Hate	
45. Experiment with chemicals	Like much	Like	Don't mind	Don't like	Hate	
46. Play chess	Like much	Like	Don't mind	Don't like	Hate	
47. Clean the house	Like much	Like	Don't mind	Don't like	Hate	
48. My cousin	Like much	Like	Don't mind	Don't like	Hate	
49. Go to camp	Like much	Like	Don't mind	Don't like	Hate	
50. Go to college	Like much	Like	Don't mind	Don't like	Hate	
51. To cook	Like much	Like	Don't mind	Don't like	Hate	
52. Live on a farm	Like much	Like	Don't mind	Don't like	Hate	
53. Go canoeing	Like much	Like	Don't mind	Don't like	Hate	
54. Go to coney Island	Like much	Like	Don't mind	Don't like	Hate	
55. Go to club meetings	Like much	Like	Don't mind	Don't like	Hate	
56. Get nnew clothes	Like much	Like	Don't mind	Don't like	Hate	
57. Get compliments	Like much	Like	Don't mind	Don't like	Hate	
58. Be confirmed	Like much	Like	Don't mind	Don't like	Hate	
59. Have a small cottage	Like much	Like	Don't mind	Don't like	Hate	
60. See a circus	Like much	Like	Don't mind	Don't like	Hate	
61. Climb Trees	Like much	Like	Don't mind	Don't like	Hate	
62. Be in a Beauty contest	Like much	Like	Don't mind	Don't like	Hate	
63. Listen tocrickets	Like much	Like	Don't mind	Don't like	Hate	
D 64. Dancing lessons	Like much	Like	Don't mind	Don't like	Hate	
65. To dream	Like much	Like	Don't mind	Don't like	Hate	
66. To dust furniture	Like much	Like	Don't mind	Don't like	Hate	
67. My dad	Like much	Like	Don't mind	Don't like	Hate	
68. Go out with Dad	Like much	Like	Don't mind	Don't like	Hate	
69. Visit Dad's Business	Like much	Like	Don't mind	Don't like	Hate	
70. When Dad gets new things	Like much	Like	Don't mind	Don't like	Hate	
71. Go down town	Like much	Like	Don't mind	Don't like	Hate	
72. Go to town with Mother	Like much	Like	Don't mind	Don't like	Hate	
73. Dress in boy's clothes	Like much	Like	Don't mind	Don't like	Hate	
74. Be popular	Like much	Like	don't mind	Don't like	Hate	
75. Have a dog	Like much	Like	Don't mind	Don't like	Hate	
76. Go to a dog show	Like much	Like	Don't mind	Don't like	Hate	
77. Feed hungry dogs	Like much	Like	Don't mind	Don't like	Hate	
78. Wash dishes	Like much	Like	Don't mind	Don't like	Hate	
79. Have a good day	Like much	Like	Don't mind	Don't like	Hate	
80. Drink tea	Like much	Like	Don't mind	Don't like	Hate	
E 81. Eat	Like much	Like	Don't mind	Don't like	Hate	
82. Eat out	Like much	Like	Don't mind	Don't like	Hate	
83. Eat tomatoes	Like much	Like	Don't mind	Don't like	Hate	
84. Eat desserts	Like much	Like	Don't mind	Don't like	Hate	
85. Eat turkey	Like much	Like	Don't mind	Don't like	Hate	

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86. Eat meat	Like much	Like	Don't mind	Don't like	Hate
87, Eat pickles	Like much	Like	Don't mind	Don't like	Hate
88. Drink liquor	Like much	Like	Don't mind	Don't like	Hate
89. Drink pop	Like much	Like	Don't mind	Don't like	Hate
90. Eat carrots	Like much	Like	Don't mind	Don't like	Hate
91. Eat mashed potatoes	Like much	Like	Don't mind	Don't like	Hate
92. Eat apple pie	Like much	Like	Don't mind	Don't like	Hate
93. Eat smoked meat	Like much	Like	Don't mind	Don't like	Hate
94. Eat steak	Like much	Like	Don't mind	Don't like	Hate
95. Drink lemonade	Like much	Like	Don't mind	Don't like	Hate
96. Eat olives	Like much	Like	Don't mind	Don't like	Hate
97. Eat popcorn	Like much	Like	Don't mind	Don't like	Hate
98. Eat Chow mein	Like much	Like	Don't mind	Don't like	Hate
99. Drink coco cola	Like much	Like	Don't mind	Don't like	Hate
100. Eat vegetables	Like much	Like	Don't mind	Don't like	Hate
101. Eat good things	Like much	Like	Don't mind	Don't like	Hate
102. Eat ice cream	Like much	Like	Don't mind	Don't like	Hate
103. Eat sodas	Like much	Like	Don't mind	Don't Like	Hate
104. Eat Chocolate cake	Like much	Like	Don't mind	Don't like	Hate
105. Eat spinach	Like much	Like	Don't mind	Don't like	Hate
106. Eat candy	Like much	Like	Don't mind	Don't like	Hate
107. Chew gum	Like much	Like	Don't mind	Don't like	Hate
108. Eat fried chicken	Like much	Like	Don't mind	Don't like	Hate
109. Enjoy the world	Like much	Like	Don't mind	Don't like	Hate
110. Have a good education	Like much	Like	Don't mind	Don't like	Hate
111. Go exploring	Like much	Like	Don't mind	Don't like	Hate
112. Have interesting experiences	Like much	Like	Don't mind	Don't like	Hate
113. Build with erector set	Like much	Like	Don't mind	Don't like	Hate
114. Work with electricity	Like much	Like	Don't mind	Don't like	Hate
115. Run errands	Like much	Like	Don't mind	Don't like	Hate
F 116. Feed animals	Like much	Like	Don't mind	Don't like	Hate
117. Be with my family	Like much	Like	Don't mind	Don't like	Hate
118. Have a family reunion	Like much	Like	Don't mind	Don't like	Hate
119. Have a healthy family	Like much	Like	Don't mind	Don't like	Hate
120. Out of town visitors	Like much	Like	Don't mind	Don't like	Hate
121. Have fun	Like much	Like	Don't mind	Don't like	Hate
122. Have many friends	Like much	Like	Don't mind	Don't like	Hate
123. Love my friends	Like much	Like	Don't mind	Don't like	Hate
124. Be with my friends	Like much	Like	Don't mind	Don't like	Hate
125. Play football	Like much	Like	Don't mind	Don't like	Hate
126. See football game	Like much	Like	Don't mind	Don't like	Hate
127. Go fishing	Like much	Like	Don't mind	Don't like	Hate
128. Walk in a forest	Like much	Like	Don't mind	Don't like	Hate
129. Beautiful flowers	Like much	Like	Don't mind	Don't like	Hate
130. Have fights	Like much	Like	Don't mind	Don't like	Hate
131. Be able to fight boys	Like much	Like	Don't mind	Don't like	Hate
132. Be a flower girl	Like much	Like	Don't mind	Don't like	Hate
133. The Flag	Like much	Like	Don't mind	Don't like	Hate
134. Do favors	Like much	Like	Don't mind	Don't like	Hate
135. Have someone do me a favor	Like much	Like	Don't mind	Don't like	Hate
136. Have n ew furniture	Like much	Like	Don't mind	Don't like	Hate
137. Build fires	Like much	Like	Don't mind	Don't like	Hate
138. Have free time	Like much	Like	Don't mind	Don't like	Hate
G 139. Visit aunt	Like much	Like	Don't mind	Don't like	Hate
140. Visit grandmother	Like much	Like	Don't mind	Don't like	Hate

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141. Gentleness	Like much	Like	Don't mind	Don't like	Hate	
142. My home	Like much	Like	Don't mind	Don't like	Hate	
143. Play games	Like much	Like	Don't mind	Don't like	Hate	
144. To go out	Like much	Like	Don't mind	Don't like	Hate	
145. To get pretty things	Like much	Like	Don't mind	Don't like	Hate	
146. To be good	Like much	Like	Don't mind	Don't like	Hate	
147. Be a Girl Scout	Like much	Like	Don't mind	Don't like	Hate	
148. Play golf	Like much	Like	Don't mind	Don't like	Hate	
149. Watch a gold game	Like much	Like	Don't mind	Don't like	Hate	
150. Be grown up	Like much	Like	Don't mind	Don't like	Hate	
151. Have a garden	Like much	Like	Don't mind	Don't like	Hate	
152. Graduate from school	Like much	Like	Don't mind	Don't like	Hate	
H 153. Help mother	Like much	Like	Don't mind	Don't like	Hate	
154. Be happy	Like much	Like	Don't mind	Don't like	Hate	
155. Make others happy	Like much	Like	Don't mind	Don't like	Hate	
156. Wear high heels	Like much	Like	Don't mind	Don't like	Hate	
157. Have curly hair	Like much	Like	Don't mind	Don't like	Hate	
158. Help people	Like much	Like	Don't mind	Don't like	Hate	
159. Holidays	Like much	Like	Don't mind	Don't like	Hate	
160. Go to Hollywood	Like much	Like	Don't mind	Don't like	Hate	
161. Have good health	Like much	Like	Don't mind	Don't like	Hate	
162. Help the poor	Like much	Like	Don't mind	Don't like	Hate	
163. Have a pretty home	Like much	Like	Don't mind	Don't like	Hate	
164. Have a home of my own	Like much	Like	Don't mind	Don't like	Hate	
165. See sick friend get well	Like much	Like	Don't mind	Don't like	Hate	
166. Have everything I need	Like much	Like	Don't mind	Don't like	Hate	
167. Play handball	Like much	Like	Don't mind	Don't like	Hate	
168. Go on hikes	Like much	Like	Don't mind	Don't like	Hate	
169. Iron clothes	Like much	Like	Don't mind	Don't like	Hate	
170. Go horseback riding	Like much	Like	Don't mind	Don't like	Hate	
171. See horse shows	Like much	Like	Don't mind	Don't like	Hate	
172. Go hunting	Like much	Like	Don't mind	Don't like	Hate	
I 173. Go ice skating	Like much	Like	Don't mind	Don't like	Hate	
K 174. Knit	Like much	Like	Don't mind	Don't like	Hate	
175. Play kickball	Like much	Like	Don't mind	Don't like	Hate	
176. Fly kites	Like much	Like	Don't mind	Don't like	Hate	
L 177. To learn	Like much	Like	Don't mind	Don't like	Hate	
178. To laugh	Like much	Like	Don't mind	Don't like	Hate	
179. Be a life saver	Like much	Like	Don't mind	Don't like	Hate	
180. Be a lawyer	Like much	Like	Don't mind	Don't like	Hate	
181. Receive letters	Like much	Like	Don't mind	Don't like	Hate	
182. Go to the library	Like much	Like	Don't mind	Don't like	Hate	
M 183. Make booklets	Like much	Like	Don't mind	Don't like	Hate	
184. Have money	Like much	Like	Don't mind	Don't like	Hate	
185. Mystery stories	Like much	Like	Don't mind	Don't like	Hate	
186. Have a mansion	Like much	Like	Don't mind	Don't like	Hate	
187. Have a screen test	Like much	Like	Don't mind	Don't like	Hate	
188. Hear music	Like much	Like	Don't mind	Don't like	Hate	
189. Meet movie stars	Like much	Like	Don't mind	Don't like	Hate	
190. Meet Shirley Temple	Like much	Like	Don't mind	Don't like	Hate	
191. Be a movie star	Like much	Like	Don't mind	Don't like	Hate	
192. Be a nurse	Like much	Like	Don't mind	Don't like	Hate	
193. Own a movie theatre	Like much	Like	Don't mind	Don't like	Hate	
194. Run a movie machine	Like much	Like	Don't mind	Don't like	Hate	
195. See moving pictures	Like much	Like	Don't mind	Don't like	Hate	

196. Have much money	Like much	Like	Don't mind	Don't like	Hate
197. Get married	Like much	Like	Don't mind	Don't like	Hate
198. Get movie star pictures	Like much	Like	Don't mind	Don't like	Hate
199. Be a millionaire	Like much	Like	Don't mind	Don't like	Hate
200. My mother	Like much	Like	Don't mind	Don't like	Hate
N 201. To have no nightwork	Like much	Like	Don't mind	Don't like	Hate
202. Not to be teased	Like much	Like	Don't mind	Don't like	Hate
O 203. To obey	Like much	Like	Don't mind	Don't like	Hate
P 204. Play with paper dolls	Like much	Like	Don't mind	Don't like	Hate
205. Pop pop corn	Like much	Like	Don't mind	Don't like	Hate
206. Play marbles	Like much	Like	Don't mind	Don't like	Hate
207. Play jacks	Like much	Like	Don't mind	Don't like	Hate
208. See beautiful pictures	Like much	Like	Don't mind	Don't like	Hate
209. Paint pictures	Like much	Like	Don't mind	Don't like	Hate
210. Go to parties	Like much	Like	Don't mind	Don't like	Hate
211. Have my parents	Like much	Like	Don't mind	Don't like	Hate
212. Give parties	Like much	Like	Don't mind	Don't like	Hate
213. Be President of U.S.A.	Like much	Like	Don't mind	Don't like	Hate
214. Play the piano	Like much	Like	Don't mind	Don't like	Hate
215. Like to play	Like much	Like	Don't mind	Don't like	Hate
216. Go to Paris	Like much	Like	Don't mind	Don't like	Hate
217. Play in snow	Like much	Like	Don't mind	Don't like	Hate
218. See plays	Like much	Like	Don't mind	Don't like	Hate
219. Be President's Wife	Like much	Like	Don't mind	Don't like	Hate
220. Get presents	Like much	Like	Don't mind	Don't like	Hate
221. Like people	Like much	Like	Don't mind	Don't like	Hate
222. Beautiful Parks	Like much	Like	Don't mind	Don't like	Hate
223. Play-mates	Like much	Like	Don't mind	Don't like	Hate
224. Meet a Princess	Like much	Like	Don't mind	Don't like	Hate
225. Picnics with my teachers	Like much	Like	Don't mind	Don't like	Hate
226. Give presents	Like much	Like	Don't mind	Don't like	Hate
227. Perfume	Like much	Like	Don't mind	Don't like	Hate
228. Get prizes	Like much	Like	Don't mind	Don't like	Hate
229. Have pets	Like much	Like	Don't mind	Don't like	Hate
230. Pick a fight	Like much	Like	Don't mind	Don't like	Hate
231. Have a pony	Like much	Like	Don't mind	Don't like	Hate
232. Go on picnics	Like much	Like	Don't mind	Don't like	Hate
233. Be a great pianist	Like much	Like	Don't mind	Don't like	Hate
234. Enjoy myself	Likemuch	Like	Don't mind	Don't like	Hate
235. Have a boy ask me to dance	Like much	Like	Don't mind	Don't like	Hate
236. Jump rope	Like much	Like	Don't mind	Don't like	Hate
237. Play mothers	Like much	Like	Don't mind	Don't like	Hate
238, Play school	Like much	Like	Don't mind	Don't like	Hate
239. Play with relatives	Like much	Like	Don't mind	Don't like	Hate
240. Be the life of ahparty	Like much	Like	Don't mind	Don't like	Hate
241. Play tag	Like much	Like	Don't mind	Don't like	Hate
242. Have a phonograph	Like much	Like	Don't mind	Don't like	Hate
243. Read Poetry	Like much	Like	Don't mind	Don't like	Hate
244. Praise from my Parents	Like much	Like	Don't mind	Don't like	Hate
245. Have pillow fights	Like much	Like	Don't mind	Don't like	Hate
246. Get a permanent wave	Like much	Like	Don't mind	Don't like	Hate
Q 247. Be a Queen	Like much	Like	Don't mind	Don't like	Hate
R 248. Read detective stories	Like much	Like	Don't mind	Don't like	Hate
249. Read murder stories	Like much	Like	Don't mind	Don't like	Hate
250. Read good books	Like much	Like	Don't mind	Don't like	Hate

251. Read myths	Like much	Like	Don't mind	Don't like	Hate
252. Read exciting books	Like much	Like	Don't mind	Don't like	Hate
253. Read mystery stories	Like much	Like	Don't mind	Don't like	Hate
254. Listen to radio	Like much	Like	Don't mind	Don't like	Hate
255. Ride in automobile	Like much	Like	Don't mind	Don't like	Hate
256. See my relatives	Like much	Like	Don't mind	Don't like	Hate
257. Do things right	Like much	Like	Don't mind	Don't like	Hate
258. Recite in class	Like much	Like	Don't mind	Don't like	Hate
259. Play in a recital	Like much	Like	Don't mind	Don't like	Hate
260. Ready the funnies	Like much	Like	Don't mind	Don't like	Hate
261. Get a horse	Like much	Like	Don't mind	Don't like	Hate
262. Ride in the country	Like much	Like	Don't mind	Don't like	Hate
263. Roses	Like much	Like	Don't mind	Don't like	Hate
264. Go on Rolly coaster	Like much	Like	Don't mind	Don't like	Hate
265. Religion	Like much	Like	Don't mind	Don't like	Hate
266. Wear sport clothes	Like much	Like	Don't mind	Don't like	Hate
267. Play in snow	Like much	Like	Don't mind	Don't like	Hate
268. Slide on ice	Like much	Like	Don't mind	Don't like	Hate
269. Visit teacher's home	Like much	Like	Don't mind	Don't like	Hate
270. Study science	Like much	Like	Don't mind	Don't like	Hate
271. Summer time	Like much	Like	Don't mind	Don't like	Hate
272. History	Like much	Like	Don't mind	Don't like	Hate
273. Sit in mother's lap	Like much	Like	Don't mind	Don't like	Hate
274. Belong to school council	Like much	Like	Don't mind	Don't like	Hate
275. Squirrels	Like much	Like	Don't mind	Don't like	Hate
276. Go to Sunday School	Like much	Like	Don't mind	Don't like	Hate
277. Sunday	Like much	Like	Don't mind	Don't like	Hate
278. Travel on a big ship	Like much	Like	Don't mind	Don't like	Hate
279. Intelligent people	Like much	Like	Don't mind	Don't like	Hate
280. Sports	Like much	Like	Don't mind	Don't like	Hate
281. Go swimming	Like much	Like	Don't mind	Don't like	Hate
282. Go skating	Like much	Like	Don't mind	Don't like	Hate
283. Go sled riding	Like much	Like	Don't mind	Don't like	Hate
284. Swim in the ocean	Like much	Like	Don't mind	Don't like	Hate
285. Have own swimming pool	Like much	Like	Don't mind	Don't like	Hate
286. Be sprinkled in bathing suit	Like much	Like	Don't mind	Don't like	Hate
287. Take a shower	Like much	Like	Don't mind	Don't like	Hate
288. To sing	Like much	Like	Don't mind	Don't like	Hate
289. To be scolded	Like much	Like	Don't mind	Don't like	Hate
290. See President of U.S.	Like much	Like	Don't mind	Don't like	Hate
291. See a scary show	Like much	Like	Don't mind	Don't like	Hate
292. Do my own shopping	Like much	Like	Don't mind	Don't like	Hate
293. To sew	Like much	Like	Don't mind	Don't like	Hate
294. Spring	Like much	Like	Don't mind	Don't like	Hate
295. Be a private secretary	Like much	Like	Don't mind	Don't like	Hate
296. Be a stenographer	Like much	Like	Don't mind	Don't like	Hate
297. Kind people	Like much	Like	Don't mind	Don't like	Hate
298. Own a store	Like much	Like	Don't mind	Don't like	Hate
299. Listen to concerts	Like much	Like	Don't mind	Don't like	Hate
300. Hear great opera singers	Like much	Like	Don't mind	Don't like	Hate
301. Sleep at friend's house	Like much	Like	Don't mind	Don't like	Hate
302. Go to bed	Like much	Like	Don't mind	Don't like	Hate
303. Stay up late	Like much	Like	Don't mind	Don't like	Hate
304. Sleep late in morning	Like much	Like	Don't mind	Don't like	Hate
305. Watch the stars	Like much	Like	Don't mind	Don't like	Hate
306. The first snow	Like much	Like	Don't mind	Don't like	Hate
307. To be surprised	Like much	Like	Don't mind	Don't like	Hate
308. Summer vacation	Like much	Like	Don't mind	Don't like	Hate
309. To be a teacher	Like much	Like	Don't mind	Don't like	Hate
310. To write a book	Like much	Like	Don't mind	Don't like	Hate

GIRLS	E M O				
311. Succeed in my work	Like much	Like	Don't mind	Don't like	Hate
312. English Club	Like much	Like	Don't mind	Don't like	Hate
313. To be smart	Like much	Like	Don't mind	Don't like	Hate
314. My teachers	Like much	Like	Don't mind	Don't like	Hate
315. Certain teachers	Like much	Like	Don't mind	Don't like	Hate
316. Go to school	Like much	Like	Don't mind	Don't like	Hate
317. To draw	Like much	Like	Don't mind	Don't like	Hate
318. Geography	Like much	Like	Don't mind	Don't like	Hate
319. To write compositions	Like much	Like	Don't mind	Don't like	Hate
320. Read compositions	Like much	Like	Don't mind	Don't like	Hate
321. Spelling	Like much	Like	Don't mind	Don't like	Hate
322. Compliment from teacher	Likemuch	Like	Don't mind	Don't like	Hate
323. To please teachers	Like much	Like	Don't mind	Don't like	Hate
324. To please parents	Like much	Like	Don't mind	Don't like	Hate
325. Take gym	Like much	Like	Don't mind	Don't Like	Hate
326. Get good report card	Like much	Like	Don't mind	Don't like	Hate
327. Arithmetic	Like much	Like	Don't mind	Don't like	Hate
328. Grammar	Like much	Like	Don't mind	Don't like	Hate
329. To write poems	Like much	Like	Don't mind	Don't like	Hate
330. Go to Junior High S.	Like much	Like	Don't mind	Don't like	Hate
331. Manual Training	Like much	Like	Don't mind	Don't like	Hate
332. Schoolmates	Like much	Like	Don't mind	Don't like	Hate
333. Spin tops	Like much	Like	Don't mind	Don't like	Hate
334. To travel	Like much	Like	Don't mind	Don't like	Hate
335. Travel on steamship	Like much	Like	Don't mind	Don't like	Hate
336. Travel in train	Like much	Like	Don't mind	Don't like	Hate
337. Play tennis	Like much	Like	Don't mind	Don't like	Hate
338. Go down town	Like much	Like	Don't mind	Don't like	Hate
339. Go to Europe	Like much	Like	Don't mind	Don't like	Hate
340. Toys	Like much	Like	Don't mind	Don't like	Hate
341. To have a testt	Like much	Like	Don't mind	Don't like	Hate
342. Go to the theater	Like much	Like	Don't mind	Don't like	Hate
343. To be trusted	Like much	Like	Don't mind	Don't like	Hate
344. To tease someone	Like much	Like	Don't mind	Don't like	Hate
V 345. To visit certainplaces	Like much	Like	Don't mind	Don't like	Hate
346. To visit my friends	Like much	Like	Don't mind	Don't like	Hate
347. Play volley ball	Like much	Like	Don't mind	Don't like	Hate
348. Have valuable things	Like much	Like	Don't mind	Don't like	Hate
349. Violets	Like much	Like	Don't mind	Don't like	Hate
350. Play the violin	Like much	Like	Don't mind	Don't like	Hate
351. Variety in anything	Like much	Like	Don't mind	Don't like	Hate
W 352. To win in games	Like much	Like	Don't mind	Don't like	Hate
353. To win in a contest	Like much	Like	Don't mind	Don't like	Hate
354. To write stories	Like much	Like	Don't mind	Don't like	Hate
355. To wrestle	Like much	Like	Don't mind	Don't like	Hate
356. Visit the woods	Like much	Like	Don't mind	Don't like	Hate
357. Good weather	Like much	Like	Don't mind	Don't like	Hate
358. Wavy hair	Like much	Like	Don't mind	Don't like	Hate
359. Take long walks	Like much	Like	Don't mind	Don't like	Hate
360. Win an argument	Like much	Like	Don't mind	Don't like	Hate
361. Go to weddings	Like much	Like	Don't mind	Don't like	Hate
362. To work	Like much	Like	Don't mind	Don't like	Hate
363. Winter	Like much	Like	Don't mind	Don't like	Hate
364. To wash clothes	Like much	Like	Don't mind	Don't like	Hate
365. To yell	Like much	Like	Don't mind	Don't like	Hate
366. To own a yacht	Like much	Like	Don't mind	Don't like	Hate
367. Go to the Zoo	Like much	Like	Don't mind	Don't like	Hate
368. When school starts	Like much	Like	Don't mind	Don't like	Hate
369. Walk in rain	Like much	Like	Don't mind	Don't like	Hate
370. Pick flowers	Like much	Like	Don't mind	Don't like	Hate
371. To be trusted	Like much	Like	Don't mind	Don't like	Hate
372. To tease someone	Like much	Like	Don't mind	Don't like	Hate

WOODWORTH-CADY QUESTIONNAIRE

NAME _____ AGE ____ DATE ____ GRADE ____ ROOM ____ BOY OR GIRL ____

APPENDIX E.

DIRECTIONS- An swer every question as truthf ully and honestly as you can by drawing a line under the right answer, as shown in the sample.

SAMPLES

Are there seven days in a week? YES NO
Do you sleep 15 hours a day? YES NO

Below are other questions. Answer every one truthfully and honestly by drawing a linecunder Yes or No. Do not skip any. Go.

1. Are you happy most of the time? YES NO
2. Are you afraid in the dark? YES NO
3. Do you get tired of people easily? YES NO
4. Are you anxious to get away from school and get a job? YES NO
5. Have you often fainted away? YES NO
6. Were you ever fond of playing with snakes YES NO
7. Did you ever have a nick name you didn't like very well? YES NO
8. Do you usually enjoy ycur meals? YES NO
9. Can you usually sit still without fidgeting? YES NO
10. Do people say y ou are disobedient? YES NO
11. Do you usually sleep well? YES NO
12. Can you keep still when you are being tickled YES NO
13. Do you make friends easily? YES NO
14. Did you ever run away from home? YES NO
15. Have you the habit of biting youb finger nails? YES NO
16. Does the thought of hurting a person or animal give you pain? YES NO
17. Do your eyes often pain you? YES NO
18. Do you prefer to go without your breakfast? YES NO
19. Would you rather play by yourself than with someone? YES NO
20. Do you ever dream of robbers? YES NO
21. Did you ever have the habit of twitching your head, neck, or shoulders? YES NO
22. Do your teachers tell you that you are too noisy or talk too much? YES NO
23. Do you hear easily when spoken to? YES NO
24. Do you prefer rainy weather? YES NO
25. Do you sometimes cry yourself to sleep? YES NO
26. Do you mind crossing a bridge over water? YES NO
27. Do you ever have the same dream over and over? YES NO
28. Do you like to tease people till they cry? YES NO
29. Do you get out of breath quickly when you run? YES NO
30. Would you like to go to school on Saturdays? YES NO
31. Do your teachers generally treat you right? YES NO
32. Can you stand the sight of blood? YES NO
33. Are you troubled with dreams about your play? YES NO
34. Were you ever expelled from school or nearly expelled? YES NO
35. Do you usual ly feel well and strong? YES NO
36. Do you refuse candy when it is offered you? YES NO
37. Have you often been punished unjustly? YES NO
38. Do you have a great fear of fire? YES NO
39. Do you often get cross over little things YES NO
40. Have you ever been arrested, fined, or placed on probation? YES NO
41. Do things ever get misty before your eyes? YES NO
42. Do you like to have people hurry you when you are working? YES NO
43. Do you like to be praised and made much of? YES NO

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44. Can you stand as much pain as others can? YES NO
45. Do you giggle a good deal and find you cannot help it? YES NO
46. Do you always get on well with your teachers and principal? YES NO
47. Do you have many bad headaches ? YES NO
48. Is it easy for you to get up as soon as you awaken in the morning? YES NO
49. Did you ever feel that you were very wicked? YES NO
50. Do you know anybody who is trying to do you harm or hurt you? YES NO
51. Are you ever bothered by a feeling that things are not real? YES NO
52. Would you like to wear expensive jewelry, rings, etc.? YES NO
53. Have you always remembered to clean your teeth? YES NO
54. Do you live a make-believe life, in addition to your real life? YES NO
55. Does it make you uneasy to cross a wide street or open square? YES NO
56. Do you feel sort of tired a good deal of the time? YES NO
57. Do those who play with you say you quarrel or fight too much? YES NO
58. Do you dislike to ride in an automobile? YES NO
59. Do you ever feel that no one loves you? YES NO
60. Do you think you have more fears than most people? YES NO
61. Do you sometimes worry about your health? YES NO
62. Do you enjoyy being idle and lounging about? YES NO
63. Does the odor of most flowers make you sick? YES NO
64. Do you think that people are always looking at you or making remarks about you? YES NO
65. Do you have to have a light in your room at night before you can go to sleep? YES NO
66. Do your folks say that you walk in your sleep? YES NO
67. Do people find faul t with you much? YES NO
68. Would you be afraid to ride on horseback? YES NO
69. Do other children of your age usually let you play with them? YES NO
70. Are you often frightened in the middle of the night? YES NO
71. Do you often have a hard time making up your mind about things? YES NO
72. Do you find school a hard place to get along in? YES NO
73. Are your feelings often hurt so badly that you cry? YES NO
74. Do you sometimes wish you had never been born? YES NO
75. Did you ever have the habit of stuttering or stammering? YES NO
76. Can you do good work while people are looking at you? YES NO
77. Do you ever dream of people being dead? YES NO
78. Can you handle yourself well in walking or running? YES NO
79. Do you sometimes wish that you had never been born? YES NO
80. Would y ou rather be with grown people than with those of your own age? YES NO
81. Do you have trouble in getting to sleep YES NO
82. Do you ever imagine stories to yourself so that you forget where you are? YES NO
83. Do you feel like jumping off when you are on a high place? YES NO
84. Do you think people like you as much as they do other people? YES NO
85. Do you feel that you are getting a square deal in life? YES NO

Write down the three things that worry you most.

1.
2.
3.

SCHOOL ROOM SCORE

NAME AGE GRADE BOY OR GIRL DATE

APPENDIX F.

DIRECTIONS.- Answer every question as truthfully and honestly as you can by drawing a line under the right answer. Give your true feelings.

1. Would you rather have a few real good friends instead of a great many friends? YES NO
2. Are your feelings easily hurt? YES NO
3. Do you think that most people are fair to you? YES NO
4. Are you often afraid that terrible things might happen? YES NO
5. Do you feel sorry for yourself when things go wrong? YES NO
6. Can you think clearly when something exciting happens? YES NO
7. At parties do you like to be the leader in the games? YES NO
8. Do you often criticise or find fault with people? YES NO
9. Do you like to work alone instead of working in groups? YES NO
10. Are you happy at one time and sad at another time without a reason for your feelings? YES NO
11. Are you very neat and careful not to get your clothes dirty? YES NO
12. Are you easily embarrassed? YES NO
13. Do you believe almost everything that you hear? YES NO
14. Is it easier for you to write your thoughts instead of telling them? YES NO
15. Do you obey orders of parents and teachers without arguing? YES NO
16. Are most of your friends boys or girls? BOYS GIRLS
17. Do you enjoy giving a talk in front of the class? YES NO
18. Would you make many changes in your school if you could? YES NO
19. Do you always say what you think even if it hurts others? YES NO
20. Do you like to spend much time thinking instead of doing things? YES
21. Would you rather play athletic games instead of thinking games? YES NO
22. Do you try much harder when your parents or teachers praise you? YES NO
23. Do you like to sit in a quiet place and imagine things? YES NO
24. Do you think that everyone should look out for himself first? YES N
25. Do you like to go around and sell things? YES NO
26. Do you often bring little gifts to your friends? YES NO
27. Would you rather read about an exciting experience instead of being in it? YES NO
28. Are you very particular about whom you choose for a friend? YES NO
29. Are you afraid to take a chance in a dangerous situation? YES NO
30. Would you rather work things out for yourself than get help? YES NO
31. Do you often talk to yourself? YES NO
32. Do you like to write or talk about yourself? YES NO
33. Do you keep a diary? YES NO
34. Would you rather have an operation than many little sick spells? YES NO
35. Do you tell your private business to many people? YES NO
36. Do you like to talk much to your friends? YES NO
37. Do you often like to invent new ways of doing things? YES NO
38. Do you like to work at something for a short time, then change? YES
39. Do you hate to lose in a game? YES NO
40. Do you pretend to know things so people won't think you are dumb? YES NO
41. Are you absent minded? YES NO
42. Does it take you a long time to make up your mind about things? YES NO
43. Do you change quickly from feeling sad to feeling happy? YES NO
44. Do you always use your best writing when writing a letter? YES NO
45. Do you like to take your time about doing things? YES NO
46. Do you follow your feelings about things instead of reasoning it out YES NO
47. Are you a good judge of people's character? YES NO
48. Do you often change your mind about things? YES NO
49. Do you like to do very fine, careful, work? YES NO
50. Can you always be depended upon to carry your responsibilities? YE

INTROVERSION-EXTROVERSION Form B

CHOOL_____ ROOM_____ SCORE_____

AME_____ AGE____ GRADE____ BOY OR GIRL____ DATE_____

APPENDIX G.

IRECTIONS.- Answer every question as truthfully and honestly as you can y drawing a line under the right answer. Be sure to give your true feeli

. I like to have a great many friends. TRUE FALSE
. What people say about me doesn't bother me much. TRUE FALSE
. Most people try to get the best of me. TRUE FALSE
. I never worry much about what troubles may be ahead of me. TRUE FALSE
. I never pity myself even if I sometimes have some trouble. TRUE FALSE
. I lose my head in excitement and don't know what to do. TRUE FALSE
. I like to help take care of every one at parties. TRUE FALSE
. When people make mistakes I don't mind telling them about it. TRUE FAL
. I always like to work on committees or in groups. TRUE FALSE
. I am happy most of the time. TRUE FALSE
. I don't mind getting dirty as long as I have a good time. TRUE FALSE
. I never blush or get red in the face when people talk to me. TRUE FALSE
. I pay very little attention to all kinds of news that people sometimes like to spread. TRUE FALSE
. I can explain things much better by talking to a person instead of writing him a letter. TRUE FALSE
. I do what I am told whether I feel like it or not. TRUE FALSE
. I have many more boy friends than girl friends TRUE FALSE
. I almost always volunteer to give reports before my class. TRUE FALSE
. If I were the principal I would run the school differently, TRUE FALSE
. I don't like to hurt people's feelings so I keep still when something happens. TRUE FALSE
. I like to sit in a comfortable chair and think about things. TRUE FALSE
. MY favorite games are in athletics because I like to run and jump. TRUE FALSE
. When my teacher gives me a compliment it makes me try harder, TRUE FALS
. Day dreaming is one of my favorite amusements. TRUE FALSE
. I like to get as many things for myself as I can. TRUE FALSE
. I always volunteer to sell tickets or other things. TRUE FALSE
. I like to save things given to me by people whom I love. TRUE FALSE
. I would rather read exciting books than have many adventures. TRUE FALSE
. I like to make friends with almost anyone. TRUE FALSE
. I don't like to take a dare;;it may be dangerous. TRUE FALSE
. I can get along better if I talk to myself: TRUE FALSE
. I always like to have someone help me with what I do. TRUE FALSE
. I like to tell people all about myself. TRUE FALSE
. I like to write in my diary every day or pretty often. TRUE FALSE
. I can usually think clearly in an emergency. TRUE FALSE
. I tell my secrets only to my family or very best friend. TRUE FALSE
. I would rather listen to other people than talk a lot myself. TRUE FAL
. I like to be original and do things differently than others do. TRUE
. When I start things I like to work steadily at them till I finish. TRUE FALSE
. I don't mind losing in a game because I play just for the fun, TRUE FALSE
. I let people know how smart I am so they will appreciate me. TRUE FALSE
. I am always forgetting things. TRUE FALSE
. It is very hard for me to decide what to do about many things. TRUE FA
. I often change from a good mood to a bad mood. TRUE FALSE
. I always copy my letters over carefully before mailing them. TRUE FALS
. Whenever I do anything I like to do it fast. TRUE FALSE
. I always do what my mind tells me and I forget about my feelings. TRUE FALSE
. I am very good in picking out smart people from stupid people. TRUE FALSE
. I stick to my ideas without changing them. TRUE FALSE
. I have a lot of patience to do work about which I have to be careful. TRUE FALS
. When I have something to do I always do it. TRUE FALSE

APPENDIX H. REVISED INTROVERSION-EXTROVERSION TEST

DIRECTIONS.- Answer every question as truthfully and honestly as you can by drawing a line under the right answer. Give your true feelings.

1. Are your feelings easily hurt? YES NO
2. Do you think that most people are fair to you? YES NO
3. Are you often afraid that terrible things might happen? YES NO
4. Do you feel sorry for yourself when things go wrong? YES NO
5. Do you often criticise or find fault with people? YES NO
6. Are you easily embarrassed? YES NO
7. Do you believe almost everything that you hear? YES NO
8. Do you obey orders of parents and teachers without arguing? YES NO
9. Do you enjoy giving a talk in front of the class? YES NO
10. Do you like to spend much time thinking instead of doing things? YES NO
11. Do you try much harder when your parents or teachers praise you? YES NO
12. Do you often bring little gifts to your friends? YES NO
13. Are you afraid to take a chance in a dangerous situation? YES NO
14. Do you keep a diary? YES NO
15. Do you like to talk much to your friends? YES NO
16. Do you pretend to know things so people won't think you are stupid? YES NO
17. Are you absent minded? YES NO
18. Does it take you a long time to make up your mind about things? YES NO
19. Do you often change your mind about things? YES NO
20. Do you often talk to yourself? YES NO
21. I like to have a great many friends. TRUE FALSE
22. I lose my head in excitement and don't know what to do. TRUE FALSE
23. I like to take care of everyone at parties. TRUE FALSE
24. I always like to work on committees or in groups. TRUE FALSE
25. I am happy most of the time. TRUE FALSE
26. I don't mind getting dirty as long as I have fun. TRUE FALSE
27. I can explain things much better by talking to a person instead of writing him a letter. TRUE FALSE
28. If I were the principal I would run the school differently. TRUE FALSE
29. I don't like to hurt people's feelings so I keep still when something happens. TRUE FALSE
30. My favorite games are in athletics because I like to run and jump. TRUE FALSE
31. Day dreaming is one of my favorite amusements. TRUE FALSE
32. I like to get as many things for myself as I can. TRUE FALSE
33. I always volunteer to sell tickets or other things. TRUE FALSE
34. I would rather read exciting books than have many adventures. TRUE FALSE
35. I like to make friends with almost anyone. TRUE FALSE
36. I can get along better if I talk to myself. TRUE FALSE
37. I like to tell people all about myself. TRUE FALSE
38. I can usually think clearly in an emergency. TRUE FALSE
39. I tell my secrets only to my family or very best friend. TRUE FALSE
40. I like to be original and do things differently than others do. TRUE FALSE

APPENDIX H. REVISED ENTROVERSION-EXTROVERSION TEST

41. When I start things I like to work steadily at them until I finish. TRUE FALSE
42. I don't mind losing in a game because I play just for the fun. TRUE FALSE
43. I often change from a good mood to a bad mood. TRUE FALSE
44. I always copy my letters over carefully before mailing them. TRUE FALSE
45. Whenever I do anything I like to do it fast. TRUE FALSE
46. I always do what my mind tells me and I forget about my feelings. TRUE FALSE
47. I am very good in picking out smart people from stupid people. TRUE FALSE
48. I have a lot of patience to do work about which I have to be careful. TRUE FALSE
49. When I have something to do I always do it. TRUE FALSE
50. I don' tlike to take a dare; it may be dangerous. TRUE FALSE

APPENDIX I.

P-O-T

NAME _____ AGE _____ BOY or GIRL _____

DIRECTIONS Below are some short stories with two possible endings. Check the one ending in each story which you feel should be the ending for that story.

---

1. Jane's mother was very sick. A fairy brought her two bottles of medicine. She told her that one of the bottles would make get well but the other one would kill her. She did not tell her which was the good medicine and which was the bad medicine.

Check the kind of medicine you think that Jane's mother took.
1. The medicine that saved her life
2. The medicine that killed her.

2. A fisherman, while fishing from a little boat was caught in a terrible storm. He saw that if he could jump into another boat which was near by he would be saved. He jumped and

Check what you think happened:
1. He fell into the water and was drowned
2. He reached the boat and was saved

3. A young man who was in love with a princess was thrown into prison. He was told to open either one of two doors leading into two rooms. In one room there was a lion ready to tear him to pieces. In the other room was the beautiful princess ready to marry him. Of course he did not know which held the princess and which room held the lion.

Check what he did.
1. He opened the door where the princess was.
2. He opened the door leading to the lion and was killed.

4. Two little girls were taking a walk in sunny California. Suddenly everything grew dark and a terrific earthquake shook the land.

Check what happened to the little girls.
1. The little girls were killed.
2. The little girls were saved.

5. A young man was taken prisoner and was told that if he would tame a certain wild horse he would be given his freedom, otherwise he would be killed.

Check what happened:
1. The man tamed the horse and got his freedom.
2. The horse threw the man to the ground and killed him.

6. A fox was chasing a squirrel. He was almost upon him when they came to a forked road. The fox did not know which road the squirrel took but he followed one of the roads.

Check what happened:
1. The fox caught the squirrel.
2. The squirrel escaped.

7. A fireman rushed into a blazing building in order to save a valuable paper.

Check what happened:
1. The building fell in and he was killed.
2. He saved the papers and received a big reward.

8. A woman and her baby lived at t he foot of a mountain. One winter the mountain was covered with a heavy snow. The people warned the woman that a snow slide would come and knock her house down. They begged her to move but she refused to do so. One night she heard a terrific roaring noise and she knew that the snow slide was coming. She wrapped up her baby in a blanket and started to leave the house.

Check what happened:
1.They were caught by the snow slide and killed.
2.The father came home and saved them.

9. James, the driver of the air-mail plane, was lost in the fog. He had enough gasoline for only a few more miles and then he would be forced to land wherever he was. Suddenly the plane hit against something with a terrible crash.

Check what happened:
1. He hit the top of a mountain and was killed.
2. He landed in a farmer's field and was saved.

10. One day a boy was kidnapped and taken on a ship, across the ocean, to be sold as a slave. When they got pretty close to the shore James decided to jump into the ocean and swim to safety. Just as he fell into the water a big shark came near him.

1. The shark swallowed the boy.
2. James swam quickly to shore and was saved.

11. Two brothers were ordered to fight a duel. They were told to select their guns from a box which contained some loaded and some unloaded guns. If they selected the loaded guns they would have to kill each other, but if they took the empty guns they would be saved. Of course they did not know which were the loaded and which were the unloaded guns.

Check what happened:
1.They took the unloaded guns and were saved.
2. They took the loaded guns and had to kill each other.

12. One day a young aviator took his plane and started out for a long journey. Suddenly his plane got out of order and he knew that he would have to jump with his parachute. He got hold of his parachute and pulled a cord.

Check what happened:
1. The parachute opened and he landed safely.
2. The parachute did not open and he was killed.

13. "Fire," was the cry that went through the hotel. Tim opened his eyes and saw that his room was filled with dense smoke. Half dressed, he forced his way through the smoke out into the hall which was crowded with screaming people. He tried to find his way to the stairs but the smoke choked him and the crowds pushed in all directions.

Check what he finally did..
1. He reached the stairs just in time.
2. He could not get out and was burned to death.

14. Tom was going away to camp and wanted Jack to go with him. Jack's father could not afford to send him. This made the boy very unhappy. He was sitting on the porch thinking about this when the mailman handed him a letter.

Check what you think was in the letter.
1. A check for $300.00, the prize Jack won in a contest.
2. A letter saying that Jack did not win the prize.

15. George tried to get a j ob in the Morro Ship. Of course, he did not know that in two days that big, beautiful ship would be at the bottom of the ocean because of a terrible storm which would sink the boat.
Check what happened:
1. George got the job and was drowned when the ship sank.
2. George did not get the job and so his life was saved.

16. Mr. Mouse smelled some delicious cheese in the pantry. He made a dash for it.

Check what happened:
1.He caught his foot in a mouse trap.
2.He got the cheese and his whole family had a good supper.

17. The snowstorm was coming very rapidly and Tim knew that he would have to find shelter very soon in order to escape with his life. He came to a forked road and looked for his map in order to see which road to take. His map would tell him which road led to a cozy little hut and which one led to the deep forest. Alas, he could not find his map. Finally he decided to take one of the roads and try his luck.

Check what happened:
1. He reached the little hut and was saved.
2. He went into the deep forest and was caught in the storm.

18. A beggar was once walking on a railroad track. Just as he turned a bend in the road he saw a train rushing at him. He could either be dashed to pieces by the train or jump in the river and probably be drowned. He jumped into the river.

Check what happened:
1.He was drowned.
2. A fisherman was there with aaboat and saved his life.

1 9. D onald had studied all his life in order to be a movie star. At last he was given a chance to try out for a part in a fine play.
Check what happened:
1. He was accepted and became a famous moving picture star.
2. He was not accepted and told that he would never be an actc

20. A man walked along a dark street. Suddenly he heard the cry, "Help, I am bein g robbed." Just then a policeman came up and said, "You are arrested for robbery."

Check what happened:
1. The Judge let the poor man go.
2. The man was put into prison for five years.

21. Raggy was a young puppy looking for a home. He came to a double house but did not know which side he should enter. On one side lived a mean boy who tortured dogs by tying tin cans to their tails. On the other side lived a dear little girl who loved dogs and took good care of them. Of course, Raggy did not know who lived in either side of the house. He tried his luck.

Check what happened:
1. He entered the house where the mean boy lived.
2. He entered the side where the dear little girl lived.

22. Mr. Brown was driving down the street very fast when suddenly a little girl dashed in front of his machine. He used his brakes as quickly as he could.

Check what happened:
1. The little girl was badly hurt.
2. The little girl was saved.

23. A man had a hundred dollars. He put his money into a business.

Check what happened:
1. The business failed and he lost his money.
2. The business grew bigger every day and he became rich.

24. One day a boy was walking along the street when he met a man who said, "Here are two baskets. In one basket is all the money you can use for life. In the other basket is bad luck. Choose a basket. Of course, the boy did not know which basket had the money.
Check what happened:
1. The boy chose the basket with the bad luck.
2. The boy chose the basket with the money.

25. John was climbing a steep mountain. Suddenly he felt his foot slipping.

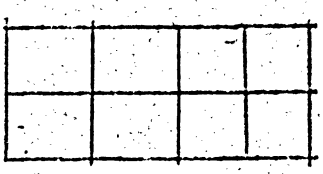
Check what happened:
1. He caught his foot on a bush and was saved.
2. He fell down the mountain and was killed.

APPENDIX J.
PROBLEMS

NAME _____ AGE ___ GRADE ___ BOY OR GIRL ___ DATE ___ ROOM ___

DIRECTIONS-. Try your best to work the following problems. You may use the space under each problem for any figuring that you would like to Ask no questions but do the best you can.

1. Cross out four lines leaving six complete boxes.



2. Tom had a RED Tie and a BLUE Tie, a White Shirt and a Gray Shirt, a Cotton Handkerchief and a Silk Handkerchief. He always wore one shirt, one tie, and one handkerchief at a time. Write out all the different possible combinations he could wear. Besure that you have all the possible combinations.

SHIRT TIE HANDKERCHIEF

3. A boy bought a certain number of apples at the price of 4 for 5 cents. He sold them at 3 for 4 cents. He made 60 cents profit altogether. How many apples did he buy?

ANSWER _____ APPLES

4. If you add two numbers together the answer will be 80, if you subtract one from the other the answer will be six. What are the two numbers?

ANSWER _____

5. A cistern can be filled by two pipes in 24 minutes. If it takes the larger pipe 20 minutes less time to fill the cistern than it takes the smaller pipe, in what time can the cistern be filled by each pipe alone?

_____ LARGE PI.

ANSWER _____
SMALL PI

R. A. INDICATOR

NAME _____ DATE _____ ROOM _____ BOY OR GIRL _____ AGE _____ GRADE _____

Write yes in the box marked cousin if you would be willing to have for a cousin a member of the race or nationality whose name is on the line opposite the box. If you would be willing to have them for a chum, which means best friend, write yes in the box marked chum. If you would be willing to have them for a roommate, which means one who sleeps in the same room with you, write yes in the box marked roommate. Write yes in the playmate box if you want them for playmates. Write yes in the neighbor box if you want them for neighbors. If you want them for classmates write yes in the classmate box. If you want them for school mates write yes in the schoolmate box. Write no in any box if you do not want to have members of the race opposite the box for any of the things mentioned above. If you know nothing about the race put a circl (o) in the box. Write something in every box. This is a University st and you will the University if you will mark just how you feel in every case.

	COUSIN	CHUM	ROOMMATE	PLAYMATE	NEIGHBOR	CLASSMATE	SCHOOL MATE
1TURK							
2NEGRO							
3MULATTO							
4JAPANESE							
5HINDU							
6JEW (GERMAN)							
7MEXICAN							
8JEW (RUSSIAN)							
9GERMAN							
10GREEK							
11CHINESE							
12ARMENIAN							
13HUNGARIAN							
14SERVIAN							
15RUSSIAN							
16CZECHO-SLOVAK							
17SYRIAN							
18BULGARIAN							
19FILIPINO							
20ITALIAN							
21BOHEMIAN							
22FINN							
23POLISH							
24IRISH							
25PORTUGUESE							
26ENGLISH							
27FRENCH							
28ROUMANIAN							
29SPANISH							
30SWEDISH							
31CANADIAN							
32DANE							
33DUTCH							
34FRENCH-CANADIAN							
35NORWEGIAN							
36SCOTCH							
37ARAB							
38INDIAN (AMERICAN)							
39AMERICAN							

PROBLEM SOLVING SCORE CARD FOR INDIVIDUAL TEST

NAME OF TEST _____ SCHOOL _____

NAME _____ GRADE ___ DATE _____ BOY OR GIRL _____ ROOM _____

APPENDIX L

1. Does child attempt to solve the problem? _____ yes ____ no ____

2. Does child solve the problem? _____ yes ____ no ____

3. If he does not solve theproblem how long does he work on it?

_____ minutes _____ seconds

4. If he does solve the problem how long does it take him?

_____ minutes _____ seconds

5. Does he give up and try again? _____ yes ____ no ____

Number of trials _____ Trials

6. Activity between trials ---- Describe ---- Note remarks made

Check whether they indicate:

(a) Discouragement
)b) Temper
(c) Excitement
(d) Poise
(e) Other factors

a 7. Does child manipulate wildly and impatiently using force? -Yes--No
(b) Does he analyze calmly and carefully?----------Yes--No-
(c) Does he have spurts of impatient manipulation combined with calm and careful analysis?

IMPATIENT MANIPULATION	Check and number CONTROLLED ANALYSIS
_____	_____
_____	_____
_____	_____
_____	_____

8. Check signs of nervousness according to Olson's grouping:

(a) Oral
(b) nasal
(c) Hirsutal
(d) Irritational
(e) manual
(f) Ocular
(g) Aural
(h) Facial

9. Does the child seem interested in the problem?------yes-----n

10. After solving the problem does the child express a desire to try again ?----------yes-----no

Remarks

APPENDIX M

Test II
For Grades 6, 7 and 8
Form 3

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Rate ____ +29 = ____
Comprehension ____ +5 = ____

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MONROE'S STANDARDIZED SILENT READING TEST
REVISED

Name ____ Boy or Girl ____
Age last birthday ____ Next birthday will be ____ 19____
Grade ____ Date ____ City ____ State ____
School ____ Teacher ____

Below there are three exercises. Under each exercise there is a row of words printed in bold face type. Each exercise asks a question. You are to read each exercise and then answer the question by drawing a line under the right word printed in the black type.

Read the following exercises:

(a) Carl, George, Jane, and Clara live in the same block. They all have little dogs to play with except Clara, who has a pretty white cat. Draw a line under the word which tells what Clara had.

dog **doll** **buggy** **cat** **money**

The answer to this exercise is "cat," so draw a line under cat.

(b) Angel food cake should be baked in a slow oven. Mary has just put her cake in the oven to bake and has turned the gas on in full blast. Her cake, of course, was not a success. How do you think Mary felt?

happy **sad** **proud** **stubborn** **glad**

The answer to this exercise is "sad." Draw a line under sad.

(c) John wished to make a box, but his father would not let him until Saturday, when there would be no school. Draw a line under the word which tells what John wanted to make.

aeroplane **wagon** **kite** **sled** **box**

On the three following pages there are a number of exercises like these to be read and answered. When the signal is given, turn over this page and begin. Work rapidly but remember that your answers must be right in order to count. Remember that you are to draw a line under only one word in each exercise. Also remember that this test is on three pages. When you finish one page, turn to the next.

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1. He was one of those happy mortals with well-oiled dispositions, who eat white bread or brown, whichever can be got with least thought or trouble, and would rather starve on a penny than work for a pound.

Draw a line under the word which best describes this man.

lazy **generous** **active** **hungry** **peevish**

---

2. It had been a long, dreary, rainy day and the children were gathered around the fire in the tiresome hour before dinner. They were tired of games and books, and were not even talking much.

Draw a line under the word which best describes the children.

merry **cross** **weary** **playful** **studious**

---

3. Now and then a heavy roller filled the cavern, blinding us with spray; having spent its fury, it dragged us toward the mouth of the cave, where we saved ourselves from being swept into the sea by grasping the roots overhead.

Draw a line under the word which best describes the place in which these men were.

exciting **dark** **dangerous** **dreary** **warm**

---

4. Antonius tended his olive trees with little help from his sons. Any morning he could be found up on the hillside, propping the young trees or pruning the old ones; or digging about the roots, loosening and stirring the soil.

Draw a line under the word which best describes Antonius.

industrious **indifferent** **careless** **independent** **easy-going**

---

5. The curfew tolls the knell of parting day,
The lowing herd winds slowly o'er the lea,
The plowman homeward plods his weary way,
And leaves the world to darkness and to me.

Draw a line under the word which tells the time of day.

evening **afternoon** **forenoon** **night** **daybreak**

---

6. The driving snow cut me in the face like needles, but Lars did not mind it in the least. He jumped into the sled, tucked in the reindeer-skins at the sides, making everything close and warm before we set out.

Draw a line under the country in which we were.

Mexico **China** **France** **Spain** **Russia**

(Go to next page.)

7. I fired directly at a warrior who rushed on ahead of the others. Whether he fell I know not, for the next moment there was such a blur of flame and smoke around us that I could see nothing distinctly.

Draw a line under the word which best describes the situation.

quiet **confusion** **surprise** **haste** **fear**

---

8. Ichabod rode with short stirrups, which brought his knees nearly up to the pommel of the saddle; his sharp elbows stuck out like grasshopper's; and, as his horse jogged on, the motion of his arms was not unlike the flapping of a pair of wings.

Draw a line under the word which best describes Ichabod.

haughty **tall** **graceful** **awkward** **dignified**

---

9. There, under the arch, is a huge mastiff sauntering down the middle of the causeway, as if with his hands in his pockets. He is old, gray, brindled, and as big as a little highland bull.

Draw a line under the word which best describes this dog.

active **playful** **large** **brave** **angry**

---

10. The Temple School was a bare brick building in the center of a square, surrounded by a high fence. There were a few sickly trees, but no grass, in the enclosure.

Draw a line under the word which best describes the school.

unattractive **beautiful** **costly** **splendid** **new**

---

11. Beside our house was a little hut where a holy man lived in charge of an adjoining shrine, earning money for himself and for the shrine by polishing little pieces of marble as mementos for visitors.

Draw a line under the word which best describes this holy man.

industrious **good** **foolish** **lazy** **sad**

---

12. Nanook, once so full of life, now knew perfectly well that it was all over with him. Head and tail down, the picture of resigned dejection, he stood like a petrified dog.

Draw a line under the word which best describes the dog Nanook.

angry **frightened** **active** **hungry** **downhearted**

(Turn to next page)

13. Once there was a blacksmith who did not like to be a blacksmith. He was tired of his forge, of his bellows, of seeing the sparks fly, of shoeing horses.

Draw a line under the word which best describes this blacksmith.

strong **joyous** **discontented** **tall** **lazy**

---

14. The land was dry and dusty; the sluggish creeks ran low within their banks; the parched fields with their yellowing crops cried out for rain; all nature seemed to be about to die of thirst.

Draw a line under the month this best describes.

March **May** **November** **August** **April**

---

15. With one impulse the Colonies sprang to arms; with one spirit they pledged themselves to each other "to be ready for the extreme event." With one heart the continent cried, "liberty or death."

Draw a line under the word which best describes the people of the Colonies.

timorous **patriotic** **brave** **warlike** **quarrelsome**

---

16. The breeze which usually sprang up at sunset was that evening withheld from Sandy Bar. The little canon was stifling with heated resinous odors, and the decaying driftwood on the Bar sent forth faint, sickening exhalations.

Draw a line under the word which best describes the night in this little canon.

cool **windy** **wet** **suffocating** **stormy**

---

17. Season of mists and mellow fruitfulness!
Close bosom-friend of the maturing sun;
Conspiring with him how to load and bless.
With fruit the vines that round the thatch-eaves run;
To bend with apples the mossed cottage-trees.

Draw a line under the season about which this stanza tells.

summer **autumn** **spring** **winter**

---

18. The poor fellow was never so friendless but he could befriend some one; never so pinched and wretched but he could give his crust, and speak his word of compassion.

Draw a line under the word which best describes this fellow.

sad **hungry** **kindly** **companionable** **poor**

APPENDIX M.

Sims Score Card
Form C

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SIMS SCORE CARD FOR SOCIO-ECONOMIC STATUS

Form C

Score.....

1. Name.....

2. Age.....Years and.....Months

3. Grade..... Date.....

4. Have you spent two years in any grade?.....If so, what grades?.....

5. Have you skipped any grades?.....If so, what grades?.....

6. Home address: City..... State.....

7. How many years have you lived in this town?.....

8. Have you attended schools in any other towns?.....If so, name them.....

9. Name of your School.....

Don't answer any of the questions below until you are told what to do.

If you have brothers or sisters in this school, write their names and grades on these lines:

Name..... Grade.....

Name..... Grade.....

In the Following Questions Underline the Correct Answer:

Are you a Boy? a Girl? (Underline correct answer)

Are you living at home with your parents?.....Yes No

Are you living in the home of someone else, such as a relative, adopted parent, guardian, etc.?.....Yes No

Are you living in an institution, such as an orphan asylum or a home for children?.....Yes No

78-4p

Underline the Right Answer

1. Have you a telephone in your home?.....Yes No
2. Is your home heated by a furnace in the basement?.....Yes No
3. Do you have a bathroom that is used by your family alone?.....Yes No
4. Do you have a bank account in your own name?.....Yes No
5. Did your father go to college?.....Yes No
6. Did your mother go to college?.....Yes No
7. Did your father go to high school?.....Yes No
8. Did your mother go to high school?.....Yes No
9. Does your mother (or the lady of the home in which you live) regularly attend any lecture courses of which you know?.....Yes No
10. Do you have your own room in which to study?.....Yes No
11. Do you take private lessons in music?.....Yes No
12. Do you take private lessons in dancing?.....Yes No
13. Does your mother belong to any clubs or organizations of which you know?.....Yes No

    If you know of any, write the name of one of them on this line (.....)
14. Do you belong to any organizations or clubs where you have to pay dues?.....Yes No

    If you do, write the names of the organizations that you belong to on these lines (.....
    .....
    .....)
15. Does your family attend concerts?

    Never Occasionally Frequently
16. Where do you regularly spend your summers?

    At Home Away from Home
17. How often do you have dental work done? (Underline only one)

    Never When Needed Once a Year Oftener
18. How many servants, such as a cook, a housekeeper, a chauffeur, or a maid, do you have in your home?

    None One Part Time One or More All the Time
19. Does your family own an auto which is not a truck?

    None One Two or More

    If your family does own an auto, write the make of the auto on this line (.....)
20. How many magazines are regularly taken in your home?

    None One Two Three or More

    If any are taken, write the names of three of them—or as many as are taken—on these lines (.....
    .....)
21. About how many books are in your home? (Be very careful with this one. A row of books three feet long would not have more than twenty-five books in it.)

    None 1 to 25 26 to 125 126 to 500 More
22. How many rooms does your family occupy?

    2 3 4 5 6 7 8 9 10 11 12 More

    How many persons occupy these rooms?

    2 3 4 5 6 7 8 9 10 11 12 More
23. Write your father's occupation on this line (.....)

    Does he own Part All None of his business? (Underline)

    Does he have any title, such as president, manager, foreman, boss, etc.?.....Yes No

    If he does have such a title, write it on this line (.....)

    How many persons work for him? (Underline the right number)

    None 1 to 5 5 to 10 More than 10

Total Credits..... ÷ No. Answered..... = Score.....