A SURVEY OF THE USE OF THE IOWA SILENT READING TEST IN VIRGINIA GROUP III HIGH SCHOOLS

A Thesis

Presented to

the Graduate Faculty

The University of Richmond

In Partial Fulfillment

of the Requirements for the Degree

Master of Science in Education

Approved 8/8/51
E. D. Overton

by

William Young Manson

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PREFACE

This study was conducted under the direction of Dr. E. F. Overton, chairman of the department of Education, University of Richmond.

At this point acknowledgement of valuable assistance is made to:

1. The Department of Instruction of the Richmond City Schools, Research Division
2. State Department of Education--especially to the Division of Research and Planning and the State Consultation Service
3. The principals of Virginia Group III High Schools

Without the cooperation and assistance from the groups of people listed above, it would have been impossible to complete this study. It is believed by the author that this study may be used to encourage the development of reading and testing in the field of education.

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CHAPTER I

THE IMPORTANCE OF THE PROBLEM

RECENT EMPHASIS UPON READING

Reading is a tool that every boy and girl in the junior and senior high schools in the state of Virginia must use skillfully to attain maximum success in his school learning. The foregoing statement is probably of more importance today than at any previous time. In the classes of English, social studies, and the natural sciences more emphasis has been placed recently upon the ability both to read rapidly from a wider range of sources, and to understand the material that has been read.[1]

In the state of Virginia much has been said on the floor of the General Assembly and by leading newspapers[2] about the teaching of the "three R's," and the return to the fundamentals of learning in the schools of the State. Strang[3] has estimated that in the typical high school eighty to ninety per cent of all study activities require silent reading as a means of gaining knowledge.

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1 Glenn M. Blair, Diagnostic and Remedial Teaching in Secondary Schools (New York: The MacMillian Co. 1946), p. 3.

2 Editorials and Letters to the Editor, Richmond Times Dispatch and Richmond News Leader (April-May issues, 1950)

3 Ruth Strang, Problems in the Improvement of Reading in High School and College (Revised edition, Lancaster, Penn; The Science Press Printing Co., 1940), p. 13.

Few will deny the place of importance of reading in the program of every school. Some high school teachers have placed the responsibility for the teaching of reading solely on the elementary schools. However, the process of reading is such a complex problem that it should be emphasized and developed from its origin in the early grades through high school and should be taught even in the colleges of the United States. Many secondary school teachers and administrators are beginning to realize the need for a more adequate program of reading in their schools.[4] Illustrations and examples of this fact will be seen in Chapter III from the direct words of the principals of the Group III High Schools.

"The variation of capacities, abilities, needs, and interests of students in any classroom necessitates a differentiated approach to instruction at all school levels and in all areas of learning."[5] No one method has proven successful as the way to teach reading. This variation goes back to the pupil's original readiness to read. Until teachers take into consideration individual differences and realize the shortcomings of treating all children alike, no reading instruction can be on an effective sound basis. "Not until

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4 Glen M. Blair, Diagnostic and Remedial Teaching in Secondary Schools (New York: The MacMillian Co., 1946), p. 3-4

5 Emmett A. Betts, Foundations of Reading Instruction (New York: Prentice Hall, Inc., 1950), p. 3

differences are 'seen' is the teacher ready to teach, because learning the child must precede teaching him."[6] From a knowledge of these differences a trained teacher may plan a worth while program of instruction for the class, for small sections, and for the individual whenever possible.

Reading itself, as a separate phase of instruction, does not exist, but is a part of the process of language development both in the elementary and secondary schools. The total of these language skills, abilities and qualities may be represented by a triangle named language. The three sides of the language triangle being speech, reading and writing. One part of this triangle cannot be completely understood without considering the other two sides. Even the triangle itself is incomplete without depth and reality, which could be labeled experience, thus making the diagram a three dimentional solid. Experience consists in giving the words, phrases, and sentences of the reading, speaking, and writing actual meaning and a definite relationship for the individual. In this light reading becomes a process rather than a subject.[7]

Much yet needs to be understood about reading readiness and even more important the facts that are already known

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6 Ibid.

7 Emmett A. Betts, Foundations of Reading Instruction (New York: Prentice Hall, Inc., 1950), p. 9-11.

need to be applied in the early grades of the schools of the United States. There is still remaining too much regimentation into narrow programs for the first grade child. It has been shown in many cases that reading difficulties can be removed in the early grades when the emphasis is upon a program of preventive rather than corrective measures. Some problems that face present systems are:

1. Standards in some areas are lower for girls.
2. Early textbooks do not challenge the interests of boys.
3. Boys do not use reading in their play activities as much as girls.
4. More men teachers are needed in elementary schools.
5. On the average girls mature earlier than boys in certain reading abilities.

From the above reasons one can partially understand why sixty to eighty per cent of the retarded readers are boys. Another attack that is made on instruction in the first grade is the nonpromotion of from twenty-five to thirty-three per cent of pupils. This nonpromotion usually was based upon lack of reading ability. Too many parents have judged the schools unjustly by how soon their children were taught to read. Some parents would prefer to see their

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8 Ibid, p. 29

child struggle with reading at five or six years of age to "keep up with the Jones boy" rather than have him begin reading a few months later when he is socially, physically, and mentally ready to read without being frustrated by parents or teacher.[9]

It has been convenient for teachers to label poor readers as "dumbbells." Data indicate, however, that from sixty to eighty per cent of pupils with reading problems have normal or superior intelligence. In other words, the fault can be traced to the inadequacy of the school program to satisfy the interests of the student. From the first grade through high school many pupils are not interested in reading, see no purpose in many of the assignments, and simply do not like to read. "Approximately fifty per cent of the adult population has been found to be sterile as far as reading interests are concerned."[10]

Today there are thousands of different types of occupations that did not exist fifty years ago which will be open to high school students who are informed of these occupations and how to obtain them. Today Americans have many more hours of leisure than ever before which could be spent for pleasure as well as other purposes in reading.

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9 Emmett A. Betts, Foundations of Reading Instruction (New York: Prentice Hall, Inc., 1950), p. 29.

10 Ibid, p. 33.

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9 Emmett A. Betts, Foundations of Reading Instruction (New York: Prentice Hall, Inc., 1950), p. 29.

10 Ibid, p. 33.

There are numerous books on almost any subject one may choose, and he may read any of these without the restrictions that are placed on people of other countries of the world today. Thus a reader needs a versatility of reading skills. The reader should be taught how and should know when to skim a book for the desired information, to read rapidly for the overall thought and when to study thoroughly. Since many different publications are at the disposal of the reader, he must know how to select the material he desires as he cannot possibly read all material that has been published on a given subject.

If the citizen of tomorrow hopes to retain his freedom he must keep pace with the developments of the day. The functions and the limitations of government here in the United States must be understood and regulated. Also the rapid developments of conflicting social and political philosophies of other countries must be understood. The individual must also adjust to such things as....."personal problems, social issues, scientific advances, industrial and economic progress. Obviously the need was never greater for wide information, clear understanding, and discriminating insight."[12] Educators are changing curriculums to meet the needs of the individual in contemporary

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12 William S. Gray, editor, Recent Trends in Education (Chicago: University of Chicago Press, 1939), p. 4.

life with emphasis being placed on problems of home life, group living, social issues, vocational problems, and personal philosophy. "An upsurge of public interest in the nation's schools is taking place throughout America. Seldom have so many people demonstrated keen and vital interest in the public schools....."[13]

Educators should keep this interested public informed of the program of their schools in a language that is simple, understandable and accurate in form.[14]

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13 Ibid, p. 6.

14 Public Relations For American Schools (Washington: 28th Yearbook of A.A.S.A. 1950), p. 10.

RULING OF GENERAL ASSEMBLY

The following law is the legal basis for the testing program designed to improve achievement in reading and other fields.

CODE OF VIRGINIA

CHAPTER 12, PUPILS GENERALLY

Article 2, Paragraph 22-240.1

> Accomplishment testing program. The State Board of Education shall not less frequently than every two years prepare and/or otherwise provide for the children in selected grades of the public schools such tests as will ascertain the ability and the extent to which the pupils in such grades have mastered the courses taught in such grades. The local school authorities in the several school divisions shall cause such tests to be administered to the pupils in the grades specified by the State Board and shall forthwith mail the results thereof to the State Board. Passing any such test shall not be made a condition precedent to passing any course or graduation. The State Board upon receipt of the completed tests shall grade the same, arrange them by grade, course, and school division. The State Board shall carefully review the results of such testing program and from time to time shall take such action as it deems proper to bring about elimination of any deficiencies discovered as a result of such testing program.[15]

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15 Acts of Legislature (General Assembly of Virginia laws), p. 451.

This law was enacted in 1947 and during 1947 the testing program administered by the Division of Research and Planning of the State Department of Education included testing as an aid to the achievement of specific instructional purposes. The test planned to aid classroom teachers in their attack upon the reading problem for 1947-48 was the elementary form of the Iowa Silent Reading Test which was given in the eighth grade of all high schools which had not had an eighth grade before.

The entire cost of the test was paid by the State Board of Education. The purpose of this testing program, as stated by Wingo,[16] was, "That of aiding the classroom teacher in planning instruction in reading in the light of the reading ability of each individual in her class." The diagnostic value of this test was realized so that in 1949-50 the testing program in reading was extended into all high schools of the state. The California Test of Mental Maturity was added in 1950 so that all high schools in the state would have an intelligence test to help plan diagnostic and remedial work.

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16 A. L. Wingo, Supervisor of Research, State Department of Education, quoted in Work and Training, Oct. '47, Jan '48 Issue.

INTERPRETATION BY STATE DEPARTMENT

Ruling of the State Department regarding details of the testing for 1950-1951:

COMMONWEALTH OF VIRGINIA
STATE BOARD OF EDUCATION
RICHMOND 16

SUPTS. MEMO. NO. 2514
July 20, 1950

To: The Division Superintendent

From: R. Claude Graham, Director, Division of Research and Planning, A. L. Wingo, Supervisor of Research

Subject: The 1950-1951 Testing Program

The testing program planned for the session 1950-1951 is designed to continue the emphasis upon the use of tests to improve instruction. It includes the following features:

I. The Eighth Grade Reading Test

The Iowa Silent Reading Test will be administered to all eighth grade pupils during the fall and spring. The Elementary Test, Form DM, New Edition Revised will be administered during the first half of May, 1951. It is hoped that eighth grade teachers will make the most of the diagnostic values that may be derived from an efficient use of these tests since they are proposed primarily as an aid to assist teachers in studying the achievement in reading of eighth grade pupils. Although all eighth grade teachers should make use of the results obtained from these tests, presumably, the eighth grade English teachers will, in general, be assigned the responsibility for administering, scoring and interpreting the results obtained from the use of the Iowa Silent Reading Tests. Certainly, the

SUPT. MEMO. NO. 2514 (cont.)

English teachers or Special teachers might be expected to develop individualized reading programs for these pupils who appear to need such help.

The Iowa Silent Reading Test, together with the Manuals of Directions and Class Record Sheets, will be sent by the publisher about September 1 to the Division Superintendents. For each package of twenty-five tests mailed to the Division Superintendents the publisher will send an additional Class Record Sheet so that records of the scores may be sent to us. In order that we may save funds through the purchase of tests in the exact quantities needed we are requesting that you give us, as accurately as possible, the total eighth grade and senior enrollments that you anticipate in your division next year. We shall appreciate it if you will return these figures so that they will reach us not later than August 10, as we should submit the order for tests to the publishers by August 15.

The Iowa Silent Reading Test should be administered during the last half of September this fall. Our Memo giving specific suggestions concerning the administration of this test and the New California Short-Form Test of Mental Maturity, Intermediate '47 S-Form will be sent to the Superintendents and Principals around September 1. Class Record Sheets giving the results of both the reading test and the intelligence test should be mailed by the Division Superintendents to the Supervisor of Research not later than October 31, 1950. The entire cost of this part of the testing program will be borne by the State Board of Education.

The preceeding regulation from the State Board of Education, concerning the Iowa Silent Reading Test, should have been complied with by all Division Superintendents. Although this State Board Regulation has the effect of law and can be enforced as any other school law, it shall be seen from this survey that there are a number of schools who did not administer the test in the fall and spring.

It has not been the policy of the State Board to enforce this regulation, but certainly there is little justification in using tax-payers' money to purchase and deliver these tests if they are not to be used.

SUPT. MEMO. NO. 2514 (cont.)

II. Intelligence Testing In The Eighth Grade

In connection with the testing of reading in the eighth grade and the study of results obtained through such testing we are planning to introduce an intelligence test at the same grade level. We believe that the additional information about pupils provided by such testing can be very useful to teachers who are concerned with the improvement of reading and academic instruction generally. In selecting an intelligence test we have sought one that would give as much information as possible in addition to that which would be derived from a reading test. We have chosen the New California Short-Form Test of Mental Maturity which has both a non-language and language section. It provides mental scores for such intelligence factors as spatial relationships, logical reasoning, numerical reasoning and vocabulary. We believe that a careful analysis of the non-language parts of the test, particularly, will enable teachers to work much more effectively with slow readers. The entire cost of this test will be borne by the State Board of Education.

SUPT. MEMO. NO. 2514 (cont.)

III. The Local Testing Program

It is proposed to continue the development and expansion of the local testing programs. The primary purpose of this proposal is to extend aid to local divisions which are planning to make effective instructional uses of comprehensive testing programs. We wish to confer at length with local leaders in testing programs in an attempt to be as helpful as possible in the development of their plans.

For each local division selected as a cooperating unit we propose to extend financial aid over a period of three years. The State's share of the costs of the tests used in each cooperating division is limited to one-third of the total cost, not to exceed $200.00 per annum per division.

We hope that the fifteen school divisions which have been cooperating with us for not more than two years will continue such participation and that ten other divisions will develop similar programs during the coming session. Furthermore, we hope that the seven school divisions which have completed a period of three years of cooperating with us in the development of these local testing programs will continue such testing, although the State cannot provide further financial aid. We do wish, however, to help in any way that we can in an advisory capacity. The local divisions participating in this program will be expected to report the nature, extent and results of their testing to the Supervisor of Research. Others for all tests to be used in these local testing programs by cooperating divisions must be submitted to the Supervisor of Research who will forward them to the publishers. Applications to participate in this service should be mailed directly to Mr. R. Claude Graham, Director of the Division of Research and Planning. The applications should be made not later than September 1, 1950.

STATEMENT OF THE PROBLEM

The first group of factors stressed by some authors as contributing to the cause of reading maladjustment have been: inability to secure a visual image (non-verbal types), eye difficulties (imbalance of eye muscles), mixed eye-hand and other dominance problems and faulty eye movement and motor co-ordination.[17]

A second group of less frequently stressed factors are the emotional and social, home background, family relations, poor teaching, inadequate teaching materials, differences in rates of child development and growth, and inappropiate or untimely instruction.[18]

Very few Group III High Schools have specialists to deal with the first group of problems. This study, therefore, is concerned with the second group of problems and a survey of the extent of the use of the results of the Iowa Silent Reading Test and the possible application of the test results to a school program of reading.

Group I High Schools (enrollment of 1,000 or more pupils) and Group II High Schools (enrollment of 200 to 1,000 pupils) usually have trained personnel to administer

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17 Paul Witty, Reading In Modern Education. (Boston: D. C. Heath and Co., 1949), p. 182.

18 Ibid.

tests and set up diagnostic and remedial programs of reading in their schools.

How many of the two hundred forty-five Group III High Schools (enrollment under 200 pupils) have made effective use of these test results? What are some of the programs and practices recommended for Group I and Group II High Schools that could be effectively applied in the Group III High Schools? These are the two major questions with which this study is concerned.

ADVANTAGES AND LIMITATIONS OF THE IOWA SILENT READING TEST

Directions for administering and scoring the test are completely and carefully outlined in the manual of instructions. These directions will enable any teacher or principal to give the test if that person follows directions conscientiously and maintains discipline.[19]

A memorandum giving specific suggestions concerning the administration and scoring of the test is sent to all Division Superintendents each year by the Division of Research and Planning.

The elementary test is designed for grades four to nine, whereas the advanced test is designed for grades nine to thirteen. The elementary test requires forty-nine minutes time for the test plus time to read the directions to the students or a total time of approximately sixty minutes. The respective times for the advanced tests are forty-five minutes and approximately sixty minutes. The elementary test is hand-scored, while the advanced test may be hand-scored or machine-scored.

Both tests are available in four equated, scaled, standardized forms that were revised from earlier forms in

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19 See Manual of Directions, APPENDIX I, p. 7

1942. There are details of the standardization procedures available in the Manual of Directions.[20]

The test is designed to cover a wide range of the skills known to be indispensable to effective reading of the work-study type. The test measures three areas of reading ability:

1. Rate of Reading
2. Comprehension
3. Ability to Locate Information

The test enables the reading teacher to reach these basic causes of reading disabilities which hamper progress in every subject.[21]

There are six sub-tests which produce eight separate scores, therefore, the median score will be found half way between the fourth and fifth highest scores from the sub-tests.

Sub-test 1, Rate and Comprehension. The student is to read two types of prose, at a rate that is suitable for him. The first deals with science and the second with social studies. The first score is expressed in the total number of sentences read. Detailed questions concerning the

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20 See Manual of Directions, p. 6, APPENDIX I.

21 H. A. Greene, A. N. Jergensen, and V. H. Kelley, (bulletin on Iowa Silent Reading Tests; Yonkers-on-Hudson, New York, World Book Company, 1950), p. 1-2.

content of the articles are answered by the student to determine his level of comprehension. When the comprehension answers are totaled a second score is obtained.

Material in this sub-test was designed for pupils in grades 4-9, so therefore, the material is not as valid for eighth grade readers as a test designed only for the eighth grade would be because the selections must include a typical fourth grade student as well as a typical ninth grade student.[22]

Some authorities consider the rate of reading subtest unfair. The only directions the student receives are "This is a test to see how well and how rapidly you can read silently."[23] These directions do not explain to the student what he is to remember. The student does not know whether to read for each small detail, for general ideas, or for an understanding of the philosophy of the article. Neither does the student know how fast to read the article. Many good readers regard their speed of reading in proportion to their purpose in reading and the difficulty of the

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22 Bulletin on Tests and Measurements to be published by the Research Division, Department of Instruction, Richmond City Schools.

23 See Manual of Directions, p. 9, APPENDIX I.

material.[24] Some students, therefore, skim through and finish quickly then have time to go back over the material while other students only complete a small fraction of the article.[25]

As in most tests of comprehension many of the answers involve general knowledge that the student may have known previous to his reading the test material. In a review Davis[26] states his "main criticism of the content of the test that it never forces a student to grapple with a difficult passage, to weave an author's ideas together, to understand his overall thought."

Since it is not shown in the level of comprehension score the speed with which the pupil has worked, it is very important to examine the individual questions involving comprehension. Then we may determine the accuracy with which the pupil worked from the number of right and wrong responses. The pupil may have achieved a low score merely because he did not have time to finish the section on comprehension.[27]

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24 Frederick B. Davis, Professor of Psychology George Peabody College for Teachers, and Director, Test Research Service, Nashville, Tennessee, reviews test in The Third Mental Measurements Handbook, p. 488-90.

25 Ibid

26 Loc. Cit.

27 Bulletin on Tests and Measurements to be published by Research Division, Dept. of Instruction, Richmond City Schools.

Other reading tests take into consideration not only the number of correct responses but also the total number of items attempted [28] which gives the pupil a score that is more accurate of his comprehension, since speed has been taken into consideration.

Sub-test 2, Directed Reading. The manual states that there is no one silent reading ability, but that silent reading is a combination of many abilities. Following this line of thought, the authors of the test assume that a person who reads well one type of material may read another type of material poorly. In this sub-test material is used from both the science and social science fields. Memory is not stressed nor identification by merely matching words as is the case in many other tests. The principle that is basic to this sub-test is not unlike other reading tests or school work-study classes where the student already knows the question to be answered and is seeking the answer.

Sub-test 3, Word Meaning. This is designed to be a measurement of the development of the students' vocabulary. The words used were selected from Thorndike and Horn lists as having social significance in reading situations. The words on the second page of vocabulary have been checked against the Pressy Lists and are in the fields of Mathematics,

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28 For example of this examine the Cooperative Reading Test in English which contains three speed factors.

Science, and Social Studies. Nearly all reading tests include a measure of a student's overall vocabulary as a partial indication of his reading ability.

Sub-test 4, Paragraph Comprehension. "The ability to select the central topic of the paragraph and the ability to identify details essential to the meaning of the paragraph."[29] Ten paragraphs are given and the abilities mentioned above are tested on each paragraph. Althouth two factors have been tested the final score is the sum of the scores on each factor.

Sub-test 5, Sentence Meaning. The sentences are written in such a way that the meaning of the sentence as a whole must be understood. The sentences are arranged in ascending order of difficulty. All important words in the exercises were checked against the word list of Horn and Thorndike, also the social frequency of each word was determined.[30]

Sub-test 6, Location of Information. The ability to locate needed information quickly and accurately through use of both the alphabet and the index, is measured. This subtest is of questioned validity by many authorities[31] since

29 See Manual of Directions, APPENDIX I, p. 3.

30 See Manual of Directions, APPENDIX I

31 See Bulletin on Tests and Measurements, to be published by Research Division, Department of Instruction, Richmond City Schools.

it is believed that the controlling factor is not a reading skill as much as whether the student has been taught these practices in his school program. Some teachers have claimed that scores are either high or low on this test and few scores near the median score for the entire test.

This sub-test yields one score on the alphabetizing, using guide words, and another score on the use of index section. Therefore, with two scores on the first sub-test, and two scores on this sub-test, there are a total of eight separate scores in the diagnostic analysis of the students reading skills.

From the reviews given the test by authorities[32] in the field of testing, the general conclusion that the Iowa probably deserves its position at the head of all available reading tests is drawn. Although the reliability and validity coefficients (validity figures are not provided in the manual; a serious error on part of authors) do not

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32 Frederick B. Davis, Professor of Psychology, George Peabody College for Teachers and Director, Test Research Service; Nashville, Tennessee, reviews test in The Third Mental Measurements Handbook (New Brunswick: Rutgers University Press, 1949), p. 489. William A. Turnbull, Secretary of the Board and Head of the Test Construction Department, College Entrance Examination Board, Princeton, New Jersey (He reviews the test in The Third Mental Measurements Handbook.

necessarily prove the worth of a test conclusively, they are valuable criteria that should be studied. Since the Iowa test has wide use in the United States new norms could be set up from year to year if the authors of the test desired to do so from the results of the test as secured from the separate school divisions. The true worth of the test to the school is the amount of improvement in students' reading ability resulting from use of the test.

The present norms for the test represent large groups from a wide background in each case and the presence of four parallel forms of the test gives a great advantage to any user of the tests. The individual validity and reliability of every individual sub-test score has not been ascertained, but it would probably not be as high as the test as a whole because the student may not be as interested in one section as another, and, therefore, may not work as hard.

The administration of the entire test consumes an hour, and during the exercises, each being timed, separately, the student may become fatigued. Before too much emphasis or remedial work is planned on the basis of an individual's sub-test scores a retest would be in order. But as an instrument to determine an individual's overall capacity and the special weaknesses of a class, the test is good.

Any teacher would be unwise to teach using the test itself as a text in order to prepare students to make a better grade later on a retest. But the test will indicate broad areas that need to be stressed for groups as well as special work for individual students.

SUMMARY

In this first chapter the need for better instruction in reading has been shown. This need has been felt by the General Assembly of the State and by the State Board of Education. A testing program has been established using the Iowa Silent Reading Test twice a year in all eighth grades to attempt to diagnose difficulties on the school level where treatment can be provided. The test has been examined and it is felt that it is the best available test at the present time to diagnose reading problems throughout the state. The only information that the State Department of Education has as to the effectiveness of this testing program is the summary from each school of the results of the test. These standard scores provide much information but not nearly the detailed analysis of the testing and instructional program that this study has discovered throughout the Group III High Schools. It will be pointed out the advantages and disadvantages of the testing as now conducted, and finally the methods that can be used to improve the benefits

that may be received when the test results are wisely used in the cooperation with a proper program of reading instruction.

CHAPTER II

CONSTRUCTION OF A QUESTIONNAIRE

It has been seen from the preceding chapter the overall need for the use of a diagnostic reading test. The selection of the Iowa Silent Reading Test for the State of Virginia has been discussed with the merits and limitations of the test itself. How many of the Group III High Schools have made effective use of the test results? In order to answer this problem an attempt will be made to determine the present effectiveness of the testing, as now conducted, through the use of a questionnaire. The data to be secured from this questionnaire should serve as a means for future improvements in the use of test results in the Group III High Schools.

Individual school and state norms, percentiles, and medians are available from the State Board of Education but the statistical data only furnished the results of the test. This data is of little if any value in determining the worth of the program or the advisability of this expenditure of money each year to carry on the testing program.

The State Department of Education, Division of Research and Planning has expressed the desire to conduct a study with the identical purpose of this study, but since they lack the time necessary for such a survey they are unable to do so at the present time. Therefore, it is the

desire of this study to be of as much value as possible to help improve the program of testing. There could be no hope that the results of this study would be of any definite value to the Group III High Schools unless a copy of the results of the study, and the recommendations from the study are made available to every Group III High School upon completion of the study. Therefore, this information was promised to each school before asking the school to fill in a questionnaire.

The ideal way to conduct a study such as this probably would be to pay a personal visit tc each school to interview the principal, teachers, and students. This would be practically impossible, due to the expense of time and money that would be involved. Any questionnaire must be carefully worded and require a minimum of writing on the part of the person who is to answer it. A letter of explanation to adequately explain the purpose and plan of the study should accompany the questionnaire so that the study will seem important to the person who receives the questionnaire. Individual questions must call for information that is relatively easy to determine and not available from any other source,

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1 Frederick L. Whitney, The Elements of Research (Third Edition: New York, Prentice Hall, Inc., 1951), p. 142-3.

The wording of each individual question as well as the letter of explanation for the purpose and plan of the study can be understood by a careful examination of the letter, and the check list (questionnaire) contained on the following pages.

Ellerson, Virginia
April 30, 1951

A brief summary of the use and results of the Iowa Silent Reading Test should be of value to the principals of all Group III High Schools in this state. Accordingly I am making such a survey under the direction of Dr. E. F. Overton, professor of education, University of Richmond, in partial fulfillment of the requirements of the degree of M. S. in Education. If for any reason you did not give the test in your school, please return the checklist indicating this fact.

I am enclosing a simple checklist designed to consume a minimum of your time. I shall greatly appreciate your understanding co-operation in returning the completed checklist as promptly as possible in the enclosed stamped, self-addressed envelope. After the replies have been tabulated I shall mail to the principal of each Group III High School a summary of the results. Please understand that no school or individual will be identified in this study, since I am not asking that you sign the checklist.

I am sure you understand how necessary it is for <u>every</u> principal to reply. The validity of the study will be in proportion to the number of replies received.

I shall be deeply indebted to you and I hope that the summary will be of great value to you and your school.

Sincerely yours,

William Y. Manson

HOW THE TEACHERS in GROUP III HIGH SCHOOLS UTILIZE THE RESULTS of THE IOWA SILENT READING TEST

1. Did the teachers who scored the test feel that they gained information about individual pupils that would help the instructional program?
   none ( ) some ( ) considerable ( ) much ( ) very much ( )
2. How much have your teachers attempted to meet the weaknesses of students as shown by the individual subtest scores?
   none ( ) some ( ) considerable ( ) much ( ) very much ( )
3. Did your pupils feel that they gained an understanding of their own strengths and weaknesses in reading as a result of the teacher interpreting the results to them?
4. How much interest has been shown in testing by your teachers?
   none ( ) some ( ) considerable ( ) much ( ) very much ( )
5. How much interest has been shown in testing by your students?
   none ( ) some ( ) considerable ( ) much ( ) very much ( )
6. Have students shown more interest in reading as a result of the test?
   none ( ) some ( ) considerable ( ) much ( ) very much ( )
7. To what extent would you attribute the improvement in reading of your students to the use of this reading test?
   none ( ) some ( ) considerable ( ) much ( ) very much ( )
8. To what extent did English teachers find the results helpful in improving the reading program?
   none ( ) some ( ) considerable ( ) much ( ) very much ( )
9. What teachers used the results of the test and to what extent did they find them useful?
   A. History; none ( ) some ( ) considerable ( ) much ( ) very much ( )
   B. Science; none ( ) some ( ) considerable ( ) much ( ) very much ( )
   C. Commercial; none ( ) some ( ) considerable ( ) much ( ) very much ( )
   D. Vocational; none ( ) some ( ) considerable ( ) much ( ) very much ( )
   E. Math; none ( ) some ( ) considerable ( ) much ( ) very much ( )
   F. For. Lang.; none ( ) some ( ) considerable ( ) much ( ) very much ( )
   G. _____ none ( ) some ( ) considerable ( ) much ( ) very much ( )
10. How was the test scored ?
    ( ) by one teacher ( ) by several teachers ( ) by all high school teachers
11. What was the reaction to the scoring?
    ( ) teachers found directions confusing
    ( ) teachers regarded scoring as only routine work
    ( ) teachers worked with great interest
12. Have students been grouped according to their reading ability as revealed from the test either in separate classes or small groups within a single class? Yes ( ) No ( )
13. A. Has this test encouraged use of other tests as a means of checking this test? Yes ( ) No ( )
    B. If so, what test?_____
    C. How did results of other tests compare? _____
14. Has this test encouraged use of other tests as a means of organizing or developing a planned program designed to diagnose and remedy reading difficulties in a systematic way? Yes ( ) No ( )
15. Do you believe that there has been sufficient improvement in reading skills following the test to justify its being given every year?
    Yes ( ) No ( )

There was no way to determine the schools that had answered the survey after three weeks, when only one hundred forty-six replies had been received, except the few principals who had signed their names or signed the name of the school on the questionnaire. Eliminating these schools and the schools whose post office address had appeared on the returned envelope when there was no other school with the identical address a follow-up letter was sent to the remaining Group III High Schools. The follow-up brought in forty-six additional responses. The total number of schools answering was one hundred ninety-two out of two hundred forty-five which received a questionnaire, a return of 78 per cent.

Ellerson, Virginia
May 17, 1951

Approximately one hundred and fifty principals have already responded to the check list concerning the Iowa Silent Reading Test that I sent out several weeks ago to each Group III High School.

As you recall the identity of the responding school was not to be revealed so, therefore, if you are one of those who have answered please disregard this letter and accept my thanks for your prompt co-operation.

If, however, it has not been possible for you to give information that was requested, will you please do so by return mail in order that I may have all the replies by the end of the current school session. If for any reason you can't answer any or all of the list, please let me know to this effect. As soon as possible I shall mail to you a summary of the results and reactions that I have received.

Sincerely yours,

William Y. Manson

CHAPTER III

RESULTS OF THE SURVEY

In an attempt to determine how effectively the test results were used in the Group III High Schools the plan of this study was explained in the preceeding chapter and a questionnaire included with a letter to the principal of each school.

No signature was called for on the questionnaire and a copy of results was promised to each principal regardless of whether he answered or not.

As will be seen in this chapter the cooperation of over eighty per cent of the schools in answering the questionnaire shows a great amount of interest in sharing their findings with other schools.

A total of two hundred forty-five letters and questionnaires were mailed origionally. There were sixteen high schools that did not give the test in the fall of 1950 as they had been directed by the State Board of Education.[1] Out of these sixteen schools six returned the questionnaire but did not state their reasons for not complying with the regulation.

Leaving a total of two hundred twenty-nine schools who administered the test, out of this group one hundred

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1 This figure determined by A. L. Wingo, Supervisor of Research from state files of results from each school.

eighty-six answered the questionnaire. The response, therefore, was 81 per cent complete from schools giving the test and 82 per cent of the schools were accounted for on the survey counting all of the Group III High Schools.

TABLE I

NUMBER AND PERCENTAGE OF SCHOOLS WHERE TEACHERS WHO SCORED TEST FELT THEY GAINED INFORMATION ABOUT INDIVIDUAL PUPILS THAT WOULD HELP INSTRUCTIONAL PROGRAM

	Number of Schools	Per Cent
None	1	.5
Some	44	24.0
Considerable	70	38.0
Much	48	25.5
Very much	23	12.0
Totals	186	100.

This question was put first because in it lies the key to the success of the Iowa Silent Reading Test. If the teachers come to realize the diagnostic value of the test as an aid in planning their instructional program around the needs and abilities of each individual student

the purpose of the program as outlined by the State Department of Education will be realized.[2]

The responses from the schools taking part in the survey were higher as a whole in answering this question than any other question on the check list. There were 38 per cent answering "considerable" and 25.5 per cent answering "much," giving a sum of over 63 per cent of the total for these two groups--the largest percentage of any question. Also, there were 23 schools or twelve per cent who answered "very much" whereas in no other instance did over 11 schools or 6 per cent answer that high. On the other end of the scale there was only 1 school who felt that the teachers had not received any information from the test that could be used.

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2 A. L. Winge, Supervisor of Research, State Board of Education, Richmond, Virginia (Work and Training, Oct. '47-Jan. '48 Issue)

TABLE II

AMOUNT OF EFFORT PUT FORTH BY SCHOOL FACULTIES TO MEET WEAKNESSES OF STUDENTS AS SHOWN BY SUB-TEST SCORES

	Number of Schools	Per Cent
None	5	2.7
Some	73	39.0
Considerable	71	38.0
Much	30	17.0
Very Much	6	3.3
Totals	185	100.

The answers to this question involve many factors such as facilities, time, and personnel required to make use of the information that was obtained from the test. It would naturally be expected that some of the schools would not be able to use the information that was obtained to the best advantage because of lack of trained personnel and facilities, but never-the-less in proportion to the answers from question No. 1 the answers to this question are as could be expected. Only 5 schools indicated that the teachers had not attempted to meet the weaknesses of the students as shown by the individual sub-test scores.

TABLE III

NUMBER AND PER CENT OF SCHOOLS WHERE IT WAS REPORTED THAT PUPILS FELT THEY GAINED FROM THE TEST INFORMATION ABOUT THEIR STRENGTHS AND WEAKNESSES

	Number of Schools	Per Cent
None	23	18.
Some	19	15.
Yes, Much	81	64.
Uncertain	5	3.
Totals	128	100.

Since no series of words to indicate relative progress was provided for use in answering this question the question was answered in many ways. Some schools (a total of 58) either did not understand the question or preferred not to answer it at all. Many of the 23 schools who stated that their pupils were not informed of the results of the test, also added that they had been instructed not to discuss the results with pupils. There were 19 schools who answered "some." Of the remaining number 81 indicated definite progress along this line. Many of this group however stated that they were not sure how much understanding the pupil had received. Some schools attempted

to assign reading material on the students' level and use those assignments as means of showing him his weaknesses.

TABLE IV

NUMBER AND PER CENT OF SCHOOL FACULTIES SHOWING VARIOUS AMOUNTS OF INTEREST IN TESTING

	Number of Schools	Per Cent
None	5	3.
Some	65	35.
Considerable	73	40.
Much	30	16.
Very Much	11	6.
Totals	184	100.

The answers to this question are in very close comparison with the answers to question No. 2 which is as expected. The schools where teachers' interest was rated as "none" and the schools where nothing had been done by teachers to use the test results numbered in both instances only 5.

TABLE V

NUMBER AND PER CENT OF STUDENTS SHOWING VARIOUS AMOUNTS OF INTEREST IN TESTING

	Number of Students	Per Cent
None	15	8
Some	74	40
Considerable	68	37
Much	21	12
Very Much	5	3
Totals	183	100

This question is very important if our test results are to be considered valid. If the teachers and the administration of the school are not completely convinced of the worth of a test they will usually transfer their indifference to the pupils. Another important factor is the complete and accurate indoctrination of the pupils as to when, where, how, and most important why they have to be subjected to these tests.

When the above considerations have been made there is an absence of the guessing game, coin-tossing, and general indifference on the part of pupils reported by some teachers. The answers to this question indicate not

as much interest by pupils as was shown in the preceding question by teachers. Although the relationship is high, it could possibly be even higher, if teachers as well as pupils understand the value of the ability to read and the use of this test.

TABLE VI

NUMBER AND PER CENT OF STUDENTS WHO HAVE SHOWN MORE INTEREST IN READING AS A RESULT OF THIS TEST

	Number of Students	Per Cent
None	30	16
Some	84	47
Considerable	46	26
Much	17	9
Very Much	4	2
Totals	181	100

The results as shown above are encouraging in so much as the testing program appears to have increased the students' interest in reading as much as what would have been expected when the answers to question No. 2 (students' interest in testing) were examined. The relationship of the students' interest in the test and the students'

interest in reading itself is further evedence to preve the value of the test. A great deal will be accomplished if students and teachers are kept aware of the necessity for emphasis upon reading and upon progress in reading. The use of the Iowa Reading Test is a semi-annual reminder to the teachers and pupils not to forget to develop their resources to the fullest extent.

TABLE VII

NUMBER AND PER CENT OF SCHOOLS ATTRIBUTING VARIOUS AMOUNTS OF IMPROVEMENT TO THE USE OF THE IOWA SILENT READING TEST

	Number of Schools	Per Cent
None	24	14
Some	92	50
Considerable	45	24
Much	19	10
Very Much	3	2
Totals	183	100

This question was designed as a check into the improvement that has come directly from the use of this test. The fact that only 24 schools showed no improvement from the use of the test should show the value of the test especially since no one school found fault with the test itself.

TABLE VIII

NUMBER AND PER CENT OF SCHOOLS WHERE ENGLISH TEACHERS FOUND RESULTS HELPFUL AND EXTENT TO WHICH THEY WERE HELPFUL

	Number of Schools	Per Cent
None	8	4
Some	60	33
Considerable	78	43
Much	28	15
Very Much	10	5
Totals	184	100

The majority of minor reading-defect cases can usually be discovered and treated by an alert teacher. Remedial classes in reading are usually developed as an integral part of the school's program in English. Where there are no remedial classes the responsibility for diagnosing problems and setting up some type of instruction for small groups or individuals is placed upon the English teacher. Naturally it would be expected as the data have shown that the English teacher would be more interested and make more extensive use of the test than other teachers. Next, after the English teachers in using the results, come the history teachers, as might be expected. Next in order of teacher usage follow

the science teachers, foreign language teachers, math teachers, vocational teachers, and last the commercial teachers.

TABLE IX

NUMBER AND PER CENT OF SCHOOLS WHERE TEACHERS USED THE RESULTS OF TEST AND EXTENT TO WHICH THEY WERE CONSIDERED HELPFUL

A. History

	Number of Schools	Per Cent
None	16	10
Some	79	50
Considerable	48	30
Much	11	7
Very Much	4	3
	158	100

TABLE IX (continued)

NUMBER AND PER CENT OF SCHOOLS WHERE TEACHERS USED THE RESULTS OF TEST AND EXTENT TO WHICH THEY WERE CONSIDERED HELPFUL

B. Science

	Number of Schools	Per Cent
None	23	15
Some	82	55
Considerable	32	21
Much	11	7
Very Much	21	2
Totals	150	100

C. Commercial

	Number of Schools	Per Cent
None	38	50.0
Some	29	38.0
Considerable	5	6.0
Much	3	3.5
Very Much	2	2.5
Totals	74	100.

TABLE IX (continued)

NUMBER AND PER CENT OF SCHOOLS WHERE TEACHERS USED THE RESULTS OF TEST AND EXTENT TO WHICH THEY WERE CONSIDERED HELPFUL

D. Vocational

	Number of Schools	Per Cent
None	32	31
Some	54	51
Considerable	15	14
Much	2	2
Very Much	2	2
Totals	105	100

E. Math

	Number of Schools	Per Cent
None	34	25
Some	69	51
Considerable	18	14
Much	12	9
Very Much	2	1
Totals	135	100

TABLE IX (continued)

NUMBER AND PER CENT OF SCHOOLS WHERE TEACHERS USED THE RESULTS OF TEST AND EXTENT TO WHICH THEY WERE CONSIDERED HELPFUL

F. Foreign Languages

	Number of Schools	Per Cent
None	29	31
Some	32	34
Considerable	22	23
Much	11	12
Very Much	0	0
Totals	94	100

TABLE X

PERSONNEL USED TO SCORE TEST

	Number of Personnel	Per Cent
By one teacher	102	55
By several teachers	52	28
By all high school teachers	31	17
Totals	185	100

Some divisions gave their own instructions on recommendations specifying who was to score the test. The memorandum from the State Board of Education (printed in full in Chapter I)[3] states ".....the eighth grade English teacher will, in general, be assigned the responsibility for administering, scoring, and interpreting the results obtained from the use of the Iowa Silent Reading Test." The policy of having one teacher do all the work was carried out in 102 high schools. In 52 high schools the work was done by several teachers, and by all teachers in 31 schools. One school did not report the method used. Another school reported the use of secretarial help, while in another school the students themselves scored the test.

3 Supra., p. 10

TABLE XI

REACTION OF TEACHERS TO SCORING

	Number of Schools	Per Cent
Boring	1	.5
Teachers found directions confusing	6	3.0
Teachers regarded scoring as only routine work	64	34.0
Teachers worked with interest	5	3.0
Teachers worked with great interest	111	59.5
Totals	187	100.

The word "great" was deleted by five schools to read teachers work with "interest." Two schools, using all the teachers, checked both "routine" and "great interest" to explain different view points within the faculty. Only one school failed to answer this question.

TABLE XII

NUMBER AND PER CENT OF SCHOOLS WHO GROUPED STUDENT ACCORDING TO ABILITY AS REVEALED BY IOWA SILENT READING TEST

	Number of Schools	Per Cent
Yes	56	31
No	123	69
Totals	179	100

The most significant fact (not shown in the two figures above) was the results of all the schools who doubted or denied the improvements in reading from the use of the test (as explained in question No. 15).[4] This check demonstrates the value of grouping students wherever possible according to their ability as every school that employed this practice felt that the use of the test had been a success except three. In several schools where no grouping had been done attempts had been made in many cases to adjust the program to the ability of the students with special assignments, parallel reading, and reading on a higher or lower level than the rest of the class.

4 Infra., p. 48.

TABLE XIII

NUMBER AND PER CENT OF SCHOOLS USING OTHER TESTS TO CHECK THIS TEST

	Number of Schools	Per Cent
No	113	63
Yes	66	37
Totals	179	100

TABLE XIV

NUMBER AND PER CENT OF SCHOOLS WHO HAVE BEEN ENCOURAGED TO USE OTHER TESTS TO SET UP A PROGRAM OF DIAGNOSTIC AND REMEDIAL READING

	Number of Schools	Per Cent
No	100	58
Yes	74	42
Totals	174	100

In the 66 schools where other tests are used in conjunction with or as a check upon the Iowa Test, there were many variations, both in the names of the other tests and the relationship or comparison of results. It is a remarkable fact that no school criticised the Iowa Test as being inferior to other tests. Many schools compared the results with the results of their students on the California Test of Mental Maturity (an intelligence test). Several schools reported many very poor readers as scoring high in intelligence, but as a whole the comparison was favorable.

Some of the tests listed as being used throughout the state by one or more schools are as follows:

1. Gray's Reading
2. Readers' Digest Reading

3. Scholastic Test
4. California Reading Test
5. Achievement Test (Metropolitan, Stanford)
6. Pintner and Metropolitan Tests
7. Special Diagnostic and Classification Tests
8. McKee Language for Meaning
9. Intelligence Test (Otis, Hemmon-Nelson)
10. Sangrene-Woody Reading Test

Many schools expressed the interest, willingness, and desire to develop a more inclusive testing program, but lacked the trained personnel, time and most often, money.

TABLE XV

NUMBER AND PER CENT OF SCHOOLS WHO BELIEVE THE IMPROVEMENT FROM THE TEST JUSTIFIES THE USE OF THE TEST EVERY YEAR

	Number of Schools	Per Cent
Yes	146	80
No	35	19
Doubtful	2	1
Totals	183	100

Some of the replies are as follows:

"I feel that some improvement has been made, but without a regularly scheduled remedial class it's very hard to accomplish much."

"We have been unable to do much about meeting the weaknesses of students this year, however, we hope to do something definite next year."

"I think it serves as a motivating factor which will serve to keep more teachers reading conscious."

"In this school we give the test but do not have time the rest of the year to do anything about our findings."

"Not as an instrument to benefit the child, may give more needed information in

developing curriculum."

"Not when given only at the end of the year."

"Yes, there must be some method of analyzing a group if you are to do remedial work."

"Not in the case of this school. However, it is believed that another year these tests could be better justified."

"Shows pupils weak points and teachers can give remedial reading."

"Every third year would be my recommendation."

"One pupil gained 4.2 years, average gain 1.3 years."

"It is expected that use will increase next year."

"Yes, if we had the teaching personnel equipped to do this work."

"Don't know, all depends on teachers, their interests, and experience."

"No. However, I believe this test will prove its worth after the same teachers have used it for a number of years."

Only one high school outlined a definite plan for follow-up with the use of the advanced form of the Iowa Test in the upper high school grades. This school has a plan to use the results from the test as a basis for faculty discussion and establishment of remedial procedures to correct some of the deficiencies as shown by the test.

There was but one questionnaire returned with a completely negative response to practically all questions. The principal indicated that the teachers were bored with the work, kept test results confidential, and made no attempt to use them.

There was, on the other hand, no check list returned that the principal considered a program completely satisfactory. All schools indicated by one means or another that there was room for further improvement and that they could do more than they we doing at present. On the whole there seemed to be more awareness of the reading problem and a greater desire on the part of students, faculty, and administration to improve the type of reading instruction in the Group III High Schools.

TABLE XVI

ANALYSIS OF ANSWERS FROM QUESTIONS 11, 12, 13, 14 BY THE 37 SCHOOLS ANSWERING "NO" TO QUESTION 15

		Scored by all	By Several	By one	Total
Question 11:	Boring	0	1	0	1
	Confusing	2	0	2	4
	Routine	3	10	6	19
	Great Interest	1	3	8	12
	Interest	1	0	0	1
	Totals	7	14	16	37
Question 12:	Yes	0	2	1	3
	No	7	12	15	34
	Totals	7	14	16	37
Question 13:	Yes	0	3	1	4
	No	7	11	15	33
	Totals	7	14	16	37
Question 14:	Yes	0	5	1	6
	No	7	9	15	31
	Totals	7	14	16	37
Question 15:	Total No's.	7	14	16	37

A careful study of Table XVI will bring out several significant points. The thirty-five high schools who reported that the test was definitely not worth while in addition to two high schools who doubted the worth of the test were analyzed according to the answers that were given for questions No's. 11, 12, 13, 14. Seven out of 31 of the schools who used the entire faculty to score test failed to see the worth of the test. Fourteen of the 52 schools who used several teachers were in this group as were 16 of the 102 schools who used only one teacher. Therefore, the chances that the test results are to be used effectively or the worth of the test proven in any way seems to have little relationship to the personnel who scored the test.

From question No. 12 it is seen that only 3 of the 56 high schools who grouped students from test results did not realize definite value from doing this.

Only 4 of the 66 schools who used other reading tests answered "no" to question No. 15.

From the group of 74 high schools who have a program of diagnostic and remedial reading, only 6 answered "no" to question No. 15.

From the above figures it would definitely seem that in the vast majority of cases the high schools who used test results in any way realize improvement in instruction. The disapproval of the test in all of the 37 cases may be traced

to lack of training for teachers, lack of desire to make use of tests, or both. Those three to six high schools who grouped students according to test results or had an additional means of testing showed no higher than "some" interest on the part of the teachers. In two of these cases the principal credited the students with more interest than the teachers. In one case the reason for failure was lack of time to use the results and another principal thought every third year would be often enough to give the tests. Two hundred and two or 82 per cent of the schools were accounted for in the survey.

CHAPTER IV

CONCLUSIONS AND RECOMMENDATIONS

From the results of the questionnaires the following general conclusions can be drawn:

1. Although teachers using the test found that results were helpful in many cases, the amount of effort put forth by teachers was not high enough in proportion to the use that could have been made of the information at their disposal.

2. Efforts on the part of the administrative and supervisory staffs at school, county and state levels should be put forth to advise in and to encourage the use of tests.

3. Some definite plan of student orientation should be carefully set up and carried out so that there will be more interest in the purpose of tests and better understanding of tests by the students.

4. The questionnaire showed that a close relationship exists between the interest of the principal and faculty in testing and the interest displayed by students. In other words, whenever the principal and faculty were deeply interested that interest was reflected in the attitude of students. In the few cases where programs or plans using test results have failed the principal apparently had

attempted to set up these plans without sufficient interest from faculty and students.

5. If the teaching of reading is to improve, it seems that the greatest step will be taken in this direction when every student, teacher and administrator realizes the need for this improvement, understands what contribution or objectives he can achieve, and assumes the responsibility for doing his part.

RECOMMENDATIONS

From a careful study of the results and conclusions of the survey it seems best to divide the recommendations into five sections:

I. State Board of Education, Division of Research Planning.

A. Some information should be sent to the Divisions to be distributed to the individual schools advising the use of the results from the test.

B. Some investigation should be made to determine the reasons that caused 16 high schools not to administer the test. There should be an attempt to have every high school administer the test twice a year as directed.

C. The State Board of Education, Division of Research and Planning, should follow up from time to time in all high schools with a study similar to this one to determine if the testing program is worthwhile or a waste of time and money. The mere results of the tests (norms and percentiles) do not disclose the value of testing.

D. The State should recommend that Divisions use the assistance of college professors and college students to advise in the use of tests. If possible, the personnel of the Research Division should provide more opportunity for consulting with the local School Divisions.

II. Division Superintendents

A. Provide in every high school personnel trained in remedial reading. Encourage teachers, especially English teachers, to take summer work in testing and remedial reading procedures. Have the test administered by a teacher who is familiar with the test if there is no teacher professionally trained.

B. Set aside a day for teachers to get together, score the tests, and interpret test results. This day should be one of the planning days so that all teachers will have a part in the program and feeling their individual responsibility in reading regardless of the subject they teach. Such procedures should result in an improved reading program.

C. Set aside money to give schools a complete testing program. (One third of this money, to be spent for testing, will be supplied for the first three years, up to $200, by state funds.)

III. Principals

A. Encourage all teachers to become "conscious" of the reading situation and to participate in the program. Provide training such as movies as well as speakers to instruct teachers as to the use of test results.

B. Keep written records of all progress in reading instruction on an individual basis in the schools cumulative

folders. Conduct case conferences with faculty members and counselor when individual problem arises.

C. If remedial classes are indicated, they should carry full credit and there should be no embarrassment to pupils taking them. The administration should provide the teacher time, place, and materials to insure the success of the class.

IV. Teachers

A. Encourage each teacher to study the test results and the ways and means of improving instruction for the group and for the individual. When possible and advisable group students according to reading ability within the class or in separate sections. Realize that individual goals are limited by intelligence and other factors.

B. Follow up test with other tests, both to check results of the first test and to provide a systematic approach to diagnosing and remedying reading difficulties.

C. Instruct the students as to the reasons for giving the tests and the purposes the tests will serve.

D. Require all teachers to teach reading in their classes, thus relieving English teachers of the full burden.

E. Study each individual and each class separately as no one method has all the answers.

V. Students

A. When the recommendations have been followed by

the administrators and teachers the student has only to have enough interest in his own problems to want to do something about them. When his strengths and weaknesses as shown by test results have been explained to him he usually will want to do something for himself provided he has reading matter on his level of ability and interest available.

SUMMARY

The interest shown in testing by so many of the Group III High Schools indicates that the testing program is not now a complete failure. Although some progress has been made, much remains to be done to make the use of test results more effective. Better utilization of test results should improve the teaching of reading which is the ultimate goal of the state testing program in reading.

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APPENDIX I

IOWA SILENT READING TESTS

NEW EDITION

By H. A. GREENE
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ELEMENTARY TEST: MANUAL OF DIRECTIONS

For Forms AM (*Revised*), BM (*Revised*), CM, and DM

This revised manual for use in administering, scoring, and interpreting the Elementary Test of the Iowa Silent Reading Tests, New Edition, embodies the results of an extensive experimental program carried out in constructing two entirely new alternative forms of the test, Forms CM and DM. As a part of this program of revision the two earlier widely used forms of the test, Forms AM and BM, have been rescaled, rearranged, and otherwise revised. All four forms of the test were equated, scaled, and standardized in a rotated group experiment in 1942 for a comprehensive national population. At the same time, a similar revision and extension of the Iowa Silent Reading Advanced Test (for high schools and colleges) was carried out in Grades 9 through 12, and is fully discussed in a separate Manual of Directions.

The four comparable forms of the Elementary Test for use in Grades 4 to 8 inclusive should greatly extend the possibilities of classroom, supervisory, and clinical usefulness of these tests. The new arrangement of the subtests, the new standard scores, the revised and extended tables of norms, the improved methods of scoring and interpreting the tests, and additional suggestions for the remedial treatment of poor readers are discussed in this manual.

CONSTRUCTION OF THE TEST

The Iowa Silent Reading Elementary Test is designed to measure economically, accurately, and reliably the proficiency of pupils in Grades 4 through 8 in doing silent reading of the work-study type. Economy implies that it must be relatively inexpensive in proportion to the information it furnishes, and that its time consumption must be in keeping with the reliability of the results. Accuracy and reliability imply that it must consistently reveal the actual study and silent reading abilities of the groups of pupils for which it is designed. In the main these aims have been realized.

Every item in the four forms of this test has been carefully tried out under experimental conditions. Indexes of difficulty and of discrimination have been computed for each item, and items which did not perform properly were eliminated or were revised where elimination was not possible. The items in the several test parts are arranged in order of difficulty, and the subtests in the four forms are carefully balanced as to difficulty. Items which were over-easy or too difficult have been eliminated. In general, the percentages of pupils responding correctly to items in consecutive grades show the expected increases. As the four forms of the Elementary Test now stand, it is believed that each item contributes its share toward the correct evaluation of the pupil's silent reading abilities of the work-study type. The subtests are as long as the requirement of practical classroom testing conditions will permit. The evidence on the reliability of each of the subtests indicates that it is practicable to use the results effectively in the study of the reading difficulties of individual pupils.

VALUE AND FUNCTION OF THE IOWA SILENT READING TESTS

The aims and objectives of reading instruction in our schools have definitely shifted in recent years. A few years ago it was enough for the child glibly to *pronounce* words appearing on the printed page. Now it is considered much more important for him to be able to *comprehend* rapidly and indicate by specific reactions his understanding of the material. This is the application of a sound philosophy of education. Life situations demand an ability to grasp quickly and accurately the meaning of printed symbols. Only infrequently are we called upon to read orally. Classroom problems and many life situations also require the skillful use of books. Thus, reading is something more than the rapid perception of printed symbols and the memory and organization of materials read. It involves the abilities to use libraries and books as sources of information and pleasure.

As a means of gaining information and pleasure, reading is essential in every content subject, such as history, geography, science, and literature. In fact, progress in these subjects depends to a greater degree upon the ability of pupils to read rapidly and intelligently than upon any other single factor. Good teaching must, therefore, provide the methods and materials for the improvement and refinement of the reading habits and skills that are required in most school situations and in all life activities involving reading. By the same logic it follows that if this improvement is to be made effective, there must be reliable, accurate devices for measuring the desired abilities and identifying important weaknesses.

It must further be recognized that many reading disabilities arise in spite of what appears to be adequate initial teaching, and that prompt identification and proper remedial techniques may do much to eliminate these difficulties. The results of analytical and corrective work on silent reading rate and comprehension have been most encouraging, not only in the elementary school but also in high school and college.

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The Iowa Silent Reading Elementary Test goes far beyond the ordinary general survey of a single phase of silent reading abilities. The test is designed to cover a wide range of the skills known to be indispensable to effective reading of the work-study type. The test measures three broad general areas of silent reading abilities; namely, (1) Rate of Reading at a Controlled Level of Comprehension, (2) Comprehension of Words, Sentences, Paragraphs, and Longer Articles, and (3) Ability to Use Skills Required in Locating Information. Each of these fields is covered in a number of different ways by means of eleven different types of materials arranged in six subtests, requiring a total testing time of 49 minutes and resulting in eight different subtest scores, each with special significance.

USES OF THE IOWA SILENT READING TESTS

One of the most important functions of these silent reading tests lies in the fact that their use in a class provides the teacher with a rather exact estimate of the level of development of a number of important elements of silent reading abilities in the class, as well as with specific information in certain important skill areas concerning the limitations of the individuals comprising the class. By comparing the results obtained from a class with the norms, a clear idea of the general ability of the class in silent reading of the work-study type can be obtained. By analyzing the scores made by individual pupils on the various parts of the tests, certain of the specific weaknesses or strengths of individual members may be discovered. It is only on the basis of such an analytical approach that a really constructive remedial program can be developed.

In addition to this analytical use of the tests, they have been found to be very valuable also for grouping pupils or classes for instructional purposes. The tests, measuring as they do such a wide range of abilities in a highly complex field, naturally correlate rather well with such measures of general mental ability as the Pintner General Ability Tests, the Terman Group Test of Mental Ability, the Terman-McNemar Test of Mental Ability, the Otis Group Intelligence Scale, and the Kuhlmann-Anderson Tests of Mental Ability. The correlation of Median Standard Scores on the Iowa Silent Reading Elementary Test (results from rotated group testing, one form to each student, with all four forms entering equally into the determination of the correlation) and Median Standard Scores on the Terman-McNemar Test of Mental Ability for 156 sixth-graders in Fostoria, Ohio, was .76; for a sample of 206 seventh-graders in Concord, New Hampshire, this correlation was .74.

DESCRIPTION OF THE PARTS OF THE TEST

TEST 1. RATE AND COMPREHENSION

The accurate and meaningful measurement of rate of reading involves the control of the comprehension level at which the reading takes place. In this test the pupil is asked to read two somewhat diverse types of prose at a rate which, for him, is best for clear comprehension. The first deals with science content and the second with social studies material. For the sake of simplicity in recording rate of reading, the Rate score is expressed in terms of the total number of sentences read in one minute in each of the articles. The sentences have been numbered in each article to facilitate scoring on this basis. Comprehension exercises designed to hold the pupil to a given level of understanding of the content accompany the articles. The Comprehension scores based on the exercises for the two selections are combined into a single score to represent one of the eight subtest scores for the test. Thus Test 1 is a measure of rate of reading under specific comprehension conditions. It yields two of the subtest scores.

TEST 2. DIRECTED READING

Research shows that there is no general silent reading ability; it is a composite of many skills. One who reads one kind of material well may read another type of content poorly. The ability to read well depends to a large degree upon the nature of the passage read. Therefore, to be sure that comprehension is adequately sampled in this test, material from both the science and the social studies fields is included.

This part of the test is designed to measure the pupil's ability to comprehend general and specific situations expressed in the content without unduly stressing memory. While this test is designed to measure the ability to comprehend and answer questions of a rather detailed type, it makes a special effort to avoid pure identification or matching of words.

In the earlier quick-scoring edition of Forms Am and Bm, the selections used for measuring Rate in Test 1 were also repeated in similar form in this test of Directed Reading. The pupil thus read the same two articles twice. In the present forms the pupil is confronted with different articles on science and social studies content from an alternate form of the test. Thus in these revised forms the pupil does not reread any article encountered in the same form of the test. It is believed that this procedure results in making this test somewhat more difficult and more discriminating than was the case in the earlier edition of Forms Am and Bm.

TEST 3. WORD MEANING

Much of the difficulty that certain pupils have in studying their textbooks is due to lack of knowledge of the more or less technical words in the subject. To a certain extent pupils must be trained specifically for assimilative reading in each subject, and this training must consist primarily of development of a vocabulary in that subject.

Terminology in any subject is more than a mere list of words; it is a catalogue of the important concepts in that subject. A pupil's failure to grasp any portion of the subject matter will be indicated by vagueness regarding the meaning of the terms involved in that portion of the subject. Tests which will measure special or technical vocabulary of a school subject are tools of fundamental importance which a teacher may use in order to aid in determining the ability of pupils to study the subject efficiently.

The words on the first page of the Word Meaning Test were selected from the Thorndike [1] and the Horn [2] lists as having real social significance in reading situations.

All of the critical words on the second page of this test are limited to the fields of mathematics, science, and social studies. They have been checked against the words of the Pressey Lists [3] adjudged to be the most important and at the same time common enough in their use to warrant holding elementary school pupils responsible for their meanings.

TEST 4. PARAGRAPH COMPREHENSION

Two specific aspects of paragraph comprehension are included in this test; namely, (1) the ability to select the cen-

[1] Thorndike, E. L., *Teacher's Word Book*. Bureau of Publications, Teachers College, Columbia University, New York.

[2] Horn, Ernest, *Basic Writing Vocabulary*. Bureau of Publications, University of Iowa, Iowa City, Iowa.

[3] Pressey, L. C., "The Special Vocabularies of Public School Subjects," *Educational Research Bulletin of the Ohio State University*, Vol. 3, pages 182-185; April, 1924.

tral topic of the paragraph, and (2) the ability to identify details essential to the meaning of the paragraph. For each of the ten paragraphs of this test, item A pertains to the first aspect and items B and C to the second. For most purposes the total number of items answered correctly may be taken as the score on this test. In cases in which a more exact analysis is needed it may be desirable to check the number of A items answered correctly, and the number of B and C items answered correctly. Norms are provided only for total score.

TEST 5. SENTENCE MEANING

The sentences comprising this test are stated in such a way that in each case the meaning of the sentence as a whole must be comprehended. So far as possible, the content difficulty of each sentence has been kept on a level with the comprehensional difficulties involved. In general, the sentences are arranged in ascending order of difficulty of response. All key or basic words in the exercises were checked against the word lists of Horn and Thorndike, and the social frequency of each word was determined in connection with the formulation of these exercises.

TEST 6. LOCATION OF INFORMATION

One of the major outcomes of instruction in silent reading of the work-study type is the ability to locate information quickly and accurately in the light of the problem at hand. This test includes two major elements involved in locating information. Part A measures the ability to classify words alphabetically through the use of guide words. Part B refers the pupil directly to a simple index as a source of answers to specific questions. Each part yields a subtest score.

VALIDITY

Validity may be defined as an expression of the degree to which a test measures the qualities, abilities, and skills which it is designed and supposed to measure. Validity may be expressed statistically in terms of the correlation of the test with certain outside criteria. In general, validity may best be expressed in terms of the extent to which the test sets up situations calling into play the skills or abilities which experienced observers consider fundamental to success in the given field. Such judgments are represented by the opinions of experienced teachers, the recommendations of committees and other qualified authorities, etc.

In validating this silent reading test the major dependence has been placed upon the latter method. Logically, a valid silent reading test must duplicate a large number of the types of situations in life in which reading is used. An analysis of precisely what these situations are naturally forms a basis for the development of an effective course of study, and by the same logic provides the most defensible basis for the validation of silent reading tests.

The following is a quotation of the most significant skills, knowledges, attitudes, and abilities involved in typical silent reading situations:[1]

1. Skill in recognizing new words
2. Ability to locate material quickly
   - *a.* Knowledge of and ability to use an index
   - *b.* Ability to use a table of contents
   - *c.* Ability to use the dictionary
   - *d.* Ability to use library card files
   - *e.* Ability to use reference material
   - *f.* Ability to use keys, tables, graphs, etc.
   - *g.* Ability to skim
3. Ability to comprehend quickly what is read
   - *a.* Rhythmic and rapid eye movements
   - *b.* Absence of lip reading
   - *c.* Knowledge of meaning
4. Ability to select and evaluate material needed
5. Ability to organize what is read
   - *a.* To summarize
   - *b.* To assign topics to proper order or place
   - *c.* To discover related material
   - *d.* To outline
6. Remembrance of material read
7. Knowledge of sources
8. Attitude of attacking reading with vigor
9. Attitude of proper care of books

A comparison of this list of abilities and attitudes, upon which successful silent reading undoubtedly depends, with the list of unit skills specifically measured by the parts of the test will reveal the extent to which they represent really valid measuring instruments.

The Unit Skills Measured

The unit skills measured by the Iowa Silent Reading Elementary Test are as follows:

Test 1. Rate and Comprehension
- Science material
- Social studies material

Test 2. Directed Reading
- Science material
- Social studies material

Test 3. Word Meaning
- General vocabulary
- Subject-matter vocabulary

Test 4. Paragraph Comprehension
- Selection of central idea of paragraph
- Identification of details essential to the meaning of the paragraph

Test 5. Sentence Meaning

Test 6. Location of Information
- Alphabetizing; using guide words
- Use of index

Various Approaches to Measurement of Comprehension

The valid measurement of silent reading comprehension implies the need for sampling many different types of content and the use of a number of different techniques of measurement. In the Iowa Silent Reading Elementary Test, comprehension as related to rate is measured by a specific series of exercises following each of the reading passages of Test 1 (Test 1A and Test 1B). At a later time similar types of material of different content are utilized for a more specialized measure of comprehension in which the individual is directed in the identification of details within two long articles (Test 2). Comprehension of words, sentences, and paragraphs is also measured in separate subtests (Tests 3, 4, and 5). The ability to comprehend questions in specific situations is measured in connection with the test on the use of the index (Test 6B).

It is believed that these different approaches result in a measure of comprehension which is both valid and reliable.

[1] Adapted from an outline of reading skills compiled from many sources and given in Greene, Jorgensen, and Gerberich, *Measurement and Evaluation in the Elementary School*. Longmans, Green and Company, New York; 1942.

Subtest and Item Performance

The various subtests of the Elementary Test are included because of their low interrelationships and the relatively high contribution of each subtest to the total measure of silent reading abilities. The intercorrelations of the subtest raw scores and their correlation with the Median Standard Scores for the total test are given in Table 1.

TABLE 1. Intercorrelations of Subtest Raw Scores and Their Correlation with the Median Standard Scores on the Total Test for 206 Pupils in Grade 7, Concord, New Hampshire — Iowa Silent Reading Elementary Test: Form Am (Revised)

Test	1R	1C	2	3	4	5	6A	6B
1: Rate								
1: Comprehension	.30							
2: Directed Reading	.40	.43						
3: Word Meaning	.35	.57	.48					
4: Paragraph Comprehension	.51	.58	.65	.62				
5: Sentence Meaning	.39	.42	.40	.53	.53			
6A: Alphabetizing	.18	.29	.38	.26	.41	.24		
6B: Use of Index	.28	.40	.43	.42	.48	.34	.26	
Median Standard Score	.61	.73	.74	.75	.83	.67	.46	.60

Items comprising the subtests were selected or retained because of (1) their power to discriminate between high and low levels of the special silent reading abilities measured by each subtest, and (2) their systematic decline in difficulty in successive grades. Table 2 shows for the first selection of Test 2, Elementary Form Cm, the average per cent of failure on the twenty items comprising the subtest by high and by low ability groups for Grades 4 to 8 inclusive. The high group represents the pupils who achieved scores in the upper half of the distribution for each grade; the low group includes those who had scores in the lower half of the distribution. The table also shows the decline in average percentage of failure on these twenty items of Test 2, First Selection, for the total population used in each grade.

Another aspect of this same factor of item validity is shown in Table 3 for the first 27 items comprising page 6 of Test 3, Elementary Forms Cm and Dm. This table also shows the exactness with which Forms Cm and Dm of this subtest parallel each other in arrangement of items according to average difficulty.

Space in this brief manual does not permit the presentation of further supporting data, but similar procedures were followed in the development of each subtest of the four forms.

RELIABILITY

The reliability of a test expresses the consistency with which it measures whatever qualities it does measure. In general, a test must sample systematically and extensively the field which it measures if it is to secure reliable results. Only when this is done can it secure from the pupil tested a response representative of his true ability. This means tests of many exercises and long testing periods. It means that chance factors, such as temporary physical disturbances, fatigue, etc., will be largely eliminated from the results.

High reliability, while desirable, is not the most significant feature of a useful classroom test. In fact, recent evidence shows that it is possible to add test items to a test which will distinctly step up its reliability but will actually reduce its discriminative power. This fact, however, does not relieve the test author of the responsibility for presenting objective evidence of the reliability of a test.

TABLE 2. Average (Mean) Per Cent of Item Failure by High and Low Groups; Test 2, Directed Reading, First Selection — Iowa Silent Reading Elementary Test: Form Cm

Group	Grade 4 %	Grade 5 %	Grade 6 %	Grade 7 %	Grade 8 %
High	38.5	27.0	21.2	16.9	10.5
Low	64.1	50.5	42.8	33.2	26.0
Total	51.3	38.8	32.0	25.0	18.2
Number of Cases	242	270	276	255	223

TABLE 3. Average (Mean) Item Difficulty[1] by Form and Grade Test 3: Word Meaning[2] — Elementary Forms Cm and Dm

Items	Grade 4		Grade 5		Grade 6		Grade 7		Grade 8	
	Form Cm %	Form Dm %	Form Cm %	Form Dm %	Form Cm %	Form Dm %	Form Cm %	Form Dm %	Form Cm %	Form Dm %
1–5	22.4	22.4	16.8	14.6	9.2	10.0	6.8	8.4	3.8	3.8
6–10	53.4	52.4	40.8	38.9	26.6	24.6	17.0	19.2	9.2	14.0
11–15	64.0	66.0	54.0	53.6	37.2	38.6	30.6	29.2	20.8	20.0
16–20	74.6	75.6	70.8	67.2	57.8	58.8	50.2	49.8	37.8	44.0
21–27	83.1	83.0	79.7	79.1	78.4	76.9	73.8	70.6	64.7	60.6
All	61.3	61.6	54.4	52.8	44.6	44.4	38.5	38.0	30.0	30.9
Number of Cases	236	240	271	270	273	270	253	257	226	223

[1] Per cent of failure.
[2] First 27 items of a 54-item subtest.

The reliability of a test is ordinarily measured in either of two ways; first, by correlating the scores on one form of a test with scores on a successive administration of an alternate form of the test; or secondly, by correlating the scores on the odd-numbered items of a test with scores on the even-numbered items of the test and correcting the resulting coefficient by application of the Spearman-Brown formula to yield an estimate of the reliability of the whole test rather than of half of the test. The second method has been used here, and the reliability data thus obtained are shown in Table 4. The coefficients reported in this table are based on a 6th-grade population of 220 cases from Concord, New Hampshire, where the four forms of the Elementary Test were administered to random fourths of each class tested, one form to each pupil, and the Bm, Cm, and Dm scores were converted to Am equivalents for the reliability calculations.

Additional evidence on the reliabilities of the Elementary Test is given in Table 5 for the total national population participating in the comprehensive standardization program of 1942 (see "Standardization," page 6). The reliabilities in this table were computed by means of the Kuder-Richardson[3] formula (21), which may underestimate the true reliability but should never overestimate it. All four forms of the Iowa Silent Reading Elementary Test entered equally into the determination of these reliability coefficients, since random fourths of each testing unit took each test form, and scores on Bm, Cm, and Dm were converted to Am equivalents for the reliability calculations.

Reliability coefficients of whatever kind have one serious disadvantage. They fluctuate in accordance with the range of talent on which they are based. The probable error of measurement is a very valuable adjunct to the reliability coefficient because it is not influenced by the range of talent upon which it is based.

[3] Kuder, G. F., and Richardson, M. W., "The Theory of the Estimation of Test Reliability." *Psychometrika*, Vol. 2, No. 3, September, 1937, pages 151–160.

TABLE 4. ODD-EVEN RELIABILITY DATA BASED ON 220 CASES, GRADE 6, CONCORD, NEW HAMPSHIRE — IOWA SILENT READING TEST: ELEMENTARY FORMS BM, CM, AND DM SCORES CONVERTED TO AM

TEST	r_{11}[1]	STANDARD DEVIATION[2]	$PE_{MEAS.}$[2]
1: Rate[3]	.831	18.5	5
1: Comprehension	.683	16.9	6
2: Directed Reading	.920	16.6	3
3: Word Meaning	.858	16.9	4
4: Paragraph Comprehension	.854	19.8	5
5: Sentence Meaning	.605	19.6	8
6A: Alphabetizing	.939	16.2	3
6B: Use of Index	.814	17.3	5
Total: Median Standard Score	.930	12.1	2

[1] Corrected by Spearman-Brown formula.
[2] In terms of standard score scale.
[3] Selection A against selection B.

The probable errors of measurement for each subtest and the total are given in Tables 4 and 5. The formula used in computing these probable errors is $.6745\ \sigma_{Test}\sqrt{1 - r_{11}}$ (or r_{tt}). All probable errors of measurement reported are in terms of the standard score scale. It should be borne in mind that probable errors of measurement in terms of the raw score scale are much smaller — on the average, about one third as large as those for the standard score scale. Further discussion of the use of these probable errors will be found in the section on interpretation (page 14).

STANDARD SCORES

The purpose of subtest standard scores is to provide a method of direct comparison of scores from one subtest to another, thus facilitating the use of the Profile Chart without resorting to age or grade equivalents, which may be quite misleading when used with subtests as short as these. It also makes it possible to use the median of the subtest standard scores as the average for the whole test. This method has the double advantage of ease of computation and freedom from excessive influence of very high or very low subtest scores.

In order to give adequate mental or educational measurement, a score scale must have (1) a single origin and (2) comparable units in all parts of the scale. It is generally recognized that raw scores do not insure comparability at all points along a scale. A difference of five raw score points in one part of a scale may represent a different amount of ability from five raw score points in another part of the scale. Similarly, a difference of five raw score points at an early age may represent quite a different amount of intellectual growth from five raw score points at a later age. For each of the Iowa Silent Reading Elementary subtests, a standard score scale has been devised which uses the median of the 12-year age group of the national standardization population as the origin and the standard deviation of this age group, arbitrarily made 20 standard score points, as the unit of measurement. A standard score of 150 has been assigned to the median raw score for each subtest. For each subtest, scores on this type of scale for all age groups are thus measured from a single origin and provide comparable units throughout all parts of the scale, as well as being comparable from one subtest to another.

Age 12, including 1741 cases from 11 years 6 months to 12 years 5 months inclusive, was chosen as the most unselected age group for the Elementary Test scaling. Most of the pupils of this age should be in the grade range tested; i.e., Grades 4 through 8. Subtest raw scores for this age group were distributed and the cumulative per cents getting respective raw scores were plotted on Otis Normal Percentile Charts[7] which made it possible very quickly to convert the raw scores for each subtest into standard scores which would yield normal distributions. The standard score equivalents of the raw scores were determined from the chart, assuming a standard deviation of 20 for the standard scores at age 12 and calling the median of the 12-year-olds a standard score of 150.

TABLE 5. RELIABILITY DATA BASED ON KUDER-RICHARDSON[4] FORMULA 21 FOR THE TOTAL 1942 IOWA SILENT READING NATIONAL STANDARDIZATION POPULATION: ELEMENTARY FORMS BM, CM, AND DM SCORES CONVERTED TO AM

TEST	GRADE	NUMBER	r_{tt}[5]	STANDARD DEVIATION[6]	$PE_{MEAS.}$[6]
1: Rate	4	1614	.895	25.6	6
	5	1839	.869	21.6	5
	6	1791	.859	19.4	5
	7	1689	.856	18.0	5
	8	1901	.857	17.4	4
1: Comprehension	4	1614	.724	16.7	6
	5	1839	.728	17.1	6
	6	1791	.714	16.9	6
	7	1689	.695	16.5	6
	8	1901	.729	17.6	6
2: Directed Reading	4	1614	.839	16.5	4
	5	1839	.855	16.6	4
	6	1791	.855	17.1	4
	7	1689	.857	17.1	4
	8	1901	.882	17.9	4
3: Word Meaning	4	1614	.807	15.0	4
	5	1839	.825	16.2	5
	6	1791	.818	16.2	5
	7	1689	.830	17.5	5
	8	1901	.840	18.5	5
4: Paragraph Comprehension	4	1614	.661	18.2	7
	5	1839	.658	18.4	7
	6	1791	.693	19.1	7
	7	1689	.735	18.9	7
	8	1901	.766	18.4	6
5: Sentence Meaning	4	1614	.876	15.8	4
	5	1839	.874	16.7	4
	6	1791	.868	17.6	4
	7	1689	.865	18.2	5
	8	1901	.870	19.0	5
6A: Alphabetizing	4	1614	.861	13.2	3
	5	1839	.880	13.9	3
	6	1791	.899	16.4	4
	7	1689	.906	17.4	4
	8	1901	.914	18.0	4
6B: Use of Index	4	1614	.699	15.8	6
	5	1839	.740	16.8	6
	6	1791	.768	17.1	6
	7	1689	.813	17.5	5
	8	1901	.800	15.6	5
Total: Median Standard Score	4	1614	.949	12.7	2
	5	1839	.949	13.4	2
	6	1791	.946	13.3	2
	7	1689	.951	13.6	2
	8	1901	.953	13.6	2

[4] Kuder, G. F., and Richardson, M. W., "The Theory of the Estimation of Test Reliability." *Psychometrika*, Vol. 2, No. 3, September, 1937, pages 151–160.
[5] Calculations based on raw scores.
[6] In terms of standard score scale.

[7] These Normal Percentile Charts proved extremely helpful in many phases of the statistical work involved in the Iowa Silent Reading standardization. The chart and its uses are described in the Manual of Directions for the Otis Normal Percentile Chart published by World Book Company.

Continuity with the Advanced Test was established by means of an experiment in which 816 14-year-olds (13 years 6 months to 14 years 5 months inclusive) from several communities took Form AM of both the Elementary and Advanced Iowa Silent Reading Tests, 1939 New Edition — each pupil taking the Elementary Test first. Scores on these tests were translated into equivalent scores on the revised tests and the raw scores on the Advanced Test equated to standard scores on the Elementary Test. From this equating, the standard score equivalents of the national standardization raw score medians at age 16 were determined for the Advanced subtests. These values hovered around 166 standard score. The Elementary standard score age norm line for each subtest was also projected up to its most likely value at age 16, and since the median of these values for the nine subtests was also 166, 166 standard score at age 16 was chosen as the Advanced Test scaling median which would be most likely to insure continuity from the Elementary to the Advanced Test.

The procedure just described gives a single standard score scale for each subtest measured from the median of the 12-year-olds in units of the standard deviation of the 12-year-olds which can be used for the whole range of each subtest and for direct comparison between subtests. The underlying assumption of such scales is that the distributions of the scores in the abilities tested would be normally distributed in an unselected population if you had equal units in all parts of each scale. The standard scores should be very stable, since they were determined on the scores for all the 12-year-olds derived from testing some 8800 pupils in Grades 4 through 8 in the national standardization population, and since the performance of the standardization group was checked against a 25 per cent random sample of another population of 25,000.

Median Standard Scores for the total test were not rescaled. The observed median of the Median Standard Scores for the standardization group at the scaling age 12 was 150, the same as the value assigned to the Elementary subtest medians for scaling. The standard deviation of these scores at age 12 was 16, which is the same as the variability of IQ's for several well-known intelligence tests, such as the Otis Quick-Scoring Mental Ability Tests, the Pintner General Ability Tests: Verbal Series, and the Terman-McNemar Test of Mental Ability.

STANDARDIZATION

In the spring of 1942, 19 communities in 13 states widely distributed geographically administered all four forms of the revised Iowa Silent Reading Elementary Test to pupils in Grades 4 through 8. Fifteen of these communities tested all pupils in all five grades and eleven of these also tested all pupils in Grades 9 through 12 with the Advanced Iowa Silent Reading Test. Approximately 9000 pupils took the Elementary Test. Since all five consecutive grades were tested in all but four communities, these results should yield at least three unselected age groups. The communities in this testing were chosen at each grade level to yield an average of 100 IQ on the Terman-McNemar Test of Mental Ability. The median testing date was the eighth month of the school year.

Experimental conditions were controlled in this testing so that random fourths of each class tested took each test form — one form only to each pupil. All testing was done according to uniform directions provided by the authors and the Division of Research of World Book Company. All test booklets were returned to World Book Company for check scoring, tabulation of results on Hollerith cards, and analysis of the data.

Raw score distributions for each subtest by year-age groups and by grade provided the basic data for the standardization. Scores on Forms BM, CM, and DM were converted to their AM equivalents before making these distributions. Equivalent scores were determined on approximately 2200 cases for each test form (all grades combined) by equating percentiles on Form AM with percentiles for each of the other forms, BM, CM, and DM, and reading the equivalent scores from the lines of relation resulting.

Standard scores were established on the 1741 cases of the 12-year age group according to the procedure described under "Standard Scores." Standard scores were then assigned to equivalent raw scores for the four test forms. These standard scores are printed in the test booklets for each subtest. The standard scores have the advantage not only of being comparable from form to form but from subtest to subtest.

Percentiles were determined on the grade distributions of the experimental population for each subtest and the Median Standard Scores for the total test. These norms appear in Tables 9–17 on pages 12 and 13. These percentiles should be quite stable, for the calculations were not only based on large numbers of cases (see Table 6), but they were also checked against the revised AM equivalents of a 25 per cent random sample of scores for some 25,000 cases reported to the authors for the 1939 New Edition of the Iowa Silent Reading Elementary Test. Thus, for Grade 5, the actual calculations were based on 1839 cases, but these results were checked against a population of 5004 additional cases.

TABLE 6. NUMBER OF CASES FOR GRADE NORMS: IOWA SILENT READING ELEMENTARY SUBTESTS AND MEDIAN STANDARD SCORE

GRADE	NUMBER	25% RANDOM SAMPLE USED AS CHECK	TOTAL POPULATION USED AS CHECK
4	1614	1220	4880
5	1839	1251	5004
6	1791	1245	4980
7	1689	1231	4924
8	1901	1245	4980
Total	8834	6192	24768

Age and grade equivalents for the subtests and Median Standard Scores (see Table 18 on page 15) were determined by drawing smoothed norm lines through the age and grade medians and extending these curves upward by means of experimental data on the Iowa Silent Reading Advanced Test for the same communities. The age norm lines were continuous from the Elementary to the Advanced Test. The grade medians were determined on the same number of cases listed for Grades 4–8 in Table 6. The number of cases for the age medians is indicated in Table 7 below.

TABLE 7. NUMBER OF CASES FOR AGE NORMS: IOWA SILENT READING ELEMENTARY TEST

AGE		NUMBER
Year	Range	
9	8–6 through 9–5	223
10	9–6 through 10–5	1157
11	10–6 through 11–5	1601
12	11–6 through 12–5	1741
13	12–6 through 13–5	1712
14	13–6 through 14–5	1571
15	14–6 through 15–5	598
16	15–6 through 16–5	180
Total		8783

COMPARABILITY OF OLD AND NEW TEST FORMS

Two communities in the 1942 national standardization population — namely, Salem, Massachusetts, and Rochester, New Hampshire — administered Form AM of the 1939 New Edition of the Iowa Silent Reading Elementary Test to random halves of the pupils in each class tested, and gave the four forms of the revised test to the other half of each class — one form to each pupil — in order to furnish data for equating scores on the old and new test forms. All pupils in the five grades 4 through 8 were tested in this manner. This resulted in 1088 pupils taking Form AM of the 1939 New Edition of the test and 1057 taking one of the four revised forms. Scores on the four revised forms were all expressed as revised Form AM equivalents, and percentiles for the old and new test forms were equated to derive equivalent scores for corresponding old and new subtests and Median Standard Scores. The values resulting from this equating are presented in Table 8. The equality of Forms AM and BM of the 1939 New Edition had been previously established in 1939.

DIRECTIONS FOR ADMINISTERING THE TEST

General Suggestions to the Examiner

It is a matter of prime importance that the conditions under which the test is given be made as ideal as possible. This is not difficult to accomplish if reasonable care is taken.

The Iowa Silent Reading Tests can be given satisfactorily by any teacher or principal who is willing to adhere conscientiously to the directions and who is reasonably skillful in discipline. A few general directions will be useful.

1. Before beginning the test have the desks cleared and see that each pupil is provided with one or more *soft* lead pencils and an eraser. Have extra pencils available for emergencies.

2. Require strict attention to the directions and see that the pupils follow your instructions at once. If the group tested is large, or if the pupils are inexperienced in taking tests, a second person may act as an assistant. He should move quietly and see that changes from one part of the test to another are properly made so that all pupils may get started correctly and together on each new test.

3. The examiner should pass down the aisles and place a test booklet on the desk of each pupil, with the title page (page 1) facing the pupil.

4. All directions to the pupils should be given carefully in a tone which carries proper emphasis and suggests authority. The voice should be just loud enough to be heard in all parts of the room used for testing. The examiner should demonstrate very clearly the turning of each page.

5. Follow the directions for each test strictly and adhere rigidly to the time limits. A stop watch, while not indispensable, is highly desirable, since some of the time limits are as short as one minute. Certainly if a stop watch is not available, a watch with a second hand should be used and the time of beginning each test be recorded. DO NOT depend upon a clock whose minute hand jumps a whole minute at a time.

6. See that all pupils start and stop instantly upon the signal. The tests as well as test parts are timed separately and pupils should not be allowed to return to an unfinished test, nor should they be permitted to work ahead. Pupils should be instructed that if they finish a test before time is called, they may go over the work of *that* test and look for mistakes.

7. Before a new test is begun, make sure that each pupil has found the correct page. Watch this especially at first and when the pupils start back through the booklets on page 8.

8. During the first test the examiner should observe whether the pupils are marking too lightly or too painstakingly in the answer spaces. Try to avoid loss of time in marking the answers. A down-up-down stroke is satisfactory.

9. Ample time should be allowed for the administering of the test, so that pupils will not feel rushed or that they are being held overtime. Since the sum of the time limits of the separate tests is 49 minutes, about an hour should be allowed for the administration of the entire test.

Preliminary Instructions to the Pupils

After the booklets have been distributed to the pupils, say to them: **"Write your name, age, grade, and other facts called for on the front page. Write your name here** (Point to place.); **write plainly.** (Pause.) **Now write your age here."** (Point to place.)

Continue for the other information blanks in the same manner, pausing to allow the pupils time to fill the blanks.

After the blanks have been filled in, say: **"Listen carefully and be sure to do exactly what I tell you. Do not begin to work until I say 'Go.' When I say 'Stop,' you must stop at once. You will find at the bottom of some pages the words, 'Do not turn this page until you are told to do so,' or, 'Go right on to the next page,' etc. Be sure to follow these directions. If you break your pencil, hold up your hand and you will be given another. Are there any questions?"**

Proceed immediately to the specific directions for Test 1, unless additional instruction on the mechanics of marking the test items is desired. Some pupils may find the general scheme of marking their responses on this test quite different from other objective tests they may have used. The following suggestions are made to help them overcome this possible difficulty. This pre-test training may not be necessary for all pupils, but it will certainly prove beneficial to those who have not taken this kind of test before.

1. Write or print on the blackboard the following questions, making them look as nearly like the test items as possible. This should be done before the test booklets are given out.

X. Columbus discovered America in — 1 2 3 4
1 1513 2 1492 3 1776 4 1385

Y. Is today Sunday? ..... YES NO

Z. November is — 1 a woman's name
2 an automobile 3 the name of a month 1 2 3

2. Call attention to the questions on the board by saying: **"Here are some questions to which you all know the answers. I have put them here to show you how to answer the questions you will find in the test you are about to take. Look at question X. Since Columbus discovered America in 1492, and 1492 is the second answer suggested, I shall fill in the answer space under 2 like this.** (Fill in the space, using a down-up-down mark.) **Similarly, for question Y, since today is not Sunday, I shall fill in the answer space under 'No.' Question Z is answered by filling in the answer space under 3. Is there any question about marking your answers?"**

TABLE 8. EQUIVALENT STANDARD SCORES: IOWA SILENT READING ELEMENTARY TEST: 1939 NEW EDITION, FORMS AM AND BM, AND 1942 NEW EDITION REVISED, FORMS AM, BM, CM, AND DM

1: Rate			1: Comprehension			2: Directed Reading		3: Word Meaning		4: Paragraph Comprehension				5: Sentence Meaning			6A: Alphabetizing		6B: Use of Index	
New Edition		Revised New Edition	New Edition		Revised New Edition	New Edition	Revised New Edition	New Edition	Revised New Edition	New Edition Average [2]	Revised New Edition Total [3]	New Edition Average [2]	Revised New Edition Total [3]	New Edition		Revised New Edition	New Edition	Revised New Edition	New Edition	Revised New Edition
AM	BM		AM	BM		AM-BM		AM-BM		AM-BM		AM-BM		AM	BM		AM-BM		AM-BM	
0	0	79	14		93	12	*100*	14	91	17	90	62	152	23	23	104	33	116	24	100
1	4	81	17	17	98	18	100	16	94	18	91	63	153	23	25	104	35	121	27	107
2	7	86	20	20	103	24	105	18	96	19	92	64	155	23	27	104	37	126	30	114
3	9	88	23	23	109	27	*110*	19	98	20	93	65	156	23	28	104	40	*126*	33	120
4	12	90	27	27	114	30	110	20	101	21	94	66	158	23	30	104	42	129	36	125
7		92	30	30	118	33	114	22	103	22	95	67	159	*23*	32	*104*	44	132	40	130
9	15	94	34	33	123	35	118	23	106	23	96	68	160	25	33	108	46	137	43	134
12	17	99	37	35	128	37	121	25	109	24	97	69	162	27	35	112	48	139	46	139
15	19	102	40	37	132	40	127	26	112	25	98	70	163	28	36	115	51	141	49	143
17	21	105	44	40	136	42	129	27	114	26	100	71	165	30		118	53	143	53	147
19	23	108	47	44	140	44	132	29	117	27	101	72	166	32	38	121	55	146	56	152
21	25	*111* [1]	50	47	144	46	134	30	119	28	102	73	167	33	40	123	57	149	59	156
23		111	54	50	148	48	137	32	121	29	104	74	168	35	41	126	60	151	62	160
25	28	115	58	54	152	50	139	33	123	30	105	75	169	36		129	62	154	65	164
28		119	61	58	157	52	141	35	125	31	107	76	171	38	43	131	64	160	69	168
30	30	122	65	60	162	53	143	36	127	32	108	77	172	40		133	67	164	73	172
32	32	125	69	62	167	55	146	37	129	33	110	78	173	41	45	136	70	168	77	176
34	34	128	*73*	65	*172*	57	148	39	131	34	112	79	174	43	46	138	74	172	81	180
36	36	131	73	69	172	59	150	41	133	35	113	80	175	45		140	78	177	85	188
38		133	78	73	178	60	152	42	135	36	115	81	176	46	48	143	83	*177*		
40	38	135	85	78	185	62	154	43	137	37	116	82	177	48	52	145	88	182		
42	40	138	96	85	192	64	156	45	139	38	118	83	179	50		148				
44		140				66	158	46	141	39	119	84	180	52	55	150				
46	42	142				67	160	48	143	40	121	85	181	54		153				
48	44	144				69	163	49	144	41	122	86	182	56	59	156				
50	46	147				71	165	51	146	42	123	87	183	58	62	159				
52		149				72	167	52	148	43	125	88	184	60	66	163				
53	48	151				74	170	53	150	44	126	89	185	63		166				
55	50	153				76	172	55	152	45	128	90	186	66	69	170				
56	52	155				77	174	56	154	46	129	91	187	69	72	174				
58	53	156				79	178	58	156	47	131	92	188	72	77	178				
59		158				81	180	59	158	48	132	93	189	77	83	183				
61	55	160				83	184	60	160	49	133	94	190	*83*	92	*188*				
62	56	162				84	186	62	162	50	135	95	191	83	100	188				
64	58	163				86	189	63	164	51	136	96	193	83	110	188				
65	59	165				88	191	65	166	52	138	97	194							
66	61	167				89	194	66	168	53	139	98	195							
67	62	168				91	*197*	68	171	54	141	99	196							
68	64	170				92	197	69	173	55	142	100	198							
70	65	171				94	201	71	175	56	143	101	199							
71	66	172				97	205	72	*175*	57	145	102	201							
72		*174*						74	178	58	146	103	203							
73	67	174						76	180	59	148	104	205							
74	68	175						77	182	60	149	105	208							
76	70	176						79	185	61	150	106	211							
77	71	178						81	190											
78	72	180						83	192											
79	74	181						85	195											
80		182						86	198											
81	76	183						88	201											
82	78	185						90	204											
83		186						92	206											
84	80	187						95	209											
85	82	188						97	211											
86	83	190						100	213											
87	84	191						103	215											
88	85	193																		
89	86	195																		
90	87	197																		
91	88	200																		
92	89	*200*																		
93	90	203																		
94	91	*206*																		
94	92	206																		
94	93	206																		

Total: Median Standard Score

New Edition [4]		Revised New Edition [5]	New Edition [4]		Revised New Edition [5]	New Edition [4]		Revised New Edition [5]
AM-BM			AM-BM			AM-BM		
10		86	40		130	70		169
11		87	41		131	71		170
12		89	42		133	72		172
13		90	43		134	73		173
14		92	44		135	74		174
15		93	45		137	75		175
16		95	46		138	76		176
17		96	47		139	77		177
18		98	48		140	78		178
19		99	49		142	79		179
20		101	50		143	80		180
21		102	51		144	81		181
22		104	52		146	82		182
23		105	53		147	83		183
24		107	54		148	84		184
25		109	55		150	85		185
26		110	56		151	86		186
27		112	57		152	87		187
28		113	58		154	88		188
29		115	59		155	89		189
30		116	60		156	90		190
31		118	61		158	91		191
32		119	62		159	92		192
33		120	63		160	93		193
34		122	64		162	94		194
35		123	65		163	95		195
36		125	66		164	96		196
37		126	67		166	97		197
38		127	68		167	98		198
39		129	69		168	99		199

[1] When repeated entries occur, the value in italics is closest to point-0. For example, here 21 standard score (opposite the italicized number) on the unrevised Form AM is closer than 23 standard score to 111.0 on the revised test. The need for knowing which value is closest to point-0 usually does not arise unless you attempt to convert scores on the revised tests into scores for the earlier edition.

[2] Average of standard score on A items and standard score on items B + C.

[3] Standard score for all items combined: A + B + C.

[4] Median of six standard scores (averages on Tests 1, 4, and 6).

[5] Median of eight standard scores (each subtest separately).

Specific Directions for the Examiner

TEST 1. RATE-COMPREHENSION

PART A

Say to the class: "Turn the page and fold it back so that Test 1, Part A, is on top. This is on page 2, as marked by the heavy black number found in the upper left-hand margin of the page. Be sure that you have page 2. (Observe carefully to see that everyone has found the right page.) Read the directions silently while I read them aloud to you." (Read the directions from the test booklet.) Then say: "Ready; go!"

At the end of *one* (*1*) *minute* say: "Stop! Put a circle around the word you read last, and then continue reading until time is called. You will have two more minutes in which to read as much of this story as you can. Remember you are to answer questions about it later."

At the end of *two* (*2*) *additional minutes* say: "Stop!

"At the bottom of this page you see some words and numbers which are upside down. Turn your booklet around so that these words and numbers are at the top and are right side up, like this. (Demonstrate by rotating the booklet.) Read silently while I read the directions to you." (Read the directions from the test booklet, and explain the sample item.) Then say: "Ready; go!"

At the end of *two* (*2*) *additional minutes* say: "Stop!"

PART B

"Take hold of the middle of the test booklet where the heavy numbered arrow is and turn the entire booklet over as you would turn the page of a book (Demonstrate.) so that Test 1, Part B, is on top. This is on page 3, as shown by the large black number in the upper left-hand corner of the page. (See that all have found the correct page.) Listen carefully while I read the directions to you." (Read the directions from the test booklet.) Then say: "Ready; go!"

At the end of *one* (*1*) *minute* say: "Stop! Put a circle around the word you read last, and then continue reading until time is called. You will have two more minutes in which to read as much of this story as you can. Remember you are to answer questions about it later."

At the end of *two* (*2*) *additional minutes* say: "Stop!

"Again you see at the bottom of this page some words and numbers which are upside down. Turn your booklet around so that the words and numbers are at the top and are right side up, like this. (Demonstrate by rotating the booklet.) Read the directions silently while I read them to you. (Read the directions from the test booklet, but *not* the sample item.) Now read the sample item." (Pause.) Then say: "Ready; go!"

At the end of *two* (*2*) *additional minutes* say: "Stop!"

TEST 2. DIRECTED READING

FIRST SELECTION

"Turn the page and fold it back so that Test 2, Directed Reading — First Selection, is on top. This is on page 4, as shown by the large number in the upper right-hand margin. Be sure that you have Test 2, First Selection." (Observe carefully to see that everyone has found the right page.) Then say: "Read the directions to yourself as I read them to you." (Read the directions from the test booklet.) Then say: "Ready; go!"

At the end of *five* (*5*) *minutes* say: "Stop!"

SECOND SELECTION

"Turn the page and fold it back so that Test 2, Directed Reading — Second Selection, is on top. This is on page 5. Read the directions to yourself as I read them to you." (Read the directions from the test booklet, *not* including the sample.) Then say: "Ready; go!"

At the end of *five* (*5*) *minutes* say: "Stop!"

TEST 3. WORD MEANING

"Turn the page and fold it back so that page 6 of Test 3, Word Meaning, is on top. Read the directions silently while I read them aloud." (Read the directions from the test booklet, including the sample.) Then say: "This test is on two pages. As soon as you finish page 6, turn the page and fold it back so that page 7 is on top, and continue until you are told to stop. Time will be called at the end of page 6. If you have already started page 7, pay no attention but keep on working. If you haven't finished all the items on page 6 when time is called, go on to page 7 anyway. Ready; go!"

At the end of *four* (*4*) *minutes* say: "If you haven't already done so, turn the page, fold it back, and continue working on page 7."

At the end of *five* (*5*) *additional minutes* say: "Stop!"

TEST 4. PARAGRAPH COMPREHENSION

"Turn the page. Then turn your booklet around so that you can see Test 4, Paragraph Comprehension, at the top. This is on page 8. Watch the directions while I read them aloud to you." (Read the directions from the test booklet.) Then say: "This test is on two pages. As soon as you have finished answering the questions on page 8, go right on to page 9, and continue until you are told to stop. Ready; go!"

Watch carefully to see that everyone continues on page 9 as soon as he finishes page 8.

At the end of *three* (*3*) *minutes* say: "Be sure to turn the page and continue on page 9 as soon as you finish page 8."

At the end of *four* (*4*) *additional minutes* say: "Stop!"

TEST 5. SENTENCE MEANING

"Turn the page and fold it back so that Test 5, Sentence Meaning, is on top. This is on page 10. Read the directions to yourself as I read them to you. (Read the directions from the test booklet.) Now look at the sample."

Sample. Are all people dishonest?

"The right answer is 'No'; so the answer space under the word 'No' has been filled in.

"The remaining questions are answered in the same way. *Do not guess.* If there are questions you cannot answer, skip them and come back to them later if you have time. Ready; go!"

At the end of *three* (*3*) *minutes* say: "Stop!"

TEST 6. LOCATION OF INFORMATION

PART A: ALPHABETIZING

"Turn the page and fold it back so that Test 6, Part A, Alphabetizing, is on top. This is on page 11. Read the directions silently while I read them aloud to you." (Read the directions from the test booklet.) Then say: "Ready; go!"

At the end of (*4*) *four minutes* say: "Stop!"

PART B: USE OF AN INDEX

"Turn the page and fold it back so that Test 6, Part B, Use of an Index, is on top. This is on page 12. Read the directions to yourself as I read them aloud to you." (Read the directions and explanation at the top of Column 1.) Then say: **"Ready; go!"**

At the end of *six* (*6*) *minutes* say: **"Stop! Turn over two pages to the front of the test booklet. Close your booklets. While you are waiting for tests to be collected, fill in any blanks on the front which you may have omitted."**

Collect the test booklets at once.

DIRECTIONS FOR SCORING THE TEST

The scoring of the test is entirely objective. All tests except the Rate tests are scored by means of a perforated stencil scoring key. Detailed directions for scoring are given below. Directions for using the perforated stencil scoring keys also appear on the keys themselves.

General Directions

1. Questions are scored either right or wrong. No partial credits are given. Where two or more answers have been indicated for one item, mark through that row of answer spaces with a colored pencil before any scoring is done. *Treat double-marked items as if they were omitted.*

2. Score page 2 first *without turning the booklet around.* From this point on, *score all right-hand pages first.* This will avoid turning the booklet around until you finish scoring page 7. Then turn the booklet around and continue to score right-hand pages until you complete the last subtest on page 12.

3. The Rate score for Test 1 is based upon the *sum* of the number of sentences read in one minute in each of the two selections on pages 2 and 3 of the test.

4. The raw score on all other tests except Test 5 is the number of correct responses. The raw score for Test 5 is the difference between the number of right responses and the number of wrong ones. For a method of obtaining the "right minus wrong" score, see section 2*i* under "Specific Directions."

5. Standard scores corresponding to the raw scores for each subtest are given in a table at the bottom of the page concluding the subtest. As the raw score for each subtest is found, put a check mark after it in the table and encircle its corresponding standard score value. Later these standard scores are to be entered in the test record form on the title page of the booklet.

6. Pupils are permitted to make corrections, provided their intent is clear.

7. If a pupil does not use the correct method of indicating his answer but otherwise gives a correct response, he should be given credit.

8. Standard scores are provided corresponding to zero raw scores even though the significance of zero scores is not always clear. Median Standard Scores which are based in part on standard scores corresponding to zero raw scores on any of the subtests should be identified in some fashion on the Class Record or on the Profile Chart, if a profile is drawn, to indicate to the teacher that they do not have quite the same significance as scores based on complete information.

If any pupil has raw scores of zero on more than one subtest, individual study should be made of this pupil.

Specific Directions

1. The directions for using the answer keys are as follows:

a. Separate the two pages by cutting along the fold.

b. Before any scoring is done on a subtest scan each page and mark through with a colored pencil any row of spaces in which more than one answer is indicated. *Count double-marked items as omitted.*

c. Place the key for each test on the answer spaces for that test so that the heavy black arrow in the center of the test page shows through the large opening in the center of the key column, and the two arrows on the test booklet and the key are point to point, thus:  . Adjust the key with a slight rotary motion so that the answer spaces on the test papers show through the openings in the key. Notice the small numbers above the first and last holes in each column of the key. Make sure that the *same* small numbers appear above the answer spaces that show through these holes before starting to score.

d. Count the number of correct responses — i.e., the responses which appear through the openings.

e. The raw scores for all tests are the number right, except for Test 1, Rate (see 2*a* below) and Test 5. (See 2*i* under "Specific Directions" before scoring Test 5.)

f. Put a check mark after the raw score for each subtest in the score box provided at the end of the subtest. *Encircle* the standard score corresponding to this raw score in the same score box.

2. While the exact procedure of scoring is in part a matter of personal preference, the following steps are recommended:

a. Score Test 1, Rate, Parts A and B, first. This score is the *sum* of the *number of sentences* read in *one minute* in each of the two selections on pages 2 and 3. Get this sum by reading the number of the sentence in which a word is encircled in Part A and adding this number to the number of the sentence in Part B which has a word encircled. Put a check mark after this sum in the row marked "Rate: A + B" in the score box at the end of page 2 and encircle the standard score corresponding to it.

b. Then score Test 1, Comprehension. The raw score for this test is the total number of exercises right on pages 2 and 3, Parts A and B combined.

Score Part A, the ten exercises following the reading selection on page 2, first, *without turning the booklet around.* Note that the scoring stencil has been arranged with the perforations in the lower half of the key column for scoring Test 1, Part A, so that the responses to the exercises are scored upside down to avoid turning the booklet around.

Keep the score for Test 1, Comprehension, Part A, in mind and continue counting the Comprehension score through the exercises of Part B on page 3. Put a check mark after the total number right, Parts A and B combined, in the score box at the end of page 3 and encircle the standard score corresponding to it.

c. From page 4 on, score all right-hand pages of the test booklet first. When you have finished Test 3, Word Meaning, on page 7, turn the booklet around so that Test 4, Paragraph Comprehension, is on top. This is on page 8. Continue scoring right-hand pages until you complete the last subtest, Test 6, Part B, on page 12.

d. Put a check mark after the raw score for each subtest in the score box provided at the end of the subtest and *encircle* the standard score corresponding to it.

e. Scoring for all subtests having two pages will be simplified if the first page is folded back, so that the responses for both pages are visible at one time.

f. The raw score for Test 2, Directed Reading, is the number right for both selections combined on pages 4 and 5.

g. The raw score for Test 3, Word Meaning, is the number right on pages 6 and 7.

h. The raw score for Test 4, Paragraph Comprehension, is the total number right on pages 8 and 9 — A, B, and C items combined.

i. In scoring Test 5, Sentence Meaning, first scan the answers and count any omitted items. Record this number at the bottom of the page. Then, by using the answer key, count the number of right responses and record in the space provided at the bottom of page 10. To find the number of wrong items, add the number omitted to the number right and then subtract that sum from 27. If there are no omitted items, the number wrong will be the difference between the number right and 27. The raw score for Test 5 is obtained by subtracting the number wrong from the number right. Count any negative score as zero.

The "right minus wrong" score may be found directly from number right and number omitted by substituting in the following formula, where S = score, R = number right, and O = number omitted:

$$S = 2R + O - 27.$$

j. The raw score for Test 6, Part A, is the number of items right on page 11.

k. The raw score for Test 6, Part B, is the number of items right on page 12.

3. After all the papers in the class have been scored, transfer he standard scores to the test record form on the front page f the test. If this page is to be permanently filed, as is recomended, the recording of the scores is simplified by detaching he title page from the rest of the booklet.

There are eight (8) standard score entries to make: two for est 1 (one for Rate and one for Comprehension); one each r Tests 2, 3, 4, and 5; and two for Test 6 (one for Part A nd one for Part B).

4. Plot the standard scores on the Profile Chart by making small cross on the proper staff, using the scale at the side to cate the score. That is, on the staff for Test 1, Rate (1R), lot the standard score for Rate and on the staff for Test 1, omprehension (1C), plot the standard score for Compreension, etc. Thus there will be points located for each of the ght subtest scores for the test. Draw the profile by connectg the standard score points for each of the eight subtests.

5. The median of the eight subtest standard scores is used s a measure of average silent reading ability. This median is he average of the fourth and the fifth subtest standard scores hen the scores are arranged in rank order.

To find the Median Standard Score, slide a ruler across the rofile Chart from bottom to top, counting the points plotted r each subtest until the fourth is reached; write this down, nd also the fifth. Average these two scores; if a fractional alue results, record the next higher whole number as the ledian Standard Score. Plot the average on the Median core scale. With a colored pencil draw a line horizontally hrough the Profile Chart to show the position of the Median tandard Score. The correctness of your work may be checked y observing whether four subtest standard scores fall above nd four below the Median Standard Score line.

6. Subtest and Median Standard Scores for a class or other testing unit may be recorded on the Class Record supplied with each package of tests.

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INTERPRETATION OF SCORES

The primary purpose of a general achievement test is to determine how an individual or a group stands in relation to the population used in the standardization. A further purpose of a test with diagnostic features is to determine how the individual or the group stands in the various sub-skills measured by the test in relation to the average score. The Iowa Silent Reading Tests serve these two purposes.

The group unit, whose score is to be evaluated, may be a class, a grade within a school, or an entire grade within a community.

Percentile norms are provided to make possible the comparison of local achievement with the achievement of the standardization population, both with respect to average score and variability within the group. Percentiles corresponding to each standard score are given for each subtest and the Median Standard Score in Tables 9–17. As previously discussed, these norms for the Elementary Test were determined upon 8834 cases and checked against an additional population of some 25,000. These data represent a wide sampling of the elementary school population of the United States.

These norms may be generalized to an even wider population, however, since the cases were selected to represent a normal population according to the standards of the Terman-McNemar Test of Mental Ability; i.e., the median IQ for each grade 6–8 is approximately 100, and the distribution of IQ's is normal.

In evaluating the achievement of a group, first distribute the Median Standard Scores of the group and compute the median and the major deciles of this distribution (space is provided for this distribution on the Class Record provided with each package of tests). Then compare these values with the corresponding values in the table of percentile norms (Table 17) for the proper grade level. For example, if Community X has a median (of Median Standard Scores) in the sixth grade of 148 points, this corresponds to the 43rd percentile of the sixth-grade standardization group and is about 2.4 standard score points below the median of this group.

The percentile norms as given apply for the eighth month of the school year. Norms for any intermediate point may be obtained by interpolation. For most practical purposes, these norms may be used as end-of-year norms.

An even more desirable procedure would be to make use of a percentile graph such as the Otis Normal Percentile Chart. The distribution of scores for the local group may be plotted on this graph, making it possible to compare the two distributions at all points. Thus, account may be taken not only of the average ability in the group, but also its variability with reference to the standardization population. Most local communities will find that their scores are less variable than the standardization group, which is, of course, to be expected. The standardization group, however, provides a stable reference point for evaluating the variability of any local group, whether it be one class or all classes in a grade.[1]

When making an analysis of achievement of the group within subtest areas, distribute the subtest standard scores and find the median of each of these distributions. The percentile

[1] Additional suggestions concerning the treatment of test scores and, more particularly, the uses of the Normal Percentile Chart may be found in *Test Method Help No. 4*, "Statistical Methods Applied to Test Scores" (published by World Book Company).

rank corresponding to these subtest medians may be found in Tables 9–16. This will evaluate the achievement of the group with reference to the national standardization population.

If you wish to analyze the group achievement on the subtests with reference to achievement on the test as a whole, use the group median of the Median Standard Scores as a reference point and determine the deviations of the subtest standard score medians from it. It would be helpful to use a Profile Chart of an unused test booklet on which to plot the median scores for each of the subtests and for the whole test, in order to obtain a graphic picture — i.e., a profile of the group as a whole. Deviations should be evaluated statistically by finding the probable error of the difference between each subtest standard score median and the median of the Median Standard Scores for the group. After *statistical* significance has been established, the *practical* significance of such deviations is an administrative and supervisory problem.

To illustrate, let us consider the case where the median of the Median Standard Scores for a sixth-grade class is 148 points. Let us suppose that the median of the Test 3 standard scores for the class is 158. The deviation would then be 10 standard score points, and the problem is to determine whether this is a significant amount. In a class of 25 or more any difference greater than seven standard score points is statistically significant; i.e., it cannot be accounted for by chance or, to put it another way for the case above, if the class were to be retested with the same test, proper allowance being made for practice effect, there would be a negligible chance that the second median for Test 3 would be as low as the median [1] of the Median Standard Scores from the first testing.

In evaluating the achievement of an individual in relation to the group, a percentile rank should be assigned to his Median Standard Score by using Table 17. Thus one might find that individual A in the fifth grade has a Median Standard Score of 140. This corresponds to a percentile rank of 45, which means that 45 per cent of the standardization group in the fifth grade had Median Standard Scores of 140 or lower; or, in other words, individual A's score is exceeded by 55 per cent of the fifth-grade pupils in the standardization group.

Percentile norms for the subtest standard scores are given in Tables 9–16. From these tables it is possible to assign to each individual pupil's record his percentile placement on each of the eight cross sections of reading abilities measured by these tests.

In evaluating the achievement of an individual within the subtest areas, it is desirable also to plot his standard scores on the Profile Chart. The standard scores have been so derived as to make the units nearly equal at all levels and comparable from one test to another. (Percentile-rank units are obviously not equal from one level to another.) The specific procedu in plotting the Profile Chart is described under the section o scoring the test. When the profile has been plotted and th Median Standard Score line drawn across the chart to ind cate the typical achievement of the individual, it is possib to determine the significance of his deviation in each of th subtests. This can be done by means of the probable erro of measurement given in Table 4 or 5 for subtest standar scores. If the deviation of the standard score on a subte from the Median Standard Score for the pupil is three time or preferably four times, the probable error of measureme for that subtest at the given grade level, the deviation ma be considered statistically significant.

In order to determine whether a deviation is of *practic* significance, one must first examine the average achievemer of the individual. If his average achievement is far belo grade, a deviation in any sub-area is relatively of less impo tance, since the major problem is to raise the general achiev ment level to a level commensurate to the individual's menta ability. If the average achievement of an individual does no depart greatly from the average of his group, and if the are of deficiency is of vital importance, it then may be admini tratively desirable to give specific attention to drill within th area of weakness as indicated by the Profile Chart.

Those who desire to turn subtest standard scores or Media Standard Scores into age or grade equivalents may use Tab 18 for this purpose. This may be done either for grou medians or for individual standard scores.

Use of the Class Record

With each package of tests a Class Record is provided fo recording standard scores for the subtests and the Media Standard Score for the total test for all pupils of each clas or other testing unit. Space is provided for indicating th standing of each pupil in relation to the norms in terms o percentile rank, grade equivalent, and age equivalent; spac is also available on this Class Record for making a distributio of Median Standard Scores for the group.

SUGGESTIONS FOR REMEDIAL TREATMENT

A careful examination of the Profile Charts, percentile score grade equivalents, and age equivalents of poor readers revea in a striking manner the nature and the extent of their readir deficiencies. The peaks in the profiles are interesting bu not particularly significant. The dips and valleys, showir deviation below the norms, are significant features for th teacher interested in improving the reading-study skills of h pupils. The space limitations of this manual permit only a fe suggestions for remedial treatment of such cases.

To the extent that the skills measured by these tests repr sent important and basic abilities required in silent readir and in work-study procedures, low scores on the subtes indicate low abilities in these areas. Accordingly, a logic approach to the problem would be to increase the efficiency these skills. Deliberate coaching on the test content is ver undesirable, but the alert teacher will find many examples content material suitable for use in developing greater readir speed and more accurate comprehension of material read und acceptable speed conditions. Exercises similar in design those used in Tests 1 and 2 but differing in content may l readily prepared from subject-matter material selected fro textbooks in the social studies and the sciences as well as fro other supplementary reading sources. Vocabulary exercis

[1] The probable error of measurement of a median is given by the formula $\text{P.E.}_{M_{Md}} = 1.253\left(\frac{.6745\,\sigma\sqrt{1 - r_{11}\,(\text{or } r_{tt})}}{\sqrt{N-1}}\right)$. Since $.6745\,\sigma\sqrt{1 - r_{11}\,(\text{or } r_{tt})}$ is the probable error of measurement for a single score, this reduces to $\text{P.E.}_{M_{Md}} = 1.253\,\frac{(\text{P.E.}_M)}{(\sqrt{N-1})}$. (The probable errors for each subtest for Grade 6 are given in Table 5.) Computing this value for N = 25 for each test separately, we get the following values for the Probable Error of Measurement of the Median: Test 1, Rate, 1.2; Test 1, Comprehension, 1.6; Test 2, 1.1; Test 3, 1.2; Test 4, 1.8; Test 5, 1.1; Test 6A, 0.9; Test 6B, 1.4. If we take four times the probable error as the significant ratio, in the case of Test 4, there would be only 7 chances in a thousand that a difference as great as seven standard score points would occur as the result of errors of measurement. Since the probable errors of the remaining tests are all smaller, there would be even less chance that a difference of seven standard score points could be accounted for by chance. As the number of cases in the group increases, the probable errors decrease; hence the generalization made above.

TABLE 18. GRADE AND AGE EQUIVALENTS CORRESPONDING TO EACH SUBTEST STANDARD SCORE AND EACH MEDIAN STANDARD SCORE FOR THE IOWA SILENT READING ELEMENTARY TEST: FORMS AM, BM, CM, DM

1: RATE			1: COMPREHENSION			2: DIRECTED READING			3: WORD MEANING						4: PARAGRAPH COMPREHENSION		
STANDARD SCORE	GRADE EQUIVALENT	AGE EQUIVALENT	STANDARD SCORE	GRADE EQUIVALENT	AGE EQUIVALENT	STANDARD SCORE	GRADE EQUIVALENT	AGE EQUIVALENT	STANDARD SCORE	GRADE EQUIVALENT	AGE EQUIVALENT	STANDARD SCORE	GRADE EQUIVALENT	AGE EQUIVALENT	STANDARD SCORE	GRADE EQUIVALENT	AGE EQUIVALENT
116	1.8		109		6–5	110	1.8	8–1	91		5–10	145	6.3	11–5	107	1.9	7–3
117	1.9		114	2.0	7–1	114	2.5	8–6	94		6–2	146	6.4	11–6	111	2.3	7–8
119	2.1		118	2.5	7–8	118	3.1	8–10	96		6–4	147	6.5	11–7	113	2.6	7–11
120	2.2		123	3.1	8–4	121	3.6	9–1	98		6–6	148	6.6	11–9	114	2.7	8–0
122	2.4		128	3.8	9–0	124	4.0	9–5	101		6–10	149	6.7	11–10	116	2.9	8–3
124	2.6		132	4.3	9–7	127	4.4	9–8	103		7–1	150	6.8	12–0	118	3.1	8–5
125	2.8	6–2	136	4.9	10–1	129	4.6	9–11	106	1.9	7–4	152	7.0	12–3	120	3.3	8–8
126	2.9	6–4	139	5.3	10–6	132	5.0	10–2	109	2.3	7–8	154	7.2	12–6	123	3.7	8–11
128	3.1	6–10	140	5.4	10–8	134	5.2	10–4	112	2.6	8–0	155	7.3	12–7	127	4.1	9–4
131	3.5	7–6	141	5.6	10–10	137	5.5	10–8	114	2.9	8–2	156	7.4	12–9	131	4.6	9–9
133	3.8	8–0	144	6.0	11–2	139	5.7	10–10	117	3.3	8–6	157	7.5	12–10	136	5.1	10–4
135	4.1	8–6	148	6.5	11–9	141	5.9	11–0	119	3.5	8–8	158	7.6	13–0	141	5.6	10–10
138	4.6	9–2	152	7.1	12–4	143	6.0	11–2	121	3.8	8–11	160	7.9	13–2	145	6.1	11–3
140	4.9	9–8	157	7.9	13–3	146	6.3	11–6	123	4.0	9–1	161	8.0	13–4	148	6.5	11–8
142	5.3	10–2	*162	8.7	14–4	148	6.6	11–9	125	4.2	9–4	162	8.1	13–6	149	6.7	11–10
144	5.6	10–7	167	9.8	16–3	150	6.8	12–0	127	4.5	9–6	163	8.2	13–8	150	6.8	12–0
147	6.2	11–4	172	11.1	18–6	151	7.0	12–1	128	4.6	9–7	164	8.3	13–10	153	7.3	12–6
149	6.6	11–9				152	7.1	12–3	129	4.7	9–9	165	8.4	13–11	157	7.9	13–4
151	7.0	12–4				153	7.2	12–5	130	4.8	9–10	166	8.5	14–1	160	8.4	14–1
153	7.4	12–10				154	7.4	12–7	131	4.9	9–11	167	8.6	14–3	161	8.6	14–4
155	7.9	13–4				155	7.6	12–9	133	5.1	10–1	168	8.7	14–5	*162	8.8	14–9
156	8.1	13–7				156	7.7	12–11	135	5.3	10–4	*169	8.8	14–6	165	9.4	15–8
*158	8.6	14–0				157	7.9	13–2	136	5.4	10–5	171	9.1	14–10	168	10.2	17–4
160	9.2	14–6				158	8.1	13–4	137	5.5	10–6	173	9.3	15–2	171	11.2	18–0
162	9.7	15–0				160	8.4	13–9	138	5.6	10–8	175	9.7	15–6			
163	10.0	15–3				*162	8.8	14–4	139	5.7	10–9	178	10.2	16–0			
165	10.5	15–9				163	9.1	14–8	141	5.9	10–11	180	10.7	16–5			
167	11.1	16–5				165	9.6	15–4	143	6.1	11–2	182	11.2	16–11			
168	11.4	16–9				167	10.3	16–2	144	6.2	11–3	185	12.7	18–0			
170	11.10	17–8				169	11.3	17–4									
171	12.3	18–2				170	11.8	18–0									
172	12.7																

TABLE 18 (*Continued*)

5: SENTENCE MEANING			6 A: ALPHABETIZING			6 B: USE OF INDEX			TOTAL: MEDIAN STANDARD SCORE								
STANDARD SCORE	GRADE EQUIVALENT	AGE EQUIVALENT	STANDARD SCORE	GRADE EQUIVALENT	AGE EQUIVALENT	STANDARD SCORE	GRADE EQUIVALENT	AGE EQUIVALENT	MEDIAN STANDARD SCORE	GRADE EQUIVALENT	AGE EQUIVALENT	MEDIAN STANDARD SCORE	GRADE EQUIVALENT	AGE EQUIVALENT	MEDIAN STANDARD SCORE	GRADE EQUIVALENT	AGE EQUIVALENT
115	1.9	7–10	126	3.1	9–5	111	1.9	8–0	104	2.0	6–3	132	4.8	9–9	160	8.2	13–6
118	2.4	8–2	129	3.8	9–8	114	2.4	8–3	105	2.1	6–4	133	4.9	9–10	161	8.3	13–9
121	2.9	8–7	132	4.3	10–0	118	3.0	8–8	106	2.2	6–6	134	5.0	10–0	162	8.5	14–0
123	3.2	8–10	134	4.7	10–3	120	3.3	8–11	107	2.3	6–7	135	5.1	10–1	163	8.7	14–4
126	3.7	9–2	137	5.1	10–7	121	3.5	9–0	108	2.4	6–9	136	5.2	10–3	164	8.8	14–10
129	4.1	9–6	139	5.4	10–9	125	4.0	9–5	109	2.5	6–10	137	5.3	10–4	165	9.0	15–4
131	4.4	9–9	141	5.6	11–0	128	4.4	9–8	110	2.6	7–0	138	5.4	10–5	166	9.2	16–0
133	4.7	9–11	143	5.9	11–2	130	4.7	9–11	111	2.7	7–1	139	5.5	10–7	167	9.4	16–8
136	5.1	10–4	146	6.3	11–6	131	4.8	10–0	112	2.8	7–3	140	5.6	10–8	168	9.6	17–4
138	5.3	10–6	149	6.7	11–10	134	5.1	10–3	113	2.9	7–4	141	5.7	10–10	169	9.8	18–2
140	5.6	10–9	151	7.0	12–2	137	5.4	10–7	114	3.0	7–6	142	5.8	10–11	170	10.0	
143	5.9	11–1	152	7.2	12–4	139	5.6	10–10	115	3.1	7–7	143	6.0	11–1	171	10.3	
145	6.2	11–4	154	7.5	12–9	140	5.7	10–11	116	3.2	7–9	144	6.1	11–2	172	10.5	
148	6.5	11–9	157	8.1	13–5	143	6.0	11–3	117	3.3	7–10	145	6.2	11–4	173	10.8	
150	6.8	12–0	*160	8.8	14–1	147	6.5	11–8	118	3.4	8–0	146	6.3	11–5	174	11.0	
153	7.2	12–5	164	9.8	15–3	150	6.8	12–0	119	3.5	8–1	147	6.4	11–7	175	11.3	
156	7.5	12–10	168	11.0	17–0	152	7.0	12–3	120	3.6	8–3	148	6.5	11–9	176	11.6	
159	7.9	13–3	172	12.4	18–0	153	7.1	12–4	121	3.7	8–4	149	6.7	11–10	177	11.9	
163	8.4	13–10				156	7.5	12–9	122	3.8	8–6	150	6.8	12–0	178	12.3	
*166	8.8	14–5				159	7.9	13–3	123	3.9	8–7	151	6.9	12–1	179	12.7	
169	9.3	15–0				160	8.0	13–5	124	4.0	8–9	152	7.1	12–3	180	13.1	
170	9.5	15–3				161	8.1	13–7	125	4.1	8–10	153	7.2	12–5	181	13.6	
171	9.7	15–6				*164	8.5	14–1	126	4.2	9–0	154	7.3	12–7	182	14.1	
174	10.3	16–4				168	9.1	15–0	127	4.3	9–1	155	7.5	12–8	183	14.8	
						172	10.0	16–4	128	4.4	9–3	156	7.6	12–10	184	15.5	
						176	11.3	18–0	129	4.5	9–4	157	7.7	13–0	185	16.3	
									130	4.6	9–6	158	7.9	13–2			
									131	4.7	9–7	159	8.0	13–4			

* Grade and age equivalents beyond this point are extrapolated. The Iowa Silent Reading Tests were given to the standardization group in the ghth month of the school year, and the highest grade tested with the Elementary Test was the eighth, in the eighth month. Values herein for Grade 9 obably correspond rather closely to the values which would have been obtained by using the test in this grade, but beyond the ninth grade, grade and e equivalents are given for convenience only and have no intrinsic meaning.

in important subject fields may be constructed along lines similar to those used in Test 3. Drill on the comprehension of paragraphs may also be developed from supplementary sources, as booklets and magazines. Such exercises should improve low abilities revealed by Test 4. Sentence exercises based on subject matter suggested in course work will develop the types of vocabulary and sentence comprehension measured by Test

Drill materials and workbooks in silent reading may secured from many different sources. Teacher-made exercise closely paralleling the type of content used in the tests a utilizing similar if not identical testing techniques, will found to be very economical and effective remedial instrument

VITA

VITA

William Young Manson was born August 21, 1927 at Warfield, Virginia in Brunswick County. His boyhood life was spent on the tobacco farm of his father.

I. Major formal educational experiences:

1. Primary Grades 1-4: Warfield School
2. Elementary Grades 5-7: Alberta School
3. High School 8-11: Alberta High School, from which he was graduated at the head of his class in 1944.
4. Undergraduate Work: Randolph Macon College, (1944-1949) member of Pi Gamma Mu, National Social Science Honor Fraternity. Football and baseball, 1944-1945. A. B. Degree with English Major, 1949.
5. Summer school at University of Richmond 1949, 1950, 1951 leading to the degree of M. S. in Education.

II. Military Service:

United States Army Air Corps Reserve as Aviation Cadet, 1944, active duty 1945, discharged 1946.

III. Professional Experience:

Taught English, Spanish, and Biology; coached basketball and baseball at Battlefield Park High School from February 1949 until June 1951.