

A STUDY OF EMOTIONAL ADJUSTMENT AND  
READING ACHIEVEMENT

A THESIS

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## CHAPTER I

### INTRODUCTION

Reading is both the most important and the most troublesome subject in the elementary school curriculum. It is most important since it is a tool the mastery of which is essential to the learning of nearly every school subject. It is most troublesome since pupils fail in reading far more frequently than in any other elementary skill.<sup>1</sup>

In spite of the fact that reading is our most significant tool subject, it is only recently that so much attention has been directed towards a better understanding of the teaching of its skills and toward a better understanding of the learner. Modern educators are realizing that the products of our educational system, representative of thousands of schools throughout the country, have not the necessary fundamentals for good reading. So, lacking the reading skills, these students are lacking also in learning skills. Reading is our chief means of acquiring information and enjoyable recreation. Our knowledge from other courses must be gained through reading. Facts can be more easily gained, of course, by a good reader than by a poor reader. For American education is a reading education, and it is, therefore, prerequisite that one have a solid foundation in reading before the educational process can be successfully achieved.

An estimate has been made that twelve percent of the school population is decidedly retarded in reading. This percentage means that a school of four hundred children would contain forty or fifty cases.<sup>2</sup>

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<sup>1</sup>Arthur I. Gates, Improvement of Reading, (New York, 1929), p. 1.

<sup>2</sup>Marion Monroe, "Diagnosis and Treatment of Reading Disabilities," Thirty-Fourth Yearbook of the National Society for the Study of Education, (1935), p. 201.

The primary grades are the most important in the learning of reading, for it is here that we have our introduction to the complex process of reading, and it is here that our earliest habits are formed. Failures in the primary grades are almost wholly due to reading difficulties. The elementary school, then, because of the fundamentals which must be gained there, should receive the advantages of the best of the experimentation and teaching methods devised by our educators and experimentalists.

Viewing this situation a number of questions come to mind. What factors influence or are co-existent with certain levels of reading achievement? Are poor readers or non-readers working to capacity? If not, why? And for this study, can emotional factors be a contributing cause?

Because the training received in the elementary school determines the achievement in later academic life, it is here that the problem must be attacked.

Purpose of the Study.--The purpose of this study is to find the relationship between emotional adjustment and reading achievement by determining:

1. The reading capacity of thirty-nine children in the fifth and sixth grades at the Atlanta University Laboratory Elementary School.
2. The reading achievement of fifty children of the fifth and sixth grades.
3. The emotional stability of the children of the above stated group.
4. The degree of correlation between achievement and capacity, and between emotional stability and reading achievement.

Method of Procedure.--March 27, 1940, the investigator administered

the Durrell-Sullivan Reading Capacity Tests to thirty-nine children of the fifth and sixth grades at the Atlanta University Laboratory Elementary School. On April 3, 1940, the Durrell-Sullivan Reading Achievement Tests and the Woodworth-Mathews Personal Data Sheet Revised were given to fifty children of the same group.

The scores from these tests were correlated in order to determine the degree of relationship existing between the traits tested.

Limitations of the Subject.--"The diagnosis of emotional, temperamental, and volitional adjustment is not yet standardized; on the contrary, there is in use a variety of types of approach."<sup>1</sup>

The limitations met by the writer are those which any investigator would have to consider in the measurement of emotional stability. Personality scales have not been developed to the extent of validity as have other scales such as intelligence and achievement measurement. For this reason the results obtained from the emotional tests available must be used as indicators and not as dogmatic proof. Subjective interpretation of the questions asked and reticence on the part of the pupils tested must also be taken into account.

Tests and Scores Utilized in this Study.--The Durrell-Sullivan Reading Capacity Tests for Intermediate grades three to six measure comprehension of spoken language and is composed of two tests.

Test 1. Word Meaning.--The hearing vocabulary is measured by having the child find pictures which illustrate the words pronounced by the examiner. This test consists of seventy words which are tested by fourteen groups of pictures.

Test 2. Paragraph Meaning.--This test consists of twelve

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<sup>1</sup>Arthur I. Gates, "Diagnosis and Treatment of Extreme Cases of Reading Disability," Thirty-sixth Yearbook of the National Society for the Study of Education, Part I, (1937), p. 405.

paragraphs graded in difficulty, each of which is accompanied by a group of pictures illustrative of possible phases of the story. Each paragraph is read aloud to the child, after which five questions are asked, which if answered correctly will demonstrate the child's understanding of the paragraph read. The child indicates his responses to the questions by marking the number of the picture which illustrates the answer to each question.<sup>1</sup>

The Durrell-Sullivan Reading Achievement Test, Intermediate, for grades three to six consists of four sub-tests, as follows:

Test 1. Word Meaning.--This test closely parallels the Word Meaning Test of the Reading Capacity Test. It is multiple choice in form, and contains seventy-five items.

Test 2. Paragraph Meaning.--This test consists of twelve paragraphs, graded in difficulty, which parallels closely the Paragraph Meaning Test of the Reading Capacity Test. Comprehension of each paragraph read by the pupil is measured by five multiple-choice questions which measure five different aspects of reading ability.<sup>2</sup>

The Durrell-Sullivan Reading Capacity and Achievement Tests were born of the authors' desire to have a pair of test instruments which would measure the mental ability functions fundamental to reading apart from reading skill itself.<sup>3</sup>

The customary norms are available for the tests.

The Woodworth-Mathews Personal Data Sheet consists of a single folded sheet with seventy-five questions relating to fears, worries, ideas, acts, pains, weariness, moods, dreams, phantasies, and sleep disturbances, to be answered "yes" or "no". The last page is left blank for remarks.

There is no weighing of the various answers, the number of unfavorable responses being added on the basis of one count for each.

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<sup>1</sup>Donald Durrell, and Helen Sullivan, Manual for Intermediate Tests, (New York, 1937), p. 2.

<sup>2</sup>Ibid.

<sup>3</sup>Ibid.

Apparently among 1034 school children, ages nine to nineteen, the number of unfavorable responses varied from two percent to sixty-seven percent with twenty-three percent as the average. Children with psychoneurotic tendencies show a relatively large number of unfavorable responses and as a rule the more pronounced the instability the larger the number of symptoms.<sup>1</sup>

The scores from these tests of capacity and achievement were correlated to determine the relationship between capacity and achievement in the group tested. Capacity and achievement were also inter-correlated with the age of the children tested to see whether, if age were ruled out, the degree of correlation between capacity and achievement would remain about the same. The emotional stability scores were then correlated with reading achievement.

Definition of Terms.--Reading achievement in this study is interpreted as the extent to which a pupil succeeds in understanding the printed page.

Emotional adjustment or stability carries an implication of the ability of the child to keep a healthy balance in his emotional responses to the stimulus of his environment. The extent to which he varies from what is accepted as the normal emotional pattern of reaction determines the extent to which he is adjusted.

Capacity is in effect a measurement of mental ability. It measures native ability for learning along the lines that require mental operations with verbal and symbolic functions in reading.

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<sup>1</sup>Abbreviated Manual of Instructions, (Chicago), p. 1.



## CHAPTER II

### LITERATURE ON THE SUBJECT

Many reading clinicians such as Marion Monroe, Emmett Betts, S. H. Tulchin, J. B. Stroud, P. M. Blanchard, A. I. Gates, Paul Witty, David Kopel, Elizabeth Hincks, and B. M. Leland, have made extensive studies of reading disabilities and factors associated. Incidental to the general study of reading disabilities, emotional factors were noted.

Marion Monroe states:

The fact a child may fail to read and yet be of adequate intelligence is receiving increasing attention from educators, psychologists, and psychiatrists. Until recent years teachers have assumed that any child who attended school regularly could learn to read, and if he did not, he must be either lazy or stupid. With the advent of intelligence and achievement tests, however, psychologists have studied the relationship which exists between measures of capacity and achievement. They have observed that the relationships are in some instances very close, and in others merely a trend too slight to justify another in the case of any individual....

The atypical children who do not learn to read so well as would be expected from their intellectual ability present serious educational problems.<sup>1</sup>

Other studies show that there is much overlapping in the achievement scores of bright, medium, and slow pupils. These data indicate that there are factors other than capacity which must be considered in teaching reading.

In almost every case of reading disability emotional reactions toward reading are observed. Sometimes the emotional disturbance is severe and persistent; at other times it is mild and easily overcome. Faulty attitudes toward reading are in many cases the result of the reading disability and disappear when the child learns to read.<sup>2</sup>

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<sup>1</sup>Marion Monroe, Children Who Cannot Read, (Chicago, 1932), p. 1.

<sup>2</sup>\_\_\_\_\_, "Diagnosis and Treatment of Reading Disabilities", Thirty-Fourth Yearbook of the National Society for the Study of Education, (1935), p. 214.

Some children will be deeply effected by their failure in reading. They may become possessed by a constant anxiety that shows in a lined face and a hang-dog manner. They may have hallucinations of being "picket on" or persecuted or followed. They have fears that show themselves in bad dreams, loss of appetite, twitchings, and other nervous manifestations. Such children should have psychiatric help, and in any event need sympathetic care by all concerned.<sup>1</sup>

Emmett Albert Bett says:

The writer's attitude is that every child would learn to read if it were in his power to do so....One of the characteristic symptoms of a remedial case is a dislike for reading sometimes manifested in reading fear or tenseness. Although such an emotional reaction may be only a symptom of reading disability, it is essential that the emotional aspect of learning be recognized in the remedial treatment. There is enough social pressure in the school and community to cause most children to want to learn to read; therefore, it is the teacher's task to create a desirable attitude.

Some authorities contend that fear greatly conditions a child's reaction to any situation, especially the learning situation.

Certain emotional components have been known to influence the work of the pupil....Thus fears are a persistent source of difference in pupils. Fear of the principal, fear of the teacher, fear of other pupils...fear of ridicule, fear of standing before the class,...these and many other fear complexes characterize and distinguish pupils....

Some pupils are consciously afraid of some parts of their work, not so much because of the work itself, as because of the probability that the recitation will yield only criticism and ridicule when their lack of facility of performance is shown....

The general anticipation of embarrassment or failure will then tend to become habitual and with it the characteristic inhibitions of effort.<sup>3</sup>

P. M. Blanchard reports the results of clinical work with seventy-three reading cases seen at the clinic consecutively from 1925 to 1932,

ages  $6\frac{1}{2}$  to 16 years. The clinicians found that many cases did not respond to remedial treatment. Upon further investigation it was found that these more difficult problems seemed to have emotional conflicts as well as the reading defect. It was found that many of these children, though socially adjusted superficially, were burdened with emotional conflicts that made responses to teaching impossible.

Of this Blanchard states:

Like other investigators, we had previously been aware of certain emotional aspects, such as attitudes unfavorable to reading, or personality and behavior difficulties either co-existent with the reading disability or in reaction to it. But it is only from the material produced by patients in treatment interviews that reading disabilities appear very clearly, in many instances, as a part of a more general difficulty in achieving emotional growth. While we do not claim that trouble with reading is invariably of this origin, our experience does lead us to believe that it is related to difficulties in emotional development more frequently than has hitherto been realized.<sup>1</sup>

Paul Witty says that the result of failure in a subject has many consequences and that the causal factors rarely occur singly or in isolation. He states that schools have been more concerned with attainment than with adjustment, with little attention paid to emotional difficulties. The case of Carl, a highly intelligent, but also highly nervous child, who seemingly just could not learn to read is cited. When diagnostic tests were presented to him he blushed excessively and showed general emotional tension. The writer concludes that though other factors were contributing elements, this child's emotional make-up was an important factor blocking his reading progress.<sup>2</sup>

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<sup>1</sup>Phyllis M. Blanchard, "Reading Disabilities in Relation to Difficulties of Personality and Emotional Development," Mental Hygiene XX, (July, 1936), p. 397.

<sup>2</sup>Paul Witty, David Kopel, Reading and the Educative Process, (New York, 1939), pp. 228-231.

A. I. Gates contends that emotional maladjustment is more a result than a cause of reading failure.

If serious difficulty in reading disrupts a pupil's school career, it may be expected that it will disturb his personal and social adjustment. There is much evidence that failure in school is a major catastrophe to many children and that general maladjustment is a frequent consequence. In one hundred cases selected at random from a list of "disabilities" studied by the writer, the following types of unfortunate adjustments were noted. In the list which shows the number out of one hundred, some children appeared in more than one category.

1. Nervous tensions and habits such as stuttering, nail-biting, restlessness, insomnia, and pathological illnesses--10 cases.
2. Putting up a bold front as a defense reaction, loud talk, defiant conduct, sullenness--16 cases.
3. Retreat reactions such as withdrawal from ordinary associations, joining outside gangs, and truancy--14 cases.
4. Counter-attack; such as making mischief in school, playing practical jokes, thefts, destructiveness, cruelty, bullying--18 cases.
5. Withdrawing reactions; including mind-wandering and day-dreaming--26 cases.
6. Extreme self-consciousness; becoming easily injured, blushing, developing peculiar fads and frills and eccentricities, inferiority feelings--35 cases.
7. Give-up or submissive adjustments, as shown by inattentiveness, indifference, apparent laziness--33 cases.<sup>1</sup>

S. H. Tulchin states that "the child's experiences during the first few reading lessons may be so charged emotionally as to color all his subsequent reactions and determine his resistance to reading."<sup>2</sup>

At the Northwestern University Psycho-Educational Clinic

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<sup>1</sup>Arthur I. Gates, "Failure in Reading and Social Maladjustment", Journal of the National Educational Association, XXV, (1936), pp. 205-206.

<sup>2</sup>S. H. Tulchin, "Emotional Factors as Contributing Causes of Reading Disability", Journal Educational Psychology, XXVI (September, 1935), p. 444.

it was found that fully fifty percent of seriously retarded readers are characterized by fears and anxieties which are so deeply rooted and so real that only with the restoration of self-confidence and release from anxiety can the reading process be successfully initiated and continued. "Emotional rehabilitation of the poor reader is frequently the first and most important step in making his learning effective."<sup>1</sup>

According to S. H. Tulchin, quoting Elizabeth Hincks

The emotional difficulty is increased by the emotional traits of the child, which in turn are augmented by the disapproval and worry of excitable parents. A bad state of tension develops, in which the reading adds to the general nervousness of the child's condition, and this condition adds further inhibition to the learning process, and irritation to the parent, so that a general family and school maladjustment occurs.<sup>2</sup>

It is the opinion of Luella Cole that

If a child has normal intelligence, normal sense organs, normal speech, and hears English at home, there still remain three possible explanations of his failure to learn to read. The most likely is that he made his first efforts at reading when he was too young....Whenever the first attempts to read have been made before a child is mature enough mentally, he is almost certain to develop the fatalistic attitude that reading is for him impossible....Either he stays away from reading or he is so apprehensive and so unsure of himself that his progress is emotionally blocked.<sup>3</sup>

Harold H. Anderson holds that

There is no such thing as a "problem child." There is no such thing as a "maladjusted child." We need to abandon our use of these concepts which have placed the whole burden of adjustment on the child. We may talk of the unhappy child, the confused, bewildered, baffled child, or the child with a problem.... Dealing with the problems of children requires a philosophy different from that of the traditional home and of the traditional schoolroom. In addition it takes a training that can understand the stresses and strains of a myriad of factors as they push and pull at the growing, changing, learning child.<sup>4</sup>

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<sup>1</sup>Paul Witty, David Kopel, op. cit., p. 231.

<sup>2</sup>S. H. Tulchin, op. cit., p. 445.

<sup>3</sup>Luella Cole, The Improvement of Reading, (New York, 1938), pp. 260-261.

<sup>4</sup>Harold H. Anderson, "Conflicts in Personality Development," Mental Hygiene, XX, p. 613.

James M. McCallister gives the following description of traits which were observed to interfere with reading development: dreamy, meditative disposition; nervous and excitable temperament; extreme timidity; impetuous disposition resulting in a tendency to jump at conclusions; and indifference. The effects of these traits were especially noticeable in connection with remedial instruction. Pupils exhibiting such traits demand various types of remedial treatment.<sup>1</sup>

Daniel Welford LaRue says:

Some careful students of the subject regard all children as more or less neurotic, stability appearing gradually in the form of control over diffusive excitation, in power to "hold in," delay, organize, regulate their movements. Such stability is rather likely to be found with strong intelligence, and the lack of it with low intelligence.<sup>2</sup>

Ellen Mathews, co-author of the Woodworth-Mathews Personal Data Sheet, states that retarded children, on the average, have larger scores on the Personal Data Sheet than the more advanced section. Assuming that a large number of unfavorable responses indicates nervous strain or emotional instability. Mathews draws the following possible conclusions:

1. That dull children are naturally more nervous than bright children.
2. That nervousness causes retardation.
3. That retardation causes nervousness.<sup>3</sup>

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<sup>1</sup>James McCallister, "Character and Causes of Retardation in Reading Among Pupils of the 7th and 8th Grades," Elementary School Journal, (October, 1935), p. 38.

<sup>2</sup>Daniel LaRue, Educational Psychology, (New York, 1939), p. 98.

<sup>3</sup>Ellen Mathews, "A Study of Emotional Stability in Children," The Journal of Juvenile Delinquency, VIII (January, 1923), No. 1.

Summary.--It has not been definitely determined whether emotional instability is a cause or an effect of reading disabilities. All authorities quoted do agree that emotional instability or neurotic tendencies often accompany low reading achievement, though in no case was it accepted definitely as the primary cause, except in cases where further investigation proved it so. The reading disability may come first and the emotional tenseness as a reaction to the disability. The emotional conflict may become a cause and in turn cause further retardation.

## CHAPTER III

### INTERPRETATION OF THE DATA

By use of the "product-moment" method,<sup>1</sup> the degree of correlation between reading capacity and reading achievement of thirty-nine children of the fifth and sixth grades at the Atlanta University Laboratory Elementary School was determined by using the following formula:<sup>2</sup>

$$r = \frac{\frac{\sum xy}{N} - C_x C_y}{\sigma_x \sigma_y}$$

The coefficient of correlation between reading capacity and reading achievement in the group tested was found to be .67. The reliability of a coefficient of correlation depends upon the size of the  $r$ , and upon  $N$ , the size of the sample. To be completely reliable the  $r$  should be four times its PE or probable error.  $PE_r$  is obtained by the formula:<sup>3</sup>

$$PE_r = \frac{.6745 (1 - r^2)}{\sqrt{N}}$$

Substituting in the formula  $PE_r$  was found to be  $\pm .0593$ . The coefficient may then be considered significant and indicative of high relationship.

The ages of the children tested ranged from nine to thirteen years. If the ages of all the children in the group had been the same, would the degree of correlation have been the same? In order to find the net relationship between two variables when a third factor is ruled out, "partialled" out, or held constant, a process called partial correlation is used:<sup>4</sup>

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<sup>1</sup>Henry E. Garrett, Statistics in Psychology and Education, (New York, 1939) pp. 265-279.

<sup>2</sup>Ibid., p. 270.

<sup>3</sup>Ibid., p. 280.

<sup>4</sup>Ibid., p. 409.



After computing the intercorrelations of the three variables, age, capacity and achievement, by use of the "product-moment" method, the following formula was used to obtain a new  $r_{12.3}$ :

$$r_{12.3} = \frac{r_{12} - r_{13} r_{23}}{\sqrt{1 - r_{13}^2} \sqrt{1 - r_{23}^2}}$$

The coefficient of correlation between age and capacity obtained was  $-.177 \pm .1047$ ; between achievement and age  $-.0279 \pm .1072$ . Substituting in the above formula,  $r_{12.3}$  is found to be .68. We may then safely conclude that age is not an influencing factor in achievement and capacity relationship.

J. B. Stroud reports that very recently he in collaboration with Maul, conducted a minor study aimed specifically at the problem of age and ability to memorize. From this study they concluded that learning is chiefly a function of mental age. Students differing in chronological age but equal in mental age tended to make identical scores, while those children of equal chronological age, but of differing mental age, had varied scores. Stroud and Maul assumed that learning ability increases with mental age rather than with the other developmental factors incident to chronological age.<sup>2</sup>

There are seventy-five questions on the Woodworth-Mathews Personal Data Sheet. Twenty-three unfavorable answers were accepted as a norm of adjustability.

Among 1034 children of ages nine to nineteen years, the number of unfavorable responses varied from two to sixty-seven, with twenty-three as an average....<sup>3</sup>

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<sup>1</sup>Henry E. Garrett, op. cit., pp. 414-415.

<sup>2</sup>J. B. Stroud, Educational Psychology, (New York, 1935), pp. 171-172.

<sup>3</sup>Arthur I. Gates, Psychology for Students of Education, (New York, 1925), p. 177.

Those children giving over twenty-three unfavorable responses were classified as tending toward maladjustment, and the children giving twenty-three unfavorable answers or below were classified as emotionally adjusted, with the degree varying from child to child.

The number of unfavorable answers ranged from four to forty-two. The pupil receiving four as a score had a reading achievement score of 105, comparable to grade 7.8 and age equivalent 12-9, according to the norms given by Durrell-Sullivan.<sup>1</sup> The subject has a chronological age of eleven years and is in the sixth grade. The child receiving the score of forty-two unfavorable answers had a reading achievement score of 38, equivalent to grade 3.8 and age 8-10. This pupil has a chronological age of thirteen and is a sixth grade student. Subject A received a capacity score of 96, comparable to grade 6.8 and age 11-11. According to test scores in achievement she is working one grade above her capacity score. Subject B with the high emotional score tending toward severe instability is working one grade below capacity and two grades below his actual level.

The emotional tests were administered to fifty children of the fifth and sixth grades. In order to correlate the scores made on the emotional tests and those made on the achievement tests, it was necessary to use the bi-serial method<sup>2</sup> of correlation, as the emotional adjustment variable can be classified into two categories, adjustment and maladjustment. For the method of computing bi-serial  $r$ , consult Table I, page 18.

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<sup>1</sup>Donald Durrell, Helen Sullivan, op. cit., pp. 6-7.

<sup>2</sup>Henry E. Garrett, op. cit., (revised), p. 366.

Substituting in the formula,  $r_{bis}$  is found to be  $.32 \pm .003$ . The mean score of the thirty-three "adjusted children" is 81.36 on the achievement test, and the seventeen "maladjusted children" have a mean score of 69.71, with an  $r_{bis}$  of .32, showing positive relationship and a tendency for emotional adjustment to accompany higher scores in reading achievement. The reverse tendency for emotional instability to accompany low scores may also be held true.

Is the difference between the means of the two groups significant, that is, large enough to guarantee that the true difference between the mean abilities of the two groups is greater than zero?

The seventeen emotionally maladjusted children and the thirty-three emotionally adjusted children made the following scores:

	<u>Adjusted Group</u>	<u>Maladjusted Group</u>
Mean	81.36	69.71
S. D.	20.86	24.04

TABLE 1

SHOWING THE METHOD FOR THE CORRELATION OF THE BI-SERIAL  
COEFFICIENT OF CORRELATION BETWEEN THE TOTAL SCORES ON  
THE DURRELL-SULLIVAN READING ACHIEVEMENT TEST AND THE  
SCORES ON THE WOODWORTH-MATHEWS PERSONAL DATA SHEET REVISED

Scores on Achievement Test	Adjusted Group f	Maladjusted Group f	Total f
110-119	5	1	6
100-109	3	2	5
90- 99	3	0	3
80- 89	4	2	6
70- 79	7	3	10
60- 69	5	4	9
50- 59	5	1	6
40- 49	1	2	3
30- 39		1	1
20- 29		1	1
Number	33	17	50
Mean	81.36	69.71	77.40
Standard Deviation	20.86	24.04	
V	25.64	34.49	

M.....77.40 (Mean of all scores -N,50)  
S. D.....22.67 (Standard Deviation of all scores)  
M<sub>p</sub>.....81.36 (Mean of emotionally adjusted Group -N,33)  
M<sub>q</sub>.....69.71 (Mean of emotionally maladjusted Group -N,17)  
p..... .66 (Percent adjusted)  
q..... .34 (Percent maladjusted)  
z..... .366 (Height of ordinate separating 66% from 34%  
in a normal distribution.)

$$r_{bis} = \frac{M_p - M_q}{S.D.} \cdot \frac{P_q}{z} = .32 \pm .002.$$

The reliability of the difference between means obtained from the two groups may be estimated by finding the  $PE_d$  (probable error of two uncorrelated means). The formula for  $PE_d$  is:<sup>1</sup>

$$PE_d = \sqrt{PE_{m_1}^2 + PE_{m_2}^2}$$

in which  $PE_{m_1}$  and  $PE_{m_2}$  are the probable errors of the obtained means.  $PE_m$  is calculated by the formula<sup>2</sup>

$$PE_m = \frac{.6745\sigma}{\sqrt{N}}$$

$PE_m$  was found to be 2.45;  $P_m$  was 4.06. Substituting in the formula,  $PE_d$  is 4.74.

$D$ , the obtained difference between the two means is 11.65.  $D/PE_d$  is 2.46. The ratio  $D/PE_d$  is sometimes called the "critical ratio" because it provides a way of telling whether one group is significantly superior, on the average, to another in performing a given task.<sup>3</sup>

To insure significant superiority in the direction indicated by the obtained results  $D/PE_d$  must be at least four,<sup>4</sup> The  $D/PE_d$  here is only 2.46 and therefore not significant, that is, we can not assume with absolute certainty that the emotionally adjusted group will always surpass the maladjusted group in reading achievement. A  $D/PE_d$  of 2.40 or 2.50 means that there are ninety-five chances in one hundred that the obtained difference is significant.<sup>5</sup> So it may be concluded that in

<sup>1</sup>Henry E. Garrett, op. cit., p. 215.

<sup>2</sup>Ibid., p. 205.

<sup>3</sup>Ibid., p. 217.

<sup>4</sup>Ibid.

<sup>5</sup>Ibid., Table 35, p. 214.

ninety-five chances out of one hundred the emotionally adjusted group will have a higher mean score than the emotionally maladjusted group.

The "scatter" or "spread" of the separate scores of the two groups around their respective means was found by computing the coefficient of variability.<sup>1</sup> The formula for V (coefficient of variability) is

$$V = \frac{100\sigma}{M}$$

$V_1$  was found to be 25.64 (adjusted group);  $V_2$  was 34.49 (maladjusted group). The children of the emotionally adjusted group were more homogeneous, that is, made up of individuals of nearly the same ability. The emotionally maladjusted group had a wider range of scores and consisted of children of wider differing emotional levels.

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<sup>1</sup>Henry E. Garrett, op. cit., pp. 33, 52.

## CHAPTER IV

### SUMMARY AND CONCLUSION

The purpose of this study was to ascertain the degree of relationship between emotional adjustment and reading achievement in a group of fifth and sixth grade children at the Atlanta University Laboratory Elementary School. The following procedures were used to obtain the necessary data:

The Durrell-Sullivan Reading Capacity Tests were administered to thirty-nine children of the fifth and sixth grades. A week later the Durrell-Sullivan Reading Achievement Tests and the Woodworth Personal Data Sheet Revised for the testing of emotional stability in children were given to fifty children of the same group.

The results from the Durrell-Sullivan Reading Capacity were then correlated with the scores from the Durrell-Sullivan Reading Achievement Tests by use of the "product-moment" method.<sup>1</sup> The correlation coefficient was found to be  $.67 \pm .059$ .

To determine the effect of age upon achievement and capacity scores in the group tested, the inter-correlation between age, capacity, and achievement, was computed by means of the partial correlation method.<sup>2</sup> The correlation between age in months and capacity was found to be  $-.177 \pm .105$ ; between achievement and age to be  $-.0279 \pm .11$ .

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<sup>1</sup>Henry E. Garrett, op. cit., pp. 265-269.

<sup>2</sup>Ibid., p. 409.

By use of the bi-serial method<sup>1</sup> of correlation the relationship between emotional adjustment and reading achievement scores was calculated. The coefficient of correlation was found to be  $.32 \pm .003$ .

The mean score of the adjusted group was 81.36, with a  $\sigma$  of 20.86, and the mean score of the maladjusted group was 69.71, with a  $\sigma$  of 24.04, showing a difference of 11.65. By computing the reliability of the difference between the two means, it was found that ninety-five chances out of one hundred the emotionally adjusted group will have a higher mean score in reading achievement than the emotionally maladjusted group.

The reading achievement scores of the emotionally maladjusted group showed a greater degree of variability, having a wider "spread" around its mean score than the emotionally adjusted group.

From this data the following conclusions may be drawn:

1. There is a fairly high degree of relationship between reading achievement and reading capacity. It is, therefore, logical to assume that in general a high reading achievement score would accompany high mental capacity.
2. Factors other than reading capacity influence reading achievement.
3. The chronological age of the children tested had negligible influence upon capacity or reading achievement scores.
4. Emotional adjustment as shown by the Woodworth-Mathews Personal Data Sheet Revised and reading achievement as shown by the Durrell-Sullivan Reading Achievement Tests have a fair positive degree of relationship, indicating a slight tendency for high reading achievement scores to be co-existent with emotional adjustment, and for emotional maladjustment to accompany low reading achievement scores.

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<sup>1</sup>Henry E. Garrett, op. cit., (revised), p.366.



APPENDIX

TABLE II

SHOWING THE METHOD FOR THE CALCULATION OF THE "PRODUCT-MOMENT"  
 COEFFICIENT OF CORRELATION  $r$  BETWEEN SCORES ON THE ACHIEVEMENT  
 TEST AND SCORES ON THE CAPACITY TEST

Scores	Achievement - X-axis												Capacity - Y-axis					
	0-9	10-19	20-29	30-39	40-49	50-59	60-69	70-79	80-89	90-99	100-109	110-119	fy	dy	fdy	fd <sup>2</sup> y	fxy	-xy
110-119											6 1(6)		1	3	3	9	6	
100-109								2 2(4)			4 1(4)	6 3(18)	6	2	12	24	22	4
90-99						3 2(6)		1 1(1)	1	1 1(1)	2 3(6)	3 2(6)	10	1	10	10	13	7
80-89						1	1	5	2	1			10	0	-21			
70-79			6 1(6)		4 2(8)			1 2(2)	1				6	-1	-6	6	16	
60-69				10 1(10)			4 1(4)		1				3	-2	-6	12	14	
50-59						9 1(9)	6 2(12)						3	-3	-9	27	21	
40-49															4	88		
30-39																	92	
20-29																		11
10-19																		
0-9																		
fx	0	0	1	1	2	4	4	10	5	2	5	5	39					
dx	-8	-7	-6	-5	-4	-3	-2	-1	0	1	2	3						
fdx	0	0	-6	-5	-8	-12	-8	-10	-49	2	10	8	-29					
fd <sup>2</sup> x			36	25	32	36	16	10		2	20	24	201					
fxy			6	10	8	9	16	2		1	16	24	92					
-xy						6		5					11					

$r = .67 \sqrt{.0593}$

TABLE III

SHOWING THE METHOD FOR THE COMPUTATION OF THE "PRODUCT-MOMENT"  
 COEFFICIENT OF CORRELATION  $r$  BETWEEN THE SCORES ON THE  
 CAPACITY TEST AND THE AGE OF THE SUBJECTS

Scores	Capacity - X-axis											f					
	0-9	10-19	20-29	30-39	40-49	50-59	60-69	70-79	80-89	90-99	100-110	fy	dy	fdy	fd <sup>2</sup> y	fxy	-xy
163-167							6 1(6)		6 1(6)			2	f/6	12	72	6	6
158-162							5 1(5)					1	f/5	5	25	0	5
153-157									4 2(8)	8 1(8)		3	f/4	12	48	16	0
148-152						6 1(6)			3 2(6)	6 1(6)		4	f/3	12	36	12	6
143-147								1	2 1(2)			2	f/2	4	8	2	
138-142						2 1(2)		1	1 1(1)	2 3(6)	3 2(6)	8	f/1	8	8	13	2
133-137								1	2	2	1	6	0	53 -31			
128-132									1 1(1)	2 1(2)	3 1(3)	3	-1	-3	3		6
123-127										4 2(8)	6 2(12)	4	-2	-6	12		20
118-122						6 1(6)		2				3	-3	-9	27	6	
113-117								1			12 1(12)	2	-4	-8	32		12
108-112									5 1(5)			1	-5	-5	25		5
fx						3	2	6	11	10	7	39		22	296	55	62
dx	-7	-6	-5	-4	-3	-2	-1	0	f/1	f/2	f/3						
fdx						-6	-3	-9	11	20	10	32					
fd <sup>2</sup> x						12	3		11	40	30	96					
fxy						6			23	20	6	55					
-xy						8	11		6	10	27						62

$$r = -.177 \pm .1047$$

TABLE IV

SHOWING THE METHOD FOR THE CALCULATION OF THE "PRODUCT-MOMENT"  
 COEFFICIENT OF CORRELATION  $r$  BETWEEN THE  
 ACHIEVEMENT SCORES AND THE SUBJECTS' AGE

		Achievement - X-axis																
		Correlation Table																
Scores	0-9	10-19	20-29	30-39	40-49	50-59	60-69	70-79	80-89	90-99	100-109	110-119	$\sum y$	$\sum dy$	$\sum dy^2$	$\sum fd^2y$	$\sum -xy$	$\sum -xy^2$
163-167							1 1(1)	1					2	6	12	72		1
158-162				20 1(20)									1	5	5	25		20
153-157						8 2(8)		1				16 1(16)	4	4	16	64	16	16
148-152							3 1(3)	1	3 1(3)				3	3	9	27	3	3
143-147					6 1(6)				2 1(2)				2	2	4	8	2	6
138-142						2 2(4)	1 1(1)	2	1 1(1)		3 2(6)		8	1	8	8	7	5
133-137					1			2	1		1	1	6	0	54 -34			
128-132										2 2(2)	3 1(3)		3	-1	-3	3		5
123-127											6 1(6)	8 2(8)	3	-2	-6	12		22
118-122			15 1(15)				3 1(3)	1				12 1(12)	4	-3	-12	36	18	12
113-117								1					2	-4	-8	32		12
108-112									5 1(5)				1	-5	-5	25		5
$\sum fx$			1	1	2	4	4	9	5	2	6	5	39		20	312	46	107
$\sum dx$	-7	-6	-5	-4	-3	-2	-1	0	1	2	3	4						
$\sum fdx$			-5	-4	-6	-8	-4	47 -27	5	4	18	20	20					
$\sum fd^2x$			25	16	18	16	4		5	8	54	80	226					
$\sum fxy$			15				3		6		6	16	46					
$\sum -xy$				20	6	20	5		5	2	21	28	107					

$r = -.0279 \neq .1072$

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