INTEREST AND ABILITY IN READING

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PREFACE

THIS volume reports further progress made by the writer and his associates in the Institute of Educational Research of Teachers College in studies of materials and methods of teaching reading.

The book presents the results of a score or more of experimental studies. As far as possible, these results are stated in a form intelligible to readers who are not familiar with the technicalities of research. Most of the experimental data are given in Part One of the book which includes the first four chapters.

Part Two is primarily devoted to explanation and illustration of the methods and materials which the investigations seem to have proved to be of most value. The fundamental principles underlying the proposed forms of instruction are illustrated in detail with materials and procedures which were developed for actual use and which, for the most part, have been put to actual test in the schoolroom. While these materials and procedures have been confined to the first three grades, they should serve to illustrate the principles that are believed to be applicable, in the main, to higher grades.

The task of the volume is to show the influence of a number of factors upon both interest and ability. Thus, in studying the effects of different types of

organization of reading materials or of materials incorporating different "vocabulary burdens," the investigations were designed to reveal in what degree and manner the variations influenced the pupils' satisfaction and improved their proficiency in reading. In this way, the conclusions were protected from being unduly influenced by mere popular appeal to children on the one hand, and mere technical proficiency on the other. The program arrived at is therefore more likely to satisfy the demand to enable children to realize the highest possible ability in the most satisfying way. The choice of materials and methods should be influenced, furthermore, by the more general criteria of educational values. In Chapters V to VII, especially, the proposals for teaching reading are appraised not only as sources of interest and ability in reading, but also as means of fostering educative processes in the large.

Although this volume treats many of the major problems of instruction in reading, such as the vocabulary burden, methods of introducing new words, phonetics and other ways of seeking independence in word recognition, methods of improving eye-movement habits and reading by large thought units, the interest values of various types of materials and various literary characteristics, methods of organizing reading materials, the educative values and limitations of recreational and work-type materials, methods of testing reading abilities, diagnosing and remedying reading difficulties, the relations of reading to other subjects, and activities and the like, it is not a complete manual

or survey or textbook of the subject. Little effort has been made to summarize related literature or give historical perspectives. The book was written primarily for the purpose of presenting those suggestions for improvement in the teaching of reading which have grown out of studies herein reported for the first time. By confining the work to this purpose, greater brevity and, it is hoped, greater directness and clarity of presentation have been achieved.

For the preparation of materials and the conduct of investigations during the several years preceding this publication of results, the author is heavily indebted to those persons who have coöperated with him as research assistants in the Institute of Educational Research. His indebtedness is especially great to the following: Dr. Dorothy Van Alstyne, Dr. Ruth Strang, Mrs. Ina C. Sartorius, Dr. Miriam Blanton Huber, and Mrs. Celeste Comegys Peardon. For permission to reproduce illustrative material, the writer is indebted to Dr. Miriam Blanton Huber, Mrs. Celeste Comegys Peardon, The Macmillan Company, and the Teachers College Bureau of Publications.

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CHAPTER I

THE INFLUENCE OF THE VOCABULARY BURDEN

ANY factor in the course of reading which may be arbitrarily varied is worthy of experimental study. Indeed, it is not infrequently found that some of the humbler details exert pronounced influences upon the attainment of the major objectives of reading. A hearty and wholesome enthusiasm for reading, ability to comprehend accurately, fully, and fluently, skill in using reading as a means of furthering many other recreational and educative activities are not most surely, economically, and happily achieved by any single formula, but rather by the careful provision and coördination of many factors in the learning situation. Among these factors is the difficulty of the material presented to the pupil.

The difficulty of material is the result of several factors. Other things being equal, the more remote the ideas from the experiences of children, the more difficult the material is to comprehend. Other things being equal, the less familiar the vocabulary, the harder the reading will be. Other things being equal, the more clumsy and complex the sentence and paragraph structure, the more difficult the material. Other things

being equal, the heavier the "vocabulary burden," the harder the content. The first series of studies is concerned primarily with the vocabulary burdens of materials which are in most other vital respects substantially equal.

Typical Variations in Vocabulary Burden

By *vocabulary burden* is here meant the number of "different" words used in a given amount of material. A particular primer reader, to illustrate, contains 400 different words in the 4200 running words which appear in the book. The vocabulary burden could be determined by counting the number of times each word appears and computing the average of these figures or, more easily, by dividing the total number of words (4200) by the number of different words (400). The result would be substantially the same, namely, 10.5. This figure gives the average number of repetitions per word. It also indicates the average rate at which "new" words are introduced, namely, one new word for every 10.5 running words. Other things, such as the character of the words, the evenness with which new words are introduced, the complexity of the ideas and sentence structure, etc., being equal, the rate of introducing new words indicates the difficulty of the material. The relation of the number of different words to the total number of words in a given body of material thus indicates objectively the difficulty of the content when other factors are reasonably uniform.

Beginning courses in reading vary widely in vocab-

ulary burden. A study by E. and G. A. Selke [1] showed that in a dozen first-half-year readers, not differing materially in *total number* of words, the following numbers of "different" words appeared: 630, 579, 546, 436, 427, 427, 396, 383, 377, 308, 209, 157. In view of such a variation it is surprising that among the half-thousand studies reported in W. S. Gray's *Summary of Investigations Relating to Reading*, published in 1925, are to be found no reports of experimentation designed directly to compare the effects of different vocabulary concentrations or to find an optimum vocabulary burden for beginning pupils.

During several years past a number of studies have been made for the purpose of throwing light upon some of the many problems concerning the difficulty of primary materials as determined by the vocabulary burden. Many of the most valuable results came from observation of the progress made by pupils, individually and in groups, with materials in which the number of words introduced per unit of reading material differed considerably. The fact that a vocabulary burden suited to pupils of one degree of aptitude for learning to read may be too heavy or too light for pupils of other levels of capacity and that material, especially, which is too heavy with new words may profoundly affect a pupil's interest and progress in reading will be presented first in the form of the results of a case study to make the facts emphatic. This detailed account will illustrate the general manner in which many other individual children have been studied.

[1] In the *Elementary School Journal*, Vol. XXII (June, 1922), pp. 745–749.

An Illustration of the Effects of a Too Heavy Vocabulary

This pupil — who will be given the fictitious name Fred — entered the first grade of an excellent private school at the age of approximately seven years. A Stanford-Binet examination gave Fred an intelligence quotient of 87. The average intelligence quotient of his classmates, who were about six tenths of a year younger on the average, was about 114, or 27 points higher. In this school reading was introduced largely by means of interesting announcements on bulletin boards and blackboard. Interesting comments, news, plans and oral compositions of other pupils, and the like were the materials read. Opportunities to take up individually one or more primers and other primary story books were provided early. The blackboard, bulletin board, and other classroom-made materials, it is estimated, comprised materials with a relatively large vocabulary. The materials of this type used during the first two months introduced "new" words at a rate of approximately one for every eight running words; the book materials averaged roughly one new word for each twelve running words.

Most of the superior pupils in the class made satisfactory — a few highly creditable — progress under this approach to reading. But not Fred. Despite keen desire and interest and strenuous effort, he found the game a puzzling one. Although special attention was given to him and although bright hopes were held that he would "catch on" as soon as his reading capacities

became a bit more mature, Fred continued to find the reading of a sentence a puzzling mystery and the forms of words and phrases unidentifiable hieroglyphics. For a year he stuck to the game, however, with hope and determination. During the succeeding year Fred was turned over to a specialist in reading, who provided easier material designed to be especially interesting to him and who gave him considerable individual tutoring. Near midyear the specialist rendered a diagnosis of "special disability" in reading, whereupon the principal decided that the pupil, inasmuch as he was well below the average Binet intelligence level of the group and also subject to "special disability" in reading, would be better off in another type of institution. In the early part of the following May, Fred was brought by a distraught parent to the laboratory in which studies of such cases were then being made.

Fred, at this time 8 years and 8 months old with nearly two years of schooling behind him, was given a series of examinations and tests devised for such cases.[1] That his intelligence quotient was in the vicinity of 87 was verified; but aside from performances below average in approximately the same degree in functions highly correlated with intelligence, no evidence was found to justify a diagnosis of "special disability" in reading. Fred showed no "special" inferiority in vision, hearing, or motor control; in visual or auditory perception; in memory span; in associative learning; or in other capacities essential for learning to read.

[1] As described in A. I. Gates, *The Improvement of Reading*, New York; The Macmillan Company, 1927.

At this time, however, Fred was as near a total failure in reading as one often finds.

In Gray's Oral Reading Passages, in Gates' Primary Silent Reading Tests, and in a few pages selected from the beginning of easy primers, Fred's failure was complete. In tests of recognition of the simplest reading vocabulary he was successful in identifying less than a dozen words and he was slow and uncertain with some of these. He could not recognize some letters of the alphabet. He apparently had little idea of where one word began and another ended in a sentence. He had, moreover, no useful technique for studying and isolating a word for the purpose of achieving a familiarity with its appearance so that he might recognize it later. Most words appeared to him as very complex, unintelligible, geometrical figures that baffled his efforts at analysis. As was said of him, he seemed constitutionally unable to " catch on " to words.

It was possible, however, that Fred's difficulties were due not to total incapacity but to plunging such abilities as he possessed into tasks so difficult as to inhibit adequate learning and to impel the formation of inappropriate techniques. It was not impossible that the immediate cause of difficulty, indeed, was an overwhelming vocabulary burden in the materials which he was first asked to read.

On the basis of the hypothesis that Fred might have learned, and might even now learn, to read subject matter of less difficulty, a program of instruction with materials in which new words were introduced infrequently and old words reviewed extensively was inau-

gurated. The instruction was remedial to the extent that certain inappropriate habits, such as frequently looking at the wrong end of a word first and the like, were corrected.

After a few weeks Fred began to make progress. The latest examination, made five years after the beginning of the remedial work, showed a reading ability but slightly below the average for pupils of his mental age. Despite the fact that during two whole years Fred had not only made no progress but had also formed inhibiting habits, he had now reached nearly normal status in reading.

If our interpretation of this case is correct, the proper adjustment of the vocabulary burden and of the difficulty of reading materials to a pupil's capacity is of profound importance. Many other cases of this type lead us to believe that this is the case.

Vocabulary Difficulties and Eye Movements

The following quotation from an article by Carleton Washburne gives the opinion of another observer:

> Many of you know something of the studies that have been conducted at the University of Chicago and elsewhere, as to children's eye movements. You remember that motion pictures of children's eyes were taken while the children were reading. It was found that the eyes of good readers take in a group of words at once, then move to the right and pause to take in another group, then shift again to the right to take in the rest of the line, and swing back to the first group of words in the next line. They move