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A STUDY OF PHYSICAL FACTORS IN RELATIONSHIP TO
READING RETARDATION

by

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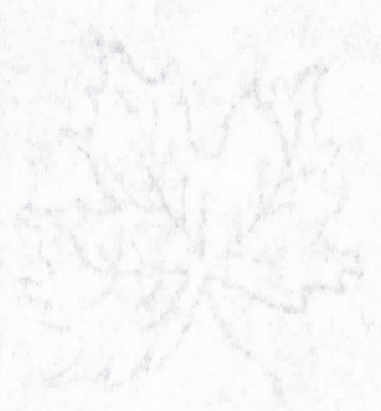
ERASABLE
COTTON CONTENT

A STUDY OF PHYSICAL FACTORS IN RELATIONSHIP TO
READING RETARDATION

A Thesis
Presented to
the Faculty of the Graduate School
Appalachian State Teachers College

In Partial Fulfillment
of the Requirements for the Degree
Master of Arts

by
Lena Mae Harmon
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CHAPTER I

INTRODUCTION

Reading is the most important of the fundamental skills taught and used in and out of school, therefore it needs a good foundation for later development.

In the teaching of reading, one of the most significant trends of recent years has been the recognition that pupils who are seriously retarded in reading may display several defects in the areas of physical, intellectual, educational and social development. Reading is considered to be dependent upon the growth of the child as a whole.

Statement of the problem. The writer has made this study in an attempt, through investigations of studies made to (1) determine the characteristics that underlie reading retardation, (2) determine the influence of physical factors of reading retardation, (3) investigate measures for improving reading retardation.

Importance of the study. A large percentage of elementary pupils fail or are retarded in reading. At the end of Grade III at least forty per cent of all pupils have not enough reading ability to handle the fourth-grade reading curriculum without difficulty. In this study an attempt was made to determine the physical factors which

influence reading retardation and to develop a program suitable to individual needs. The writer feels, as all elementary teachers must, this responsibility for the teaching of reading. This responsibility is complicated by the fact that all children cannot read by the same methods or through the same experiences.

Procedure and source of data. A study was made in order to determine the relationship of physical factors to reading retardation and to investigate ways of improving reading. This study was made by the means of an extensive investigation of materials in the Appalachian State Teachers College. Sixty case studies were made using the students from two fourth grades at the Happy Valley School.

In order to determine the intelligence of each individual, the California Test of Mental Maturity¹ for the grammar grades was given.

In order to obtain more personal information about each child, the S R A Junior Inventory,² Form A, was given. This test consisted of two hundred and twenty-three personal

¹ Elizabeth L. Sullivan, Willis W. Clark, and Ernest W. Tiegs, California Test of Mental Maturity, Grammar Grades, (Los Angeles: California Test Bureau, 1936-1953.)

² H. H. Remmers and Robert H. Bavernfeind, S R A Junior Inventory, Form A, Grammar Grades, (Chicago: Science Research Association, 1951.)

items. The results of this test were itemized and recorded on a large chart for further analysis. This test revealed many helpful factors. The Gertrude Hildreth Personality and Interest Inventory³ was also given. This test contained one hundred and thirty-three personal items.

A study of the socio-economic status was made to determine its relationship to reading retardation. A check list providing fifteen factors was kept over a period of ten days.

In order to determine the relationship of absences to reading retardation, a record of absences of each individual was kept for a period of six months.

The Snellen Eye Chart⁴ was used with each individual to detect any defects in vision. The audiometer was used to test the hearing of each child under observation.

A study was made of the homes, education of parents, type of dress, nourishment, and number of children in each home of the sixty selected children. This study was made to determine the influence of these factors on reading. In making this study the homes of as many students as possible

3

Gertrude Hildreth, Personality and Interest Inventory, Elementary Form, (New York: Bureau of Publications, Teachers College, Columbia University, 1939.)

4

Snellen Eye Chart (New York: National Society for Prevention of Blindness, Inc.).

were visited. Anecdotal notes were made by the teachers of each child. The data was then used in comparing the two groups.

The eyedness and handedness of each child were checked to determine their relationship to reading. The eyedness check was made by the use of a sheet of paper with a hole in the center through which the child focused his eyes toward a distant object. The handedness was determined by observation of the students as they were writing.

The teachers of the sixty selected students recorded the chronological age of each child. Each student was then measured and weighed in order to check the height and weight in relationship to age.

A check list was sent home for the child's parents to check the diet of each child for a three-day period. These were then returned to each teacher. The lunches were also observed at school during the three days.

The teeth of each individual were checked and the number of cavities of each child's teeth were recorded for further observation.

A special study of oral reading was made over a period of five days to determine the relationship of speech difficulties to reading. Two hours a day were devoted to oral reading so the teachers could observe the good, average,

and poor readers for ten one-hour periods. Very easy books were used so they would not be handicapped with hard or strange words.

The sixty selected students were observed during five actual hours of free play activities to determine what games would be chosen by each individual child and also to record how long each student could play an active game without becoming fatigued. The purpose of this survey was to find out if fatigue among the poorer students could be a contributing factor in causing their reading retardation.

CHAPTER II

REVIEW OF THE LITERATURE

That there are poor readers in the elementary grades is a fact that we must accept, but also a fact that we should understand. It is the duty of each teacher to determine to the highest degree possible the causative factors of reading retardation.

Literature on the physical status in general.

It must be emphasized that every finding must be weighted in relation to the child as a whole; his physical and mental make-up, his health, state of nutrition, habits of life, and the demands made on him by the life that he is required to live.¹

Whether a child is learning to roller skate, to meet people, or to read, the general status of a child's health is significant. Health is conditioned by rest, nutritional status, glandular balance, resistance to infections, and freedom from toxins. Health often indicates the individual's whole outlook on life. The undernourished may fatigue easily; a lack of rest may contribute to irritability; a glandular imbalance makes a child high

¹ Thomas H. Eams, "The Ocular Condition of Poor Readers," Journal of Educational Research, 32:10, September, 1938.

strung or lethargic; and inability to resist infections contributes to the "all gone" feeling. However, not all good physical specimens learn to read easily, but a low general health status may definitely interfere with learning.²

Many cases of poor reading are explained when we discover that the child was absent because of sickness during a large part of his previous years of schooling.

Since most schools do not have a special provision for absence due to sickness, the child must then come back and find that the class is so many pages ahead of him. The teacher tries to give him help but does not have sufficient time. So usually the child who has been sick struggles to keep up with the class but instead finds himself falling further behind. It is true that the capable child, who usually can keep well ahead of his class, overcomes the loss due to sickness. It is the less capable child who does not overcome it and who, therefore, becomes a retarded reader. Another difficulty caused by sickness is the harmful attitude which often the child develops while he is ill. He is usually humored and given

whatever he wants.³

Usually a school's curriculum is arranged to coincide with the developmental rate of the normal child's abilities. Any retardation is expressed in terms of how far behind a child has fallen from the established form of his age group.

Since learning to read is only one aspect of the larger developmental pattern, and is intimately involved with the rest of it, the changes in other aspects of the child's experience can bring about fluctuations in his reading progress. Indeed this is precisely the case, for minor variations in individual performance from time to time are expected and frequently do occur.

In cases of reading difficulties studied in Columbia University, there was a fairly definite pattern of development displayed. Ordinarily, there were two main sets of causes, which were called "precipitant factors" and "complicating factors". The "precipitant factor" is defined as the original reason, or complex of reasons why a child fell behind in his reading. The "complicating factor" refers to the factors which prevent catching up and make the retardation more serious. For example, an

3

Edward W. Dolch, A Manual for Remedial Reading (Champaign, Illinois: The Garrard Press, 1945), pp. 82-83.

uncorrected visual defect might prevent an otherwise normal child from reading up to his age level. The organic defect would be the precipitant factor, but if, because of the lack of success experiences, shame, ridicule, and similar frustrations, the child develops a distinctly negative and antagonistic attitude toward his reading, then the retardation will probably persist even after the correction of the organic defect. In such a case, the circumstances contributing to the negativistic attitude would be the complicating factors.

Eyestrain, loss of motivation, speech defects, and antagonism toward the teacher are examples of the more serious types of precipitant causes.

Some of the most frequent precipitant factors are:

Vision

The visual deficiencies were common, unfortunately, so common that many more complex cases were considered as merely visual, treated by a pair of glasses and forgotten. Ordinarily a child with a visual deficiency will fall behind in reading, and the seriousness of his retardation will depend on the amount of time in which additional factors are allowed to complicate the situation before the vision is corrected.

While retarded readers and reading achievers cannot be differentiated on the basis of vision tests, a visual problem may interfere with reading or contribute to a withdrawal from reading situations. How significant a visual problem is depends upon the nature of the problem and the individual's capacity for compensation.

Sometimes scowling, frowning, and other symptoms are attributed to a visual problem rather than to a frustration in the reading situation. On the other hand, symptoms of a visual problem are often overlooked. Some of the symptoms of visual inefficiency include: excessive blinking, and head movement while reading, tilting the head, inflammation of the eyes, widely dilated pupils, deviation of one eye, and facial contortions.

In school, visual efficiency has three important aspects. First, the child must be able to see clearly at all working distances. He must be able to see clearly the visual symbols on the blackboard, bulletin boards, and charts, and on the printed pages of books.

Second, the child must be able to see singly at all working distances. If he uses only one eye, he is not likely to experience double vision. If he uses both eyes, he may see double when viewing the printed page and singly when viewing the blackboard.

Third, the child must be able to see singly and clearly for period of sustained attention.

Often with the lack of these aspects, a child may become conscious of his eyes or he may shun reading activities that require efficient seeing.⁴

Other visual factors contributing to reading maladjustment are as follows:

1. Lack of a clear retinal image due to defects in the refractive mechanism of the eye. The child generally shows evidence of eye-strain and confuses similarly shaped letters.

2. Lack of precision in discriminating complex visual patterns. The child seems unable to react to words as wholes. Frequently he spells out the letters and tries to identify patterns by tracing them with his finger. The child's difficulty may be due to functional as well as organic deviations.

3. Lack of precision in the discrimination of the spatial orientation of patterns.

Frequently the child confuses such letters as b, d; p, q; u, n; m, w; and such words as saw, was; and no and on.

4

Saul Gallerman, "Casual Factors of Reading Retardation," Elementary School Journal, 49:523-530.

Mature reading requires skillful eye control, and children learning to read must make many visual adjustments.

1. The visual abilities of young children differ greatly, and children must develop eye control at near point or reading distance.
2. The child must develop ability to discriminate both large and small visual patterns.
3. The child must learn left-to-right eye movements.

Few individuals are reading at their maximum efficiency and visual training can help to develop better visual habits for increased rate and effective reading.

Gray has summed up the relationship of visual difficulties as a causal factor in reading disabilities in this statement,

Many pupils read well in spite of visual defects and they might read better or with less discomfort if such defects were corrected or eliminated. In any event, the fact is now accepted that visual examinations are essential as a part of an individual diagnosis.⁵

Children handicapped by defective vision or hearing, glandular disturbances, low vitality, allergies, mildly but chronically diseased tonsils or teeth, slight or

serious cardiac disturbance, convalescence from exhausting fevers, protracted illness, excessive proclivity to fatigue, and similar difficulties require a curriculum readjusted to their special needs. The teacher must guard against giving these youngsters over-attention or neglecting them. The quality of the reading and other school work of some physically handicapped children improves markedly with proper physical therapy.

Absences from school as a result of poor physical condition sometimes results in failure.

If the physical organism functions poorly it likely will have a disturbing effect on the mental life. Any persistent internal or external stress or strain due to structural defect, physical drains, toxic conditions, or environmental conditions make inroads upon one's reservoir of energy and predisposes the child to deviations from mental health. The reflex disturbances due to eye strain are especially exhausting and defective vision often brings psychological complications. The unhygienic effects of defect in hearing are not usually due to any strain set up in the organs but rather to the mental effects of the handicap.⁶

⁶ Paul Witty and David Kopel, Reading and The Educative Process (New York: Ginn and Company, 1937), pp. 218-219.

Auditory

Of the many impairments which afflict our school children, few scar the personality with greater unhappiness, cause more real tragedy, bring about more maladjustment than hearing. A handicapped child is guided into a pattern of educational and emotional security, bewilderment, intellectual disillusionment, and emotional frustration corrode the care of his behavior.

Because he does not hear he fails to understand and interpret the events about him. He falls behind in his studies and is often forced to repeat grades. His teachers too often label him "dull," "stupid," "a problem child."

There may be a lack of auditory acuity due to partial deafness. For example, the child may omit endings, non-stressed syllables, and the sibilant sounds primarily because he does not hear them. Frequently vowel and consonant sounds may be confused.⁷

If there is lack of precision in the discrimination of speech sounds, the child may confuse similar sounds as sand and send, bet, and bit.

However, the degree of hearing loss, sufficiently great to interfere with reading orally, is not known. But

7

Betts, op. cit., p. 135.

contributions made by various investigators indicate that children can profit from training in auditory skills and that they should develop a sensitivity to the qualities of nonvocal sounds, vocal sounds, and sounds in words. While some children require little, if any, formal work in phonetics to gain skill in word recognition, others after much phonetic training, are still quite helpless. Auditory memory span, the ability to fuse sounds into words, and the ability to discriminate between sounds are important factors in reading. Auditory acuity like visual acuity, should be given careful consideration in dealing with the non-reader.⁸

Endocrine dysfunction

The systematic symptoms of deficient secretion of the pituitary gland may be evidenced by:

1. Increase of body weight
2. Increased tolerance for sugar
3. A lowered body temperature
4. A sluggish mentality and diminished sexual activity.

In adolescence there is undeveloped sexual growth. Social maladjustment, a childish attitude, and an unwillingness

⁸ Homer L. Carter, Learning to Read (New York: McGraw-Hill Book Company, Inc., 1953.)

to put forth effort are frequent. The child is backward at school and is apt to lose control at the slightest difficulty. Mateer in Psychological Bulletin, Volume 32, 1935, claims that pituitary dysfunction may cause physiological immaturity, intellectual retardation, changes in emotional attitude, special disabilities such as speech defects, eye disturbances, motor in coordination, and reversal tendencies. Mateer analyzed one hundred pituitary cases of children old enough to have reading experiences and showed that no matter how high the intelligence of the patient, he is relatively a poor reader.

Handedness

When a child comes to school left-handed, he does have certain tendencies which may possibly hinder him in reading. The important point is that when using a crayon or pencil a child follows the point with his eye. Some children have a tendency to reverse the letters. For instance, the teacher may write a large D by making the vertical stroke and then a round stroke to the right. The left-handed child may make the vertical stroke and then a round stroke to the left believing that he has done exactly the same thing as the teacher has done. When a child has this tendency to reverse the usual direction, it may well be that he looks at words in reading in a

different way from what other children do. This can be corrected by causing his eyes to move from left to right simply by having him to point at one word after another beginning on the left end of the line. Also by causing him to look at words from left to right by having him trace over the form of words, beginning at the left.⁹

Dearborn pointed out that reversals were characteristic of severely retarded readers and might develop because of difference in directional tendency, since "the result is that faulty word images with letters interchanged are stored up in the mind which make the prompt and precise recognition of words difficult or almost impossible."

He obtained experimental evidence to support his theory by studying 100 cases of reading disability and comparing them with unselected cases. He found that one-half the unselected group were right-handed and right-eyed, while one-fifth of the cases of dyslexia, or reading problems, were so classified. Eighty-one per cent of the mixed dominance, as compared to five and one-half per cent of the unselected group. Some of these cases, Dearborn believed, were children whose lateral dominance had been changed deliberately or had been changed by

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Edward Dolch, A Manual for Remedial Reading (Champaign, Illinois: The Garrard Press, 1945), pp. 178-181.

10
accident.

Reading reversals are sometimes attributed to a confusion in cerebral dominance, in which the brain fails to work consistently from either the right or the left hemisphere, and also to the difficulty that left-eyed children may have in making eye-movements to the right. Remedial measures proposed by experts in the teaching of reading rarely suggest any policy with regard to handedness but do advise exercises, such as moving the finger along the line to help the child in reading from left to right.¹¹

Environment

Another kind of difference which is likely to have great effect on the quality of the child's school work is the difference in the intellectual background of the home. Let us take, for example, two children of practically the same native endowment, one coming from a home where the attitude toward all the things that the school represents is extremely favorable, where the interests of the home are very wide, where the conversation within the home is of good quality and covers many fields, where a

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Walter F. Dearborn, "The Nature of Special Abilities and Disabilities," School and Society 31:80, May 10, 1938.

11

W. S. Monroe, Encyclopedia of Educational Research (New York: Macmillan Company, 1950), pp. 740-741.

daily newspaper and good magazines and books are found, where the programs heard over the radio are of reasonably good quality; the other child coming from a home where the parents have not been well educated, where the interests are narrowed down to the immediate problems of physical existence, where the range of interest goes no farther than the petty gossip of the neighborhood, where there are no newspapers, no magazines, few books, and no radio. It would be most remarkable, to say the least, if the child who comes from the last described home, even though he has excellent native endowment, were able to do as good school work as the child who comes from a home which provides him all the stimulation and advantage that could be expected.

The homes from which children come also differ greatly in their happiness, a factor which has been found very important by persons who have been investigating the background of children who have fallen into some conflict with society. A child who comes from a home which is constantly disturbed by petty bickering and quarreling, a home which he probably feels is insecure, cannot bring to school the same happy outlook on everything he meets that is brought by the child who comes from a home where the rule is good humor and cooperation rather than unhappiness and dissension.¹²

¹² Paul Witty, "Environmental Influence," Elementary School Journal, 51:64.

Children differ widely in a number of factors dependent on the influence and the support which their homes give them. Some children are much better off than others in simple physical ways. They are better fed, better clothed, better housed; their occasional illnesses are carefully attended. Any slight physical defects, such as bad teeth or defects in vision or in hearing, are promptly discovered and corrected, while other children come from homes where these simple physical comforts are inadequately provided. Given two children with almost equal native endowment, with the same ambition and the same good attitude toward their work, the child who comes from a home where his physical welfare is carefully looked after has a tremendous advantage over the child who comes from a home where either poverty or indifference causes his physical welfare to be neglected.

Even a simple circumstance has all sorts of ramifications that tend to affect the pupil's attitudes and his general happiness, as well as his physical welfare. For example, there is a period during early adolescence when not only the adequacy and the comfort of clothing are extremely important but also the appearance, the style, and the kind of clothing must be good enough to conform to the sometimes cruel social standards imposed by the groups

of which the child is a part.¹³

Frequently, shyness, a hesitancy in making social contacts, seems cute in children. Such children do not disturb a classroom group and, therefore, do not force their problems to the attention of teachers. The behavior itself may have many meanings, depending upon the background of the child. The shyness may, for example, be an early symptom of a withdrawing tendency. It might be that the parents have so dominated the child and made such strong demands that the child has learned to use hesitancy as a defense against adult demands.¹⁴

The shyness might betoken a deep lack of self-confidence such as might arise when a younger child is often compared unfavorably with a brighter or more attractive older sibling. On the other hand, it might be nothing more than the indecision of the child who had had little contact with other children and yet not mastered the techniques of social living.¹⁵

¹³ Roscoe Pulliam, "Economic and Social Status," Elementary School Journal, 41:32-33.

¹⁴ Monroe, op. cit., p. 740.

¹⁵ Ibid., p. 741.

A child may develop a dislike for reading if it is too difficult or so easy that it isn't interesting. This dislike may be further aggravated by his family. Parents may scold and even punish him for unsatisfactory school work, and this treatment results in his developing increased antagonism toward the subject matter that has jeopardized his home security. Siblings or friends who have been more successful in school may become disdainful. Not only will this increase his dislike for the school work, but the child, in his search for means to regain status, will probably overcompensate in some field distinctly antithetical to the hated school work.

While all this is occurring the child's instructional level will continue to rise, making it impossible for him to compete successfully in reading activities with his own age group. Over a period of time, reading becomes associated in the child's mind with scorn, difficulty, embarrassment, punishment and similar unpleasant experiences.¹⁶

Among the innumerable variables which may influence or affect personality adjustment are said to be those of the size of a child's family, the numerical position which the child happens to occupy within the family, and the age and sex of the child's siblings. The fact that these

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Carter, op. cit., pp. 64-68.

variables seem to be related to certain behavior traits has been noted by several investigators. Boney concluded that:

On the basis of mutual friendship, determined by pupil choices as well as on the basis of teacher ratings, the large family unit of four or more children ranked consistently higher than the medium size family unit of two or three children. Without exception . . . the only child was markedly superior to all others, the four or more child family next, and the two to three-child family last.¹⁷

In another study Boney again found that only children as well as children with fewer near-age siblings, were higher in social acceptability than were non-onlys and children with near-age brothers and sisters. Buseman has reported that family size, age, and sex of siblings are definitely related to academic achievement.¹⁸

In a study made by William D. Sheldon of Syracuse University, he found that there were definite relationships between characteristics reported on a parent questionnaire and the reading ability of the children of the parents reporting. There were a total number of 868 students studied. These students were selected by their

¹⁷

Carl Murchin, "Family Size and Sibling, Age, Sex, Position as Related to Certain Aspects of Adjustment," The Journal of Social Psychology, 29:57, 1949.

¹⁸

Loc. cit.

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teachers who used the following criteria:

- (1) Achievement tests in reading
- (2) Teacher's own rating of each pupil's status in reading
- (3) Test scores derived from intelligence tests given before selection.

This parent questionnaire, developed by the Reading Laboratory at Syracuse University, consists of nine pages of mimeographed questions. These consider the areas of environmental history, developmental history, emotional history, educational history, and physical growth and health background. Most of the answers are of the free-response type.

Information from parent's questionnaire:

1. Size of family
2. Position of child among his siblings
3. Number of books in the home
4. Age at which the child spoke his first word
5. Age at which the child spoke in sentences
6. Number of children in the neighborhood who are of the same age as the child
7. Educational level of the parents
8. Occupational status of the father
9. Number of times the family moved and the age of the child when the moves were made
10. Fears of the child

11. General frequency of daydreaming noticed by the parents
12. Parent's opinion of whether the child liked or disliked school.

Through the use of the data obtained from the 521 parents' questionnaires, blanks and scores obtained on the Progressive Reading Test by children chosen by their teachers as either good or poor readers in eight school systems, the trends noted below were observed:

1. The following factors seem to be definitely related to the reading ability of the child showing consistent trends:
 - (a) Size of the family -- The smaller the family, excepting only children, the greater the per cent of good readers.
 - (b) Position in the family, excepting only children, the earlier the ordinal position in the family, the higher the per cent of good readers.
 - (c) Number of books in the home -- As the home library increases, the per cent of good readers increases.
 - (d) Educational level of parents. Good readers come more often from homes where the parents have reached higher levels of educational attainment.
 - (e) Like or dislike of the school by the child -- Good readers tend to like school; poor readers tend to dislike school.
2. Some relationship is apparent between reading ability and the following factors with overlapping shown in the trends.

- (a) Age of speaking first word and age of speaking in sentences -- There would seem to be critical ages after which the per cent of good readers decreases rapidly.
- (b) Occupational status of the father -- Good readers tend to come more often from homes supported by professional and managerial fathers and poor readers from agricultural, skilled, and semi-skilled workers.
- (c) Moving of the family if it occurred only once -- If the move occurred when the child was from six to eight years of age, the per cent of good readers tended to be lower.¹⁹

From the data studied, it seems very evident that the more fully a child lives, the more he enjoys adventuring, the more successfully he makes friends and learns to live and work with them, the more easily he will learn to read.

The data also indicates that a rich environment is a crucial reading problem. It must be an environment that satisfyingly leads to social acceptance where interpreting symbols of many kinds contributes to joyous, interesting, successful living with each other. It must be an environment where children use reading to help them carry out plans that they themselves have helped to make and consider important. It must be an environment where they see others read to carry forward these important matters.

¹⁹ William D. Sheldon, "Relationship of Parents, Home, and Certain Developmental Characteristics of Children's Reading Abilities," Elementary School Journal, 19:262-270, 1952.

CHAPTER III

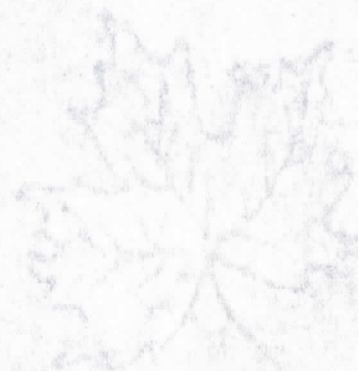
FINDINGS OF THE STUDY

A study was made in the fourth grades of the Happy Valley School in an attempt to determine the relationship of physical disabilities and inadequacies to retardation in reading. Sixty students were selected for observation. This selection was made on the basis of previous records and abilities to do classroom work. These sixty students were divided into two groups, the better group and the poorer group. The fourth grade teachers observed these sixty selected students for a period of six months. In comparing the advantages and opportunities of other rural communities, the writer believes that these selected students are typical rural children.

In making this study it was found that many physical factors contribute to reading retardation. Those discussed in this chapter are believed to be most prevalent and influential in causing reading retardation.

Intelligence rank. The teachers of the sixty selected students gave the California Test of Mental Maturity to each child under observation. This test was given in order to determine the relationship of intelligence to reading retardation. Table I on page 29 shows the

results of the test as they were ranked from highest to lowest in comparison to each individual's rank in ability to read.



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TABLE I
INTELLIGENCE

Better thirty			Poorer thirty		
Student number	Intelligence quotient	Rank	Student number	Intelligence quotient	Rank
1	115	4.5	31	100	12.5
2	81	30.0	32	86	26.5
3	118	1.5	33	72	41.5
4	90	19.5	34	85	28.5
5	112	6.0	35	69	55.5
6	110	7.0	36	88	23.5
7	94	16.5	37	72	41.5
8	95	14.5	38	87	25.0
9	95	14.5	39	74	37.5
10	94	16.5	40	89	21.5
11	72	41.5	41	70	51.5
12	92	18.0	42	102	9.0
13	73	39.5	43	69	55.5
14	118	1.5	44	86	26.5
15	89	21.5	45	71	47.5
16	70	51.5	46	71	47.5
17	85	28.5	47	101	10.5
18	116	3.0	48	74	37.5
19	76	33.5	49	68	59.5
20	75	35.5	50	115	4.5
21	70	51.5	51	71	47.5
22	72	41.5	52	101	10.5
23	76	33.5	53	72	41.5
24	71	47.5	54	72	41.5
25	90	19.5	55	68	59.5
26	75	35.5	56	80	31.5
27	105	8.0	57	69	55.5
28	73	39.5	58	100	12.5
29	70	51.5	59	69	55.5
30	88	23.5	60	80	31.5

Comparison of the two groups by the factor of intelligence. Table I on page 29 shows the comparison of the thirty better students with the thirty poorer students. Four of the thirty better students had intelligence quotients above 115 and were considered superior. These intelligence quotients ranged from 115 to 118. Three students had intelligence quotients ranging from 100 to 115 which classed them in the high average group, while nine who rated between 86 and 96 were considered in the low group. There were thirteen who fell below 86 which classed them as inferior.

Among the thirty poorer students studied, six had a high intelligence quotient from 100 to 115, six ranged from 86 to 95, which put them in the low average groups; two in the inferior group rated from 75 to 84. The remaining number were considered in the very inferior group since they fell below 75.

A study of Table I not only reveals the very close relationship between intelligence and the ability to read, but it also reveals the fact that many of those students who are retarded readers are capable of reading much better. Six of the poorer students had an intelligence quotient of 100 or above and these students were poor readers. This indicates that some factor other than intelligence was affecting and possibly retarding their reading.

In the better group there were four who rated high average as compared with thirteen classed as inferior. A larger percentage of the poorer group were found to be below average than above average in intelligence and the better group as a whole is reading much better than the poorer thirty students.

Evaluation of environmental influences. A study was made of the homes, education of parents, type of dress, nourishment, and number of children in each of the homes of the sixty selected students. This study was made to determine the influence of these factors on reading retardation. In making this study the homes of as many students as possible, were visited. Anecdotal notes were made by the teachers of each child. The data was then placed on a chart and the two groups were compared. Table II on page 32 shows the factors studied and the results of the study.

TABLE II

COMPARISON OF ENVIRONMENTAL INFLUENCES OF THE TWO GROUPS

Student number	Better thirty				
	Homes	Education of parents	Type of dress	Under- nourish- ment	Number of children in home
1	Average	Elementary	Average		4
2	Average	High school	Average		2
3	Average	Elementary	Average		6
4	Average	High school	Average		3
5	Average	High school	Average		1
6	Average	Elementary	Average		2
7	Good	Business college	Average		2
8	Average	Elementary	Average		3
9	Good	High school	Average		2
10	Average	High school	Average		2
11	Average	Elementary	Average		1
12	Average	High school	Average		4
13	Good	Elementary	Average		3
14	Average	High school	Average		4
15	Average	Elementary	Average		1
16	Average	High school	Average	X	2
17	Average	Elementary	Average	X	6
18	Average	Elementary	Average		3
19	Average	Less than elem.	Poor	X	6
20	Average	Elementary	Average		4
21	Average	Elementary	Average		5
22	Average	Elementary	Average		4
23	Average	Less than elem.	Poor		5
24	Average	Elementary	Average		1
25	Average	Elementary	Average		3
26	Average	Elementary	Average		5
27	Average	Elementary	Average		2
28	Average	Elementary	Average		3
29	Average	Less than elem.	Poor		2
30	Average	Elementary	Average		7

TABLE II (Continued)

A COMPARISON OF ENVIRONMENTAL INFLUENCES OF THE TWO GROUPS

Poorer thirty					
Student number	Homes	Education or parents	Type of dress	Under-nourishment	Number of children in home
31	Poor	Less than elem.	Poor		12
32	Poor	Elementary	Poor		13
33	Poor	Elementary	Average		3
34	Average	Elementary	Average		4
35	Average	Less than elem.	Average		9
36	Average	Elementary	Poor		6
37	Poor	Less than elem.	Average		5
38	Average	Elementary	Average		4
39	Average	Elementary	Average		9
40	Average	Elementary	Average		4
41	Poor	Elementary	Poor		5
42	Average	Elementary	Average	X	2
43	Poor	Elementary	Average		3
44	Average	Elementary	Average		6
45	Average	Less than elem.	Poor		7
46	Average	Less than elem.	Poor	X	5
47	Poor	Elementary	Average	X	3
48	Poor	Elementary	Average		3
49	Average	Elementary	Average		3
50	Average	Less than elem.	Poor		5
51	Poor	Elementary	Poor		6
52	Poor	Elementary	Average		2
53	Average	Less than elem.	Poor	X	9
54	Average	Elementary	Average		3
55	Poor	Elementary	Average		4
56	Average	Less than elem.	Poor	X	7
57	Poor	Elementary	Average		8
58	Average	Elementary	Average		7
59	Poor	Less than elem.	Poor	X	6
60	Poor	Elementary	Average		5

In the group of the thirty better students studied there were three students who came from homes considered as good or above average, while twenty-seven came from average homes. In one case both parents had a college education; eight had graduated from high school while twenty-one had an elementary education; however, none had dropped below this level. The number of children in each home ranged from three to four, and three obviously undernourished. Among this group, twenty-seven of the students wore average clothes, but three were poorly dressed.

The study of the group of poorer students revealed that there were nineteen average homes and eleven rated as poor. In this group there were five who appeared to be undernourished children. There were seventeen parents who had an elementary education while thirteen had less than an elementary education. The average number of children in each home ranged between five and six. Nineteen of these students wore average clothing, while eleven were poorly dressed.

This table reveals superiority of the home environment of the thirty better students over that of the poorer students. The writer thinks this data should be conclusive proof that these environmental factors have a definite influence on the reading situation since the inferior

environment tends to be a disadvantage causing the students to feel insecure. The writer believes that a combination of these factors may certainly cause the students to not do their best work. They might do better work if the home environment could be improved.

Comparison of the better group with the poorer group on the factor of absences. The teachers of the students under observation kept a daily record of attendance of each individual over a period of six months. These records proved to be very valuable in searching for reasons for reading retardation. The inclement weather, transportation difficulties, walking distances to the busses, and dangerous roads during the winter months all played a big part in school attendance. Table III on page 36 gives a comparison in absences of the two groups studied.

TABLE III

ABSENCES

Better thirty		Poorer thirty	
Student number	Absences	Student number	Absences
1	1	31	8
2	2	32	2
3	0	33	8
4	2	34	20
5	0	35	31
6	5	36	40
7	1	37	0
8	3	38	1
9	4	39	5
10	6	40	18
11	7	41	24
12	8	42	10
13	2	43	12
14	0	44	31
15	3	45	20
16	2	46	40
17	10	47	12
18	0	48	50
19	1	49	24
20	2	50	4
21	1	51	6
22	9	52	3
23	1	53	2
24	7	54	34
25	6	55	20
26	8	56	30
27	3	57	2
28	1	58	3
29	5	59	60
30	6	60	15
Totals	107	Totals	535

In making the survey it was found that the group of the thirty better students had a total of one hundred and seven absences for the six months. While the thirty poorer students had a total of five hundred and thirty-five absences. There were five times as many as there were in the better group. In checking further into the record of these absences it was found that many of the absences were caused by sickness, however, some were merely cases of truancy. These were much greater in the children from homes where the parents seemed to show less interest in the child and from homes of the lower economic status. From this data it may be assumed that those students who attend school regularly are more likely to be the better students and by the same reasoning conclude that the irregular attendance plays a major role in reading retardation. When a child is absent from school, he is not only deprived of instruction, but also seems to lose interest in reading, thus becoming unable to participate effectively or profitably on his own group level.

Observed behavior of the sixty selected students.

The teachers of the sixty selected students made a check list consisting of four factors which were thought to be contributing factors to reading retardation. This check list was kept for a period of ten days. The teachers observed the behavior of the students under observation during all hours of school.

TABLE IV
OBSERVED BEHAVIOR

Better thirty					Poorer thirty				
Student number	Nervousness	Laziness	Dis-interest	Indifferent to work	Student number	Nervousness	Laziness	Dis-interest	Indifferent to work
1					31		1	9	1
2	1	1	1		32				
3			2		33	1	2	1	2
4	2				34	2	4	2	6
5	1		1		35	4	1	1	2
6	1	1			36		2	1	8
7					37		4		7
8					38	1	1	8	3
9	5				39		6		1
10		2	3		40	1	5	1	3
11	1			1	41	2	1	3	5
12	1	1		1	42	1	3	5	4
13			2		43		9	1	6
14	2				44		3	2	1
15	4		3		45	4	4	10	3
16	1	1			46	1	3	4	5
17				2	47	1	10	2	11
18	4	1			48	6	11	3	6
19	1	1		3	49	1	4	4	4
20	2	4	3		50		5	1	9
21	4		1		51	1	2	9	1
22	1			2	52		1	2	2
23	1				53	1	10	15	1
24					54	1	5	12	2
25	1	2	1	1	55	4	1	1	12
26	4			1	56	1	4	17	4
27	1	2	3	3	57	5	6	12	4
28	1	1	3	1	58	1	2	2	6
29	1	1	1		59	2	3	1	7
30	10	1	4	1	60	3	4	7	4

Nervousness appeared forty-three times in the better group and forty times in the poorer group. This nervousness may have been caused by parents putting too much pressure on the children in an attempt to get them to keep up with the superior members of the class, or by comparing them with older siblings. When a child becomes nervous he cannot read as well or with as much ease as he can when nervousness is not present.

A feeling of insecurity appeared among the poorer students more than the better group. If a child has a feeling of insecurity he also develops a feeling of emotional instability. This factor causes him to become maladjusted to any situation thus increasing reading retardation.

Laziness revealed itself twenty-two times among the better group and one hundred and fifty-nine times in the poorer group. Disinterest appeared eight times in the better group and ninety-nine times in the poorer group. Through further observation of this data and anecdotal notes of the teachers these factors appear to result from a combination of physical factors. Since an undernourished child may fatigue easily, he may often appear to be merely lazy or disinterested in reading as well as other activities. Also a child with visual defects is often unable to see as clearly as he should for periods of sustained attention,

thus appears disinterested and at the same time complicating the reading situation. These factors are very important in determining whether a child is a good reader or whether by their influence a retarded reader.

Indifference to school work was shown twelve times in the better group, and one hundred and thirty times in the poorer group. This factor was found to be most prevalent in both groups among those students who were frequently absent from school because of sickness. When they return to school after being away several days they seem to find it less attractive because the rest of the class is ahead of them. Their reading retardation increases each day they are out and once they find themselves behind, many have a tendency to shun the reading activities. Often the parents become so anxious for the child to reach a higher reading level that they may punish him, embarrass him, or in other ways cause him to associate reading with unpleasant experiences. This causes an indifferent attitude toward reading. If a child develops an indifferent attitude toward reading his retardation increases.

Dominance. The eyedness and handedness of each child were checked to determine their relationship to reading retardation. The eyedness check was made by the use of a sheet of paper with a hole cut in the center through which the

child focused his eyes toward a distant object. The handedness was determined by observation of the students as they were writing. Table V on page 42 shows the results of the study of these factors.



ERASABLE

COTTON COMFORT

TABLE V
DONIMANCE

Better thirty					Poorer thirty				
Student number	Eyes		Hands		Student number	Eyes		Hands	
	Left	Right	Left	Right		Left	Right	Left	Right
1		x		x	31		x		x
2		x		x	32		x		x
3		x		x	33		x		x
4		x		x	34		x		x
5		x		x	35		x		x
6		x		x	36		x		x
7		x		x	37		x		x
8		x		x	38		x		x
9		x		x	39		x		x
10		x		x	40	x			x
11		x		x	41		x		x
12		x		x	42		x		x
13		x		x	43		x		x
14		x		x	44		x		x
15		x		x	45		x		x
16		x		x	46		x		x
17		x		x	47		x		x
18		x		x	48		x		x
19		x		x	49		x		x
20		x		x	50		x	x	
21		x		x	51		x		x
22		x		x	52		x		x
23	x			x	53		x		x
24		x		x	54		x		x
25		x		x	55		x		x
26		x		x	56	x			x
27		x		x	57		x		x
28		x		x	58		x		x
29		x		x	59	x		x	
30		x		x	60		x		x

There was only one left-eyed child in the better group and three in the poorer group. The left-eyed child in the better group was found to be right-handed. In the poorer group there were two who were left-eyed and right-handed. Two were right-eyed and left-handed. One was left-eyed and left-handed. All the others were right-eyed and right-handed.

Since there was more evidence of mixed dominance in the poorer group than in the better group, it seems that eyedness and handedness may have a definite bearing on reading retardation. Often a left-handed child may have difficulty reading from left-to-right.

Comparison of physical factors of the two groups.

Table VI on page 45 gives the age, height, weight, diet and condition of teeth of each child.

The teachers of the sixty selected students recorded the chronological age of each child. Each student was then measured and weighed in order to check the height and weight in relationship to age.

A check list was sent home for the child's parents to check the diet of each child for a three day period. These were then returned to each teacher. The teachers also observed the lunches at school during these three days both in the cafeteria and those carried from home.

In order to determine the classification of the diet, the teachers consulted the county health nurse to aid in the comparison of the various diets. The diets were then placed in three groups, excellent, adequate, and inadequate.

The teeth of each individual were checked and the number of cavities of each child's teeth was recorded for further observation.

Table VI shows the comparison of the two groups in regard to these factors studied.

TABLE VI
PHYSICAL FACTORS

Better thirty							Poorer thirty						
Student number	Age	Height	Weight	Diet			Student number	Age	Height	Weight	Diet		
				Excellent	Adequate	Inadequate					Excellent	Adequate	Inadequate
1	10	53	70		x	1	31	10	50	52			x
2	10	55	70		x	0	32	10	60	59			x
3	9	54	69		x	3	33	9	53	65	x		1
4	9	55	71		x	1	34	9	60	85	x		1
5	10	56	82		x	2	35	10	49	53	x		0
6	12	54	70		x	0	36	9	56	60		x	4
7	10	52	67	x		1	37	10	54	72	x		1
8	10	51	54		x	0	38	10	57	87	x		1
9	10	56	60	x		0	39	11	56	80	x		3
10	9	51	72		x	2	40	9	51	65	x		2
11	9	56	60		x	1	41	10	60	59	x		1
12	11	58	59		x	0	42	10	48	53		x	9
13	10	55	73		x	2	43	10	53	65	x		3
14	10	52	60		x	1	44	10	56	84	x		4
15	10	57	76		x	1	45	9	57	64		x	8
16	9	52	62			x	46	9	52	69		x	5
17	9	53	59			x	47	10	61	77	x		0
18	10	57	65		x	1	48	9	55	60		x	5
19	11	48	51		x	1	49	9	59	59	x		3
20	10	60	81			x	50	10	60	56		x	3
21	10	56	70		x	2	51	9	51	48		x	7
22	9	57	79		x	1	52	11	54	51	x		2
23	9	53	65		x	3	53	9	55	57		x	6
24	10	55	65		x	2	54	10	50	64	x		3
25	9	53	72		x	3	55	10	61	55	x		1
26	9	55	40		x	0	56	9	54	49		x	10
27	10	51	47			x	57	10	53	52	x		4
28	11	53	58		x	3	58	10	58	59	x		5
29	11	55	54			x	59	12	59	47		x	11
30	10	57	55			x	60	13	59	88	x		8

Among the better students four students found to be most underweight were also found to be having difficulty in reading. In the poorer group there were eight underweight in relationship to height and age.

There were only two among the entire group of the sixty selected students who had an excellent diet. These two were in the better group and among the best readers. It was also observed that these children were from homes which were considered above average and whose parents were among the more highly educated group. There were twenty-one in the better group who had an adequate diet, and six who had an inadequate diet. In the poorer group there were eighteen who had adequate diets, while twelve were considered inadequate.

From this information and the teacher's anecdotal notes it was concluded that the students who came from good and average homes were more likely to get the right kinds of food. The retarded readers tended to have more inadequate diets than the better readers.

There were twice as many among the retarded readers as among the better readers who had inadequate diets.

There were sixty-two cavities found in the teeth of the better students and one hundred and twenty among the poorer group.

The diet seems to be a definite determining factor

in the condition of each individual's teeth. There was a greater number of cavities recorded for the students who had inadequate diet than for those who had adequate diet. It was observed that there were almost twice as many cavities recorded for the poorer readers as for the better readers.

In comparing the two groups as to height, weight, age, diet, and condition of teeth, in relationship to reading, these factors seem to have a definite bearing on reading retardation. One factor alone may not be a causative factor of retardation yet may be a contributing factor to increase or bring on other defects which directly influence retardation. Betts¹ states that whether a child is learning to read, to roller skate, or to meet people, the general health status of a child is very significant. Nutrition plays a big part in conditioning the health status. Often the undernourished child may fatigue easily or may become very irritable toward reading.

Comparison of sight and hearing in the two groups.

A study was made of the sight and hearing of each of the sixty students studied. This study was made to determine the relationship of these factors to reading retardation.

1

Emmet A. Betts, Foundations of Reading Instruction (New York: American Book Company, 1946), p. 132.

The audiometer was used to detect any defects in hearing. The Snellen Eye Chart was used to check the eyes of each child.

Table VII on page 49 shows the comparison of the two groups on the factors of sight and hearing.

TABLE VII

A COMPARISON OF PHYSICAL FACTORS OF THE TWO GROUPS

Better thirty				Poorer thirty			
Student number	Eyes		Ears	Student number	Eyes		Ears
	Right	Left			Right	Left	
1	20/20	20/20	Normal	31	20/20	20/20	Normal
2	20/20	20/20	Normal	32	20/20	20/20	Normal
3	20/20	20/20	Normal	33	20/20	20/20	Normal
4	20/20	20/20	Normal	34	20/20	20/20	Normal
5	20/20	20/20	Normal	35	20/30	20/20	Normal
6	20/20	20/20	Normal	36	20/20	20/20	Normal
7	20/20	20/20	Normal	37	20/20	20/20	Normal
8	20/20	20/20	Normal	38	20/20	20/20	Normal
9	20/20	20/20	Normal	39	20/20	20/20	Normal
10	20/20	20/20	Normal	40	20/20	20/20	Normal
11	20/20	20/20	Normal	41	20/20	20/20	Normal
12	20/20	20/20	Normal	42	20/20	20/20	Normal
13	20/20	20/20	Normal	43	20/20	20/20	Normal
14	20/20	20/20	Normal	44	20/20	20/20	Normal
15	20/20	20/30	Defective	45	20/20	20/20	Defective
16	20/20	20/20	Normal	46	20/20	20/20	Normal
17	20/20	20/20	Normal	47	20/30	20/20	Normal
18	20/20	20/20	Normal	48	20/20	20/20	Normal
19	20/20	20/20	Normal	49	20/20	20/20	Normal
20	20/20	20/20	Normal	50	20/20	20/20	Normal
21	20/20	20/20	Normal	51	20/20	20/20	Normal
22	20/20	20/20	Normal	52	20/20	20/20	Normal
23	20/20	20/20	Normal	53	20/20	20/20	Normal
24	20/20	20/20	Normal	54	20/20	20/20	Defective
25	20/20	20/20	Normal	55	20/40	20/20	Normal
26	20/20	20/20	Normal	56	20/20	20/40	Normal
27	20/40	20/20	Normal	57	20/20	20/20	Normal
28	20/20	20/30	Normal	58	20/20	20/30	Normal
29	20/20	20/20	Defective	59	20/60	20/30	Defective
30	20/40	20/30	Normal	60	20/20	20/20	Normal

In the group of the thirty better students tested, there were two with defective hearing. In the group of the thirty poorer students, three were shown to have auditory imperfections. These defects seem to have a definite bearing although they are not the only causes of retardation in reading.

Four students in the better group had faulty vision while six in the poorer group had imperfect vision. Three of those in the poorer group who showed visual defects had intelligence quotients of above average yet they were very poor readers. Since there were more defects revealed in the poorer group, it is believed that vision may be a contributing factor to reading retardation.

Comparison of speech difficulties in the two groups.

Since it was believed possible that an impediment in speech or poor diction could be a contributing factor of retardation in reading, the teachers of the sixty selected students made a special study of oral reading over a period of five days. During this time, two hours each day was devoted to oral reading so that the teachers could observe the good, average, and poor readers for ten one-hour periods. Very easy books were used for the poor readers so they would not be handicapped with hard or strange words. Table VIII shows the results of this study.

TABLE VIII

COMPARISON OF SPEECH DIFFICULTY IN TWO GROUPS

Better thirty				Poorer thirty			
Student number	Good	Average	Poor	Student number	Good	Average	Poor
1	x			31		x	
2	x			32	x		
3	x			33		x	
4		x		34		x	
5		x		35	x		
6		x		36	x		
7	x			37		x	
8		x		38		x	
9		x		39	x		
10	x			40	x		
11	x			41		x	
12	x			42		x	
13		x		43	x		
14	x			44		x	
15	x			45			x
16	x			46		x	
17	x			47		x	
18	x			48		x	
19		x		49		x	
20		x		50			x
21		x		51		x	
22		x		52		x	
23		x		53		x	
24		x		54			x
25	x			55		x	
26		x		56		x	
27	x			57			x
28	x			58		x	
29	x			59			x
30		x		60		x	

Among the thirty better students no definite speech defects were found while in the group of the thirty poorer students two very definite speech impediments were observed. Student numbering fifty-four could not read clearly enough to be understood although he seemed to know the words. In a previous study of this child it was found that his eye sight was poor, the family diet was inadequate and he showed a tendency toward quick fatigue in play activities.

Student numbering fifty-nine was found from previous data, to be handicapped by defective hearing, poor eye sight, inadequate diet, mixed dominance, and very poor home environment, in addition to his speech defect. Since these two students are very poor readers, it may be concluded that a definite speech difficulty is one of the many contributing factors causing reading retardation.

Sixteen of the thirty better students had good, clear speech while only eight of the poorer group could speak clearly and distinctly. The remaining fourteen students in the better group could read with average clearness while in the poorer group nineteen were considered average and five were counted as definitely poor or handicapped. From the data gathered in this study it is concluded that poor speech is one of the factors causing reading retardation in the fourth grades of the Happy Valley School.

Comparison of the better group with the poorer group on the factor of fatigue. In this study, the teachers of the sixty selected students observed them during five actual hours of free play activities to determine what games would be chosen by each individual child and also to record how long each student could play an active game without becoming unduly fatigued. The purpose of this survey was to find out if fatigue among the poorer students could be a contributing factor in causing their retardation in reading. The teachers kept complete and accurate anecdotal notes of the play activities chosen by the sixty selected students during the specified time. Table IX shows the results of this study.

TABLE IX

COMPARISON OF FATIGUE IN THE TWO GROUPS

Better thirty											Poorer thirty										
Student number	Soft ball	Relay race	Hop scotch	Red rover	Double tap	Tap hand	Cat and mouse	London bridge	Green gravel	Marbles	Student number	Soft ball	Relay race	Hop scotch	Red rover	Double tap	Tap hand	Cat and mouse	London bridge	Green gravel	Marbles
1	x	x	x	x	x	x					31	x	x	x		x		x	x		x
2	x	x	x	x		x	x	x	x	x	32				x				x		
3	x	x	x	x		x	x	x	x	x	33				x	x	x		x	x	
4	x	x	x	x		x					34	x			x			x	x	x	
5		x	x	x		x	x				35										x
6		x	x			x					36	x				x	x	x	x	x	
7	x	x	x	x	x	x					37				x						
8		x	x	x	x	x	x	x			38	x					x	x	x	x	x
9			x	x	x	x	x	x			39				x						
10				x	x	x	x		x	x	40				x			x	x		
11	x	x	x	x	x						41						x	x	x	x	x
12	x	x		x	x	x	x	x			42	x			x						x
13	x			x	x	x	x	x			43				x	x	x		x	x	
14	x	x	x	x	x		x	x	x	x	44										x
15	x			x	x	x	x	x	x		45	x			x				x	x	
16	x		x		x		x	x	x	x	46	x					x	x	x	x	
17	x	x	x	x	x	x	x	x	x		47	x				x					x
18	x	x	x	x	x	x	x	x	x		48	x			x						
19	x										49							x	x	x	x
20	x	x	x	x	x		x	x	x		50				x						
21	x	x	x	x	x						51						x	x	x	x	x
22	x	x	x				x	x	x		52				x	x			x	x	x
23	x	x	x	x	x	x	x	x			53								x	x	x
24	x	x	x	x	x	x	x				54								x	x	x
25	x		x	x				x	x		55						x	x	x	x	x
26	x	x		x			x				56						x	x	x	x	
27	x	x					x	x	x		57				x		x	x	x	x	x
28	x	x		x	x		x	x	x	x	58				x		x	x	x		x
29	x	x	x	x							59								x		x
30	x	x	x	x		x	x	x	x	x	60	x						x	x	x	x

Table IX lists ten games played by the sixty selected students during the five hours of free play. The first seven games listed required active participation in running, jumping, skipping, and throwing while the last three games were of a slower type and demanded the use of very little energy.

It was found that students in the group of thirty better students were more interested in playing the games which required more active play. From the anecdotal notes kept by the teachers it was noted that the group of thirty poorer students chose more often those games which required little or no participation in active play such as running, skipping, jumping, throwing or batting. It was observed that students numbering fifty-four and fifty-nine who are definitely retarded readers, did not choose to play any active games. These two students seemed completely uninterested in active play and were inclined to wander off alone to sit down and watch the activities of the other children. From surveys of home environment and proper diet already made by the teachers it was found that these two children were from below average homes and also that their diet was very inadequate. From this data it is assumed that fatigue, which may be the result of many factors, might be a contributing cause of retardation in reading in the fourth grade of Happy Valley School.

CHAPTER IV

CONCLUSIONS AND RECOMMENDATIONS

This chapter summarizes the data considered in this study.

CONCLUSIONS

The results of this study reveal that:

1. Intelligence has a significant role in the child's success or ability to read.
2. Physical defects have a great bearing on the child's reading. The influence may not always directly effect their reading yet indirectly be a very important contributing factor to retardation.
3. The number of absences plays a very significant part in retardation in reading.
4. A child's immediate environment is also a determining factor in the child's reading.

RECOMMENDATIONS

The home environment may often be hard to overcome or compensate for since some children live several miles from the school, but there can always be ways found by the

resourceful school personnel.

The retarded children are individual problems and each one must be dealt with as an individual and must be given love and affection.

The following recommendations might help to improve the retardation in reading.

1. The school and the home should develop a closer relationship so the teacher and parents can work together for the child as an individual. There should be more understanding of all prevailing situations both at home and at school.

2. The writer recommends a study of the various physical factors of the children which will endeavor to help them overcome those most prevalent. Here again is the need for a closer relationship between home and school in detecting these physical defects and taking the proper corrective measures.

3. The home, the school, and the county officials should perform more actively and co-operatively to prevent the large number of absences.

4. Since the environment has so great an effect on the retardation there should be a community-wide program to improve the economic status and the environmental

conditions which are found to be a handicap to the child.

5. The curriculum should be revised in order to provide for the needs of the retarded children. The curriculum should not only fit the child's needs, but also his interests and abilities.

6. The school should provide as many social activities as possible to help the student become more socially adjusted.

7. The use of resource units which are of great interest to the retarded readers and will make them want to learn to read should be encouraged.

The results of this study indicate that the reading retardation in the fourth grade at the Happy Valley School has resulted from a number of factors rather than any one factor studied. After carefully studying the results of the study, it was concluded that physical factors have a definite influence on reading retardation. In every phase of a child's life his general health status is of utmost importance. Frequent check-ups should be made and deficiencies corrected.

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