

A STUDY TO DETERMINE THE DIFFERENCES IN GAINS
IN READING ABILITY BETWEEN TWO METHODS
OF INSTRUCTION IN LANGUAGE ARTS

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OF INSTRUCTION IN LANGUAGE ARTS

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CHAPTER I

INTRODUCTION

In recent years, many junior high schools have been supplementing their curricula by initiating remedial and developmental reading programs. The ability to read well seems to be closely related to success in school. Students whose reading level is retarded by one or more grades often face increasing difficulty and frustration as they come in contact with the junior high school curriculum. Tieg (8, p. 2) stated, "Our curricula are so organized that, for most children, reading is the major tool of learning. . . . Failure to read adequately produces not merely slow readers, but a variety of other forms of maladjustment."

The aims and the objectives of reading instruction seem to have definitely changed in recent years. Greene and Kelly (2, p. 1) stated:

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 understandings of the material. . . . Life situations demand an ability to grasp quickly and accurately the meaning of printed symbols.

In regard to the schools' meeting the changing objectives of reading instruction, Oswalt (5, p. 17) said:

The usual procedures in handling these reading disabilities at the secondary-level range from doing nothing at all to employing a trained reading specialist. Some systems unload all the reading cases on the English teacher, who teaches a course in Remedial English one to three times a week. Others schedule Reading Improvement, Corrective Reading, or Remedial Reading classes under the supervision of a trained or untrained person.

Hunt (3) described some of the approaches that have been applied to reading problems as follows:

In the past we have applied many palliatives to this situation. We have urged secondary-school English teachers to teach elementary-school reading, a subject for which they have had little or no formal training. We have tried to secure texts more in accord with retarded reading ability. We have attempted a more oral type of instruction for these students who cannot absorb enough from the printed page. We have given passing marks to youngsters who did their best under these conditions in the pious hope that at least the "exposure" to a subject would be of value.

What does all this amount to except sweeping the reading problem under the rug? How can teachers tackle a complicated subject like reading without adequate preparation (3, p. 89)?

In regard to the scope and the personnel responsible for the reading program, Parker (6) said:

Improvement of reading and study skills is needed not only by retarded students but also by the average, the superior and the gifted. If this need is to be filled, it will have to come through the regular classroom teacher of regular English, social studies, or other subjects as a normal part of class work.

Parker (6), who is the author of the SRA Reading Laboratory, described the reading laboratory as being able to help secondary grade students with ". . . the improvement of reading and study skills through their regular classroom teacher

even though such a teacher may lack specialized training in the teaching of reading."

The main problem confronting the junior high school administrator seems to be in deciding which program or method of reading improvement is the better program for the local school. It seems rather doubtful that any one method could be equally effective in improving the reading ability of all students. The reading program used in the junior high school should be one that has been experimentally tested with the local students and has proved to be an asset to the school program. This seems to be one of the most effective ways of developing a reading program that will meet the needs of all students.

Statement of the Problem

The purpose of this study was to determine the differences in gains in reading ability for two seventh-grade groups taught by two different methods of instruction in language arts. The two methods were: (1) instruction with a reading-improvement program utilizing the SRA Reading Laboratory, and (2) regular instruction in language arts. The effectiveness of these two methods of instruction was determined for four intellectual levels, as well as the two total groups.

Significance of the Study

The significance of this study lies in the fact that two groups of seventh-grade students, each taking a different program of reading instruction during the school year, were compared to determine whether there would be a difference in the improvement of their reading ability.

If it is found that there is no significant change in the reading improvement of the experimental group, taking the experimental program of language arts instruction, over the reading improvement of the control group, taking the regular program of language arts instruction, then this study will suggest that the regular instruction in language arts provides a reading program as good as the SRA reading-improvement program.

If it is found that there is a significant change in the reading improvement of the experimental group, taking the experimental program of language arts instruction, over the reading improvement of the control group, taking the regular program of language arts instruction, then this study will be of value to school systems in their approach to the improvement of reading for seventh-grade students.

In attempting to meet the reading needs of all the seventh-grade students, the administration of the Denton Public Schools provided an opportunity for all seventh-grade students to participate in a program of reading improvement

using the SRA Reading Laboratory. For this reason, it was of vital importance to the Denton public school system, and to other school systems of comparable size, to know what happened to students during their participation in this program.

Hypotheses

The hypotheses for this study were as follows:

1. The difference between the mean change in the reading achievement of students who participated in the reading-improvement program and the mean change in the reading achievement of students who participated in the regular language arts program would vary from one intellectual level to another over the first semester of school.
2. The main effect for all students who participated in the reading-improvement program would be significantly greater than the main effect for all students who participated in the regular language arts program over the first semester of school.
3. The gain in reading achievement of students whose Non-Language I.Q. exceeded their Language I.Q. by ten or more points, and who participated in the reading-improvement program, would be significantly greater than the gain in reading achievement of students whose Non-Language I.Q. exceeded their Language I.Q. by ten or more points but who participated in

the regular program in language arts (a) over the first semester and (b) over both semesters of the school year.

4. The difference between the mean change for students who participated in the improvement program the first semester and the regular program in the second semester, and the mean change for students who participated in the regular program the first semester and the improvement program in the second semester, would not vary from one intellectual level to another when the effects of both semesters were considered.

5. The main effect for all students who participated in the reading-improvement program the first semester and in the regular language arts program the second semester would not be significantly greater than the main effect for all students who participated in the regular language arts program the first semester and in the reading-improvement program the second semester, when the reading achievement of both semesters was considered.

Definition of Terms

For the purpose of this study, it was necessary to define the following terms used in the study:

1. The language arts reading improvement program used the SKA Reading Laboratory, which was composed of multi-level reading materials, ranging from third-grade level of difficulty through twelfth-grade level of difficulty. The SRA Reading Laboratory was designed to fit into the regular

curriculum in whatever course may have been chosen for it (7, p. 4). In the Denton Junior High School, the language arts course was designated as the appropriate class period for using the Reading Laboratory. The seventh-grade students who participated in this program during the fall semester were referred to as the experimental group.

2. The regular language arts program was composed chiefly of reading, spelling, grammar, and composition. This program used the regular textbooks which were supplied by the state of Texas and designated for seventh-grade language arts. The students who participated in this program were referred to as the control group.

3. CTMM was used to refer to the California Test of Mental Maturity, which was used to equate the two groups according to intelligence levels. This mental maturity test yielded three intelligence quotients as follows: Language I.Q., Non-Language I.Q., and Total I.Q.

4. CAT-RS, Form X, Y, or W, was used to refer to the California Achievement Tests Reading Section. The equated test Forms X, Y, and W of the California Achievement Tests used the same answer sheets, the same scoring stencil, and the same percentile and grade placement norms. The data obtained by using these tests were used to determine whether or not there was any improvement in the reading achievement.

5. Measured Intelligence was used to refer to "mental ability as defined in terms of test scores," (1, p. 222) and in this study was used synonymously with the term "intelligence."

6. Main Effect was used to refer to the simple average of the simple effects for all levels of the control variable (4, p. 15).

Limitations of the Study

This study was limited to approximately 300 seventh-grade students enrolled in the Denton Junior High School in either the reading-improvement program or the regular program in language arts.

Basic Assumptions

The following basic assumptions were made relative to this study:

1. The students used in this study were representative of all seventh-grade students who had completed the seventh grade in the regular language arts program.

2. The four teachers used in this study were equally competent in regard to qualifications for employment and certification in the state of Texas. This study did not depend entirely upon these teachers' being equally competent because (1) each teacher taught the same students during both methods of instruction, and (2) the SRA Reading

Laboratory was said to be effective in the "improvement of reading and study skills even though the teacher may lack specialized training in the teaching of reading" (6).

Treatment of Data

The experimental plan used in the treatment of data was the analysis of variance treatment by levels design. The F ratio was used to test hypotheses one, two, four, and five. The t test was used to test hypothesis three.

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CHAPTER II

RELATED LITERATURE

In the past there have been many uninformed and exaggerated criticisms made about the reading programs in the public schools. For many years, teachers and administrators have been aware of the facts that academic success is largely determined by reading ability and that reading is a continuous process of development. All secondary school personnel are familiar with the many problems created in the high school by poor readers.

A general survey of the literature revealed that there was voluminous material on all phases of reading. The related literature for this study will be limited to the remedial, the corrective, and the developmental aspects of reading programs used in various secondary schools. The reading programs in various secondary schools as reported in recent studies seem to emphasize the importance of (1) the general aspects of the reading program, (2) the mechanical devices which aid in developing reading skills, (3) the methods and materials used in the reading program, (4) reading programs for the superior readers, and (5) the importance of the teacher and the staff in an effective reading program.

Traxler (28) stated that, historically, remedial and corrective reading programs in the junior and senior high schools evolved in great numbers in the late 1920's and the 1930's. The number of experimental studies concerning high school reading programs during this period was large. In recent times, the amount of experimental studies in reading with high school students has been less; however, there now seems to be a considerable amount of interest in experimentation with methods of teaching reading at this level.

General Aspects of the Reading Program

In many schools, the remedial reading program has become a regular part of the school curriculum. In 1949, Witty and Brink (30) made a study of the extent to which remedial programs were offered in high schools. A questionnaire report was obtained from 109 secondary schools. It was found that ninety-seven of these schools had remedial reading programs. The report suggested that more emphasis be placed on individual needs in order for better results to be obtained from the remedial program. It was also recommended that more comprehensive programs be provided and co-ordinated with a developmental reading program.

Many secondary schools, in recent years, have been initiating remedial and developmental reading programs in ever-increasing numbers. Zaeske (32, p. 31) stated that

there were two main reasons for the inauguration of reading programs in the junior and senior high schools:

First, the comprehensive high school must make provisions for students of low ability whose reading skills are seriously deficient. Second, it has been found that the average and superior students make impressive gains in reading through an organized program.

In his preliminary report on the American High School, Conant (9, p. 55) stated, "A school could hardly be considered even satisfactory without a remedial program, but a developmental reading program for those of medium or high ability is something that is just coming in."

Traxler (26, p. 1) classified students who were retarded in reading into two general categories: (1) students whose difficulties are remedial in nature, and (2) students whose difficulties are corrective. These remedial students require the use of unusual methods and techniques, individual attention, and guidance in overcoming their handicaps. The majority of the other students will profit by corrective teaching or group procedures. Individual instruction is given only in cases that do not respond to group teaching.

Traxler (27, p. 66; 28, pp. 87-88) stated, "The term 'developmental reading' is a comparatively new one in educational literature. . . . A developmental reading program involves adequate provision for the reading growth of all pupils in an attempt to keep all individuals reading up to their capacity." The developmental reading program is

designed for the superior, the average, and the poor reader. Developmental programs of reading do not terminate at the end of the sixth grade, but should provide for the improvement of all students throughout the junior and senior high schools and possibly into the junior college.

Townsend (25, p. 64) stated that with the emphasis on the new developmental reading programs, it is doubtful that the necessary research and publications have kept up with this new undertaking. She said that some authors seem to assume that "certain generalizations based on long study of elementary school programs can be carried over with equal soundness to the higher grades. Such generalizations should be checked experimentally and rigorously." Traxler (28, p. 88) stated in his review of reading studies from 1945 to 1953, "There was comparatively little actual research on the values of developmental reading during this period."

The reading program used in the Shafter High School, Shafter, California, has been reported by Jensen and Stone (16). They stated that one of the main handicaps to the reading program at the secondary level is the recruitment of qualified personnel. The program of reading in Shafter was organized to operate in three areas: remedial reading, developmental reading, and assistance to other members of the faculty. The program was administered by a full-time director.

The developmental program was designed for the average and the superior students who expected to continue their formal education beyond the high school level. This group was given classroom instruction in reading for one hour per day, five days a week, for a period of eight weeks. The developmental program was based upon individual needs as revealed by the use of test results. Work was done in the following areas: basic skills of word attack, vocabulary, comprehension, finding information, and phrase reading. One main emphasis of this program was placed on these types of reading: interpretive, critical, skimming, and recreational; another emphasis was on study habits. The reading specialist spent half of his time with this group of students. The Iowa Silent Reading Test was used to reflect the gains of this program. It was reported that this group made an average gain in reading ability of 21.5 percentile points. The median score for the group showed a gain from one to one and one-half grade levels.

The remedial reading program in Shafter contained forty-eight students who were considered to be slow readers. The classroom procedure for these students was based upon individual needs as determined by standardized tests. The classroom activities consisted of the basic fundamentals of reading taught by the laboratory technique. The basic emphasis was placed upon word perception and enrichment, increasing reading

speed, increasing comprehension, and becoming a mature reader. During the entire program, the student was kept informed about his progress by self-administering tests which were used to plot individual progress. The final retest for this remedial group showed that the average gain was nearly one full grade level in about seven weeks of remedial reading instruction.

The portion of the reading program devoted to the assistance of the faculty was concerned with an eventual school-wide reading program in which every teacher would be familiar with the various aspects of a reading improvement program.

In regard to the importance of the teacher in a secondary school reading program, Shepherd (21, p. 3) stated:

The classroom teacher is the key person in the teaching of reading at the secondary level. Through each content area the teacher occupies the focal point. Remedial programs that operate apart from the work in the other classrooms do little more than a "patch-up job." If there is no co-ordination between the work in the classroom for the content areas and the remedial program, it is entirely conceivable that the philosophies and methods of the two programs can be diametrically opposed.

Barry and Smith (1) studied the effects of eight different methods of reading instruction in the Rochester, New York, public schools. They divided 2,166 ninth-grade students into eight groups; each group contained above-average, average, and below-average students. The pre-test used was the Nelson Silent Reading Test, Form A. The post-test was the Nelson Silent Reading Test, Form C. There were no control groups

established. The gains were expressed in terms of grade equivalent norms of the test publisher. The length of the experiment was seven weeks. Some of the groups read only timed articles from the Reader's Digest; others saw only reading films and answered questions, while others had some combinations of both. One of the groups used timed articles from the SRA Better Reading Book II and another group used timed articles from Let's Read. Seven hundred twenty-nine students received no special treatment. The investigators found that the gains made without the use of films were similar to those made by the groups that did see films. The group which received no special treatment made as much improvement as did most of the other pupils who received some special training.

The implications of this study for classroom procedures seemed to imply that the more critical factors in improving the reading ability of students are (1) the centering of attention of the classroom teacher on reading improvement of the pupils, and (2) the centering of attention of each pupil on the possibility of his own self-improvement in reading.

All the methods used in this study were reported to be effective in improving the reading ability of students. In order to accomplish effective reading improvement in the secondary school, it was suggested that a systematic, planned procedure is necessary.

Mechanical Devices Used in Reading Programs

Blough (5) described the developmental reading laboratories used in the high schools of the Indianapolis Public Schools, Indianapolis, Indiana. The specific types of training devices used in the developmental laboratory were the Shadowscope Reading Pacer, the Iowa Reading Films, and Better Reading Books from the Science Research Associates. A library of interesting teenage books is provided as supplementary material. The special training devices and materials are not used in the regular classroom. The activities of a typical laboratory session would include a reading film with a study of its vocabulary, comprehension-check questions, and a period of free-choice reading at the Shadowscope Pacer. The record of the student's progress was kept in his folder.

In this study 324 students were given training on these specific training devices, during fourteen actual training sessions. A control group of 283 students, who participated only in the regular English, took the same tests with the following results: the experimental group experienced a gain of 24.6 per cent in reading speed and 7.5 per cent in comprehension, while the control group had gains of 2.2 per cent in reading speed and 3.1 per cent in comprehension.

The gain experienced by the experimental group participating in the developmental reading laboratory was attributed to the faithful, regular practice in reading, testing, recording, and evaluating.

Wilson and Leavell (29) reported an experimental study conducted in the Highland Park High School, Highland Park Independent School District, Dallas, Texas. The study was to determine the relative value of different methods of reading instruction at the tenth-grade level. The methods used were (1) two mechanical devices, the Keystone Tachistoscope and the SRA Reading Accelerator; (2) a direct approach to teaching reading; (3) a guided free reading program; and (4) a certain prescribed course of study. The number of students participating in the study included 290 tenth-grade students. The data obtained from one reading test did not favor any particular method of instruction within either the normal or the superior I.Q. range of students. The results obtained by using a second test favored the groups that were using the tachistoscope, the pacer and tachistoscopic training, the direct approach, and the prescribed course of study over the groups who had pacer training and guided free reading.

The accelerator seems to be of value, when used alone, to increase the speed of reading, especially the reading of narrative material.

Jones (18) also reported a study in which a Reading Rate Controller and a Reading Rate Accelerator were used. These machines were used as an integral part of a remedial reading program with twenty high school tenth-graders of average and above-average ability. The results indicated positive gains

but the improvement was not attributed completely to the machines.

Torney and Patterson (24) described the developmental reading program of the Needham Senior High School, Needham, Massachusetts. The four aims of the developmental reading program in Needham were: (1) to raise the level of comprehension, (2) to increase the speed of reading, (3) to improve vocabularies, and (4) to develop effective study habits.

The developmental reading program met two times per week, and the classes were limited to twenty students. Two classrooms were provided to house the teaching materials. One classroom contained the ten reading accelerators, film projectors, and tachistoscope. The other classroom contained the drill and textbook materials used in the program.

The developmental reading program was first tried in the spring of 1957 with a group of seniors and later with underclassmen. The reading growth as measured by tests revealed that after ten and one-half clock hours of instruction, the senior group raised their median from 59, nine points above national norm median, to 84, thirty-four points above the national norms; the junior group raised their median from 38, twelve points below normal, to 60, ten points above normal; the sophomore group raised their median from 29, twenty-one points below average, to 40, only ten points below average. The combined groups raised the median from 49 to 79. The

great success of this program was attributed to the excellent equipment and ample reading materials.

Karlin (19) has summarized some of the conclusions of recent studies concerning machine-centered reading programs versus "natural reading" programs. He cautiously concluded that, although not all the facts are yet available, it seems reasonable to suggest from the information at hand that monies which have been spent for the purchasing of reading machines could have been used for other purposes.

Methods and Materials of the Reading Program

Young (31) stated that reading in the New York City school system, is considered to be a job for all teaching personnel. The improvement in reading in New York is the responsibility of the elementary school, junior high school, and senior high school. Each school level is expected to develop a reading program suited to its special needs.

In all the junior high schools, one class period per week was used for teaching specific reading skills and study habits. In each of the subject areas, half of the class period was devoted to teaching reading within that subject. In the junior high school reading program, the results of reading tests, teacher judgment, and cumulative records were used to group the students for remedial instruction.

In the remedial reading program, small groups of students met with the teacher separately and apart from the regular

classroom situation. Some of these student groups met every day; others met two or three times a week.

The remedial teacher worked very closely with the regular classroom teacher. The remedial teacher also served as a consultant to the teachers by demonstrating techniques, discussing reading problems with the faculty, selecting desirable reading materials, planning exhibits, and often conferring with parents about their children. The evaluation of the reading program involved a continuous process of achievement tests and teacher observations.

In the New York senior high schools, the English teachers take the lead in providing instruction in the basic reading skills. The program is broad and seeks to develop good habits of reading, to improve the students' power of discrimination in selection of materials, to help the student gain an appreciation and enjoyment from good writing and literature, and to develop deeper understanding of good thinking and better living. Teachers in other subject areas are also responsible for supplementing the efforts of the English teacher by helping to develop the reading skills required in their fields.

A special remedial program was provided for the severely retarded high school reader. In this special program, daily instruction was not devoted exclusively to reading, although reading received major emphasis. The remedial program was based upon two class periods of instruction daily. A variety

of techniques was used, and special materials consisted of simplified versions, supplementary texts, trade books, magazines, and mimeographed materials.

Progress of the reading program is said to be dependent upon (1) special emphasis and co-operative efforts from the total staff, and (2) the development of a varied but practical collection of reading materials.

Swenby and Zielsdorf (22) also reported a high school remedial reading program involving English teachers. The program was used with three tenth-grade classes by the teachers of regular English. The program emphasized the speed of reading, phrase reading, word recognition, increasing eye-span, developing comprehension, building vocabulary, and learning to use contextual clues to discover the meaning of words. The results revealed that 75 per cent of the students made gains of from two to five grade levels.

Johnson (17) reported that the high schools in Butte County, California, had attempted several times to begin a reading program, but that none of the programs had lasted any length of time. The main reason for their failure was attributed to the lack of trained personnel. The reading program had largely been left to the initiative and ingenuity of the regular classroom teachers.

Many high schools do not have the financial resources needed to provide reading specialists. In such cases, the

regular classroom teachers have to take the responsibility for the reading program if one is to be provided for the students. The material used by the teachers who are administering the reading program needs to be usable by the regular classroom teacher, easy to handle, suitable to time requirements, and adaptable to subject areas and other learning materials.

Five high schools in Butte County decided to use a packaged program of reading materials produced by the Science Research Associates. These materials were to be used as a developmental reading program in connection with appropriate practice exercises. The main emphasis of the program centered around the SRA reading books and the progress folders. Other simplified materials, Reader's Digest, and Scholastic were used by the teachers for practice exercises.

The curriculum co-ordinator of the Butte County schools introduced the programs to each class in all the participating schools. He served as a consultant to the teachers and assisted in locating practice materials. He not only administered the pre-test and the post-test, but also tabulated and reported the test results.

The 276 students in the ninth grade who participated in the SRA reading program had an average I.Q. of 100.6. The pre-test revealed that they were at the 25 percentile in rate and at the 17 percentile in comprehension. The post-test

showed that they were at the 57 percentile in rate and at the 24 percentile in comprehension.

The seventy-two students in the ninth grade who did not participate in the SRA reading program had an average I.Q. of 101.4. The pre-test revealed that they were at the 40 percentile in rate and at the 31 percentile in comprehension. The post-test revealed that they were at the 35 percentile in rate and at the 25 percentile in comprehension. Johnson (17, p. 210) stated:

The data on the small sample of students who did not participate indicate that, if no specific attention is given to reading on the high school level, many of the students may make little or no progress, or may even retrogress in reading skills.

Johnson suggested that the SRA reading books may be used in a class where there is a wide range in reading ability, but indicated that they are not adequate in meeting the needs of the extremely slow reader. They seem to be of more value in motivating and improving reading skills. The principal weakness seemed to be inadequate helps and not enough appropriate practice exercises. Johnson seemed to feel that this need has been met by the SRA Reading Laboratory Kit. The most gain in reading ability seemed to be made by classes in which the teacher realized the importance of reading and was convinced that a reading program was necessary.

Bond (6) described the reading program that was in operation at the Germantown Friends School in Philadelphia.

The organization for instruction was based upon the student's ability and his specific reading needs. The size of the reading group never exceeded five students. The students were placed in groups according to their specific needs in the areas of vocabulary enrichment, comprehension skills, and reading rate. Instruction in reading was scheduled for twice each week for a period of fifty minutes.

The reading program stressed sound study habits in each group of students. Under careful supervision, each student using his own textbook was given practice in the following skills:

1. How to read a textbook.
2. How to master a chapter.
3. How to make good notes.
4. How to remember what is read.
5. How to budget time.
6. How to prepare for and take examinations.
7. How to read a novel (6, p. 340).

Students weak in vocabulary were encouraged to make vocabulary cards for new words with several synonyms placed on the back side. Vocabulary games were also used as a part of classroom instruction. Extensive reading was done each day from interesting materials.

Students with poor comprehension skill received extensive practice in selecting the main ideas in paragraphs, locating topic and summary sentences, using transition words to gain understanding, organizing important ideas into logical order, skimming for specific information, identifying key words, and

reading for details. The students' speed in reading was developed after they had a strong vocabulary and good comprehension. The daily lessons for each group contained some group and some individual activities. The instructor attempted to give as much individual guidance and instruction as possible.

This reading program tended to avoid the mechanical devices for the improvement of reading. The reading material for this program included a wide variety of books rather than a large number of the same book. Students selected their own reading materials. Workbooks were sometimes used, but with discrimination, to give students specific practice in special kinds of reading situations.

The duration of the instruction was scheduled for an indefinite length of time. The students' daily progress was recorded on graphs, and standardized tests were given periodically. The reading teacher was responsible for determining whether or not a student had made sufficient progress to compete successfully in his group. When this stage was reached, the student discontinued instruction.

The Iowa Silent Reading Test was used before and after the reading instruction. The results showed an average gain of twenty-two months per student. Some students scored lower on retest than on pre-test. Others gained only one month after twenty-one class periods. Some gained from eight to forty-eight months.

The results of three years of work indicated that a reading improvement program can be effective and that it can bring worthwhile reading improvement and study habits to students in the junior high school.

Blayne (3) reported a study concerning the retention of skills acquired in developmental reading programs. From test-retest results for fifty ninth-, tenth-, and eleventh-graders who participated in the developmental reading program, he concluded (1) that the speed of comprehension could be built rapidly in a relatively short time, and (2) that once reading improvement was acquired and recognized as important by the student, it tended to persist at its higher level or to increase.

Hogg (14) stated that modern educators recognize that there is a need for an adequate reading program at the junior high school level. It has been demonstrated that many students from grades one through college need help in reading improvement. The reading program should include the retarded, the accelerated, and all students who are in between these two extremes. He discussed the reading program of the El Dorado Junior High School in El Dorado, Arkansas. The reading improvement program in El Dorado began in the sixth grade. The approach used was described as the "differentiated approach in which pupils were grouped within heterogeneous classrooms according to their reading achievement determined by giving

informal reading inventories" (14, p. 73). In the seventh grade, the language arts instruction was increased from one hour per day to one hour for reading and spelling, plus one hour for English and writing. The eighth- and ninth-grade students who were slow readers were placed in special language arts classes. The students were provided with materials at their reading level and were permitted to progress at their own rate. The reading program was said to depend upon the interest and concern of the principal and teachers working together to serve the needs of the junior high school.

Cooper (10) described the seventh-grade reading program in Pratt, Kansas. The Iowa Silent Reading Test, Form CM, was used to determine the reading level of the pupils at the beginning of the program. The seventh-grade students were placed in six classroom sections according to their reading ability. The first section was the poor readers, and the sixth section was the gifted readers. Each of these two sections contained twenty pupils, while the third and fourth sections were near twenty-five. The teacher who instructed the lower three groups was especially trained in remedial reading. The materials used with group one, the poor readers, consisted of the Gates-Pearson Practice Exercises Reading Booklets, Basic Sight Vocabulary Cards, Group Sounding Game, and The Reader's Digest Reading Skill Builder, for grades three to six.

The Iowa Silent Reading Test, Form AM, was given at the close of the twelve-week reading program. The results for the poor readers indicated that the highest student made a gain of 2.6 grades, while the lowest made a gain of 0.1 grade, with the median gain for the group being 1.0 grade.

The reading program for the more able students followed a somewhat developmental program in which the students were encouraged to improve their reading habits. Speed and comprehension were stressed. Several reading tests were given each week, and the students kept their own record of results. The regular English texts were used in conjunction with library books and the dictionary. The librarian worked very closely with the reading teacher in assisting students to choose books on their reading level.

The results of the tests given at the beginning and the end of the twelve-week program showed that the highest pupil made a gain of 4.0 grades, the lowest pupil made a gain of 0.5 grade, and the average gain in reading ability was 2.0 grades.

In many of the reading improvement programs, the students are responsible for keeping a record of their reading progress. Blayne (4) reported a study in which forty-five student self-evaluations in the form of reading progress charts were correlated with corresponding reading test percentile scores. The correlation of the speed of reading scores was .77, and the

correlation of the comprehension scores was .58. The conclusion was made that the individual progress charts indicated indices of achievement valid enough to justify their continued use.

Reading Programs for the Superior Reader

Gregory and McLaughlin (11) described an advanced reading program for the superior student in the D. A. Harman Junior High School, Hazelton, Pennsylvania. This program was provided for eighth- and ninth-grade students who met the following requirements: an I.Q. of 120 or better, an "A" or "B" average in school marks, and a reading grade-level score of 10.5 or better on the Iowa Every-Pupil Reading Test. The materials used in this program consisted of books in the areas of art and music; English and literature, science and social studies. The books chosen in these areas were considered to be beyond the indicated reading level of this group of students. The students who participated in this program received no credit, had no written reports, and received neither grades nor extrinsic rewards. Their participation in this program was to be voluntary, and all the reading was done outside regular school hours. The group met with the teachers twice each month during the regular school day for a discussion period. The program was called the "Great Books" course. There was no indication of a post-test at the end of the course.

The results of this program as evaluated by the teachers indicated that this type of student could read on a higher level than they did; that grades were not the only incentives that stimulated students to greater effort; that discussion periods permitted teachers to become better acquainted with the pupils; that as a result of this program students seemed to show an increase in their interests, were more critical of material they read, and showed signs of greater maturity than was ever noticed in a formal classroom situation. The teachers observed that this type of reading program called for all the skills of listening, speaking, reading, and writing. They discovered that students do have capacities that are not being used in the regular school program.

Hanlon (12) described the Accelerated Reading program of the Denby High School in Detroit. The accelerated reading program was conducted for six weeks. The teacher was responsible for describing the techniques to be used and for directing the practice exercises and the practice periods. The teacher defined the skill to be learned and discussed its importance to reading. The students were then given a diagnostic exercise to determine their strengths and weaknesses in regard to the skill. The skill to be learned was then discussed at some length with the students. Students then practiced using the skill in various situations, recalling and stating the function of the skill and avoiding the pitfalls discussed during the

class period. When the students began the reading program, they were tested in speed, comprehension, concepts, memory, inferences, and vocabulary. Students were retested during the course of the program and at the end of the program to determine their progress. The record of progress was kept by each student. The students were not required to do any homework other than the practice that they wished to do on their own. The materials used in this program were selected from college texts, Reader's Digest, Harper's, Atlantic, and exercises provided by the teacher. Hanlon (12, p. 286) said, "Incidentally, students gain on an average about 10 per cent in comprehension and double their speed of reading in six weeks' training."

Bish (2) reported a study of the reading improvement of twenty-four twelfth-grade students with average or superior academic records. The results of nine weeks' training revealed that twenty-two of the students showed improvement in reading rate. A third testing nine months after completing training showed that all twenty-four students had made improvement in reading rate.

The Importance of the Teacher and the Staff

Hunt (15) said that elementary school teachers could not possibly teach all the reading skills needed at the high school level. The reading skills demanded of the high school student suggests the need for at least the following abilities:

1. Reading flexibility according to the type of material and the purposes of reading.
2. Outlining or organizing materials.
3. Using several methods of attacking new words.
4. Developing new reading tastes.
5. Reading critically.
6. Recognizing the author's mood or purpose.
7. Skimming (15, p. 422).

In the past, the reading improvement of students in the high school has depended upon incidental instruction given by various members of the school staff. The difficulty with this incidental program of reading is that no one is responsible for the program. Each teacher seems to delegate the responsibility for reading to someone else. The remedial reading programs are often limited in their scope and can take care of only a few of the students requiring help. Hunt suggested that all teachers should participate in a well coordinated and concentrated reading program in which developmental reading is the core. The reading program should be school-wide in its scope because a remedial program often becomes the dumping ground of the mentally retarded and socially handicapped students. Hunt reported that the common-sense approach to the problem would be to have a co-ordinated reading program with the English department responsible for the teaching of basic skills and providing for systematic training in reading. The emphasis of such a program would be upon all communicative arts, including writing, speaking, listening, and reading. In this program the responsibility of the

subject-matter teachers would be to provide reading instruction on problems arising in their subject-matter areas.

Hunt suggested that all teachers could help develop better reading skills in their subject area and adapt to differences in reading achievement of students by the following procedures:

. . . (1) making suggestions for reading in the particular subject and for preparing specific assignments, (2) simplifying concepts and controlling vocabulary, (3) grouping, (4) individualizing assignments and projects, (5) sponsoring group discussion and committee work, (6) supervising study, and (7) collecting a variety of reading materials covering a wide range of reading difficulty.

Not only is reading a school-wide problem; it is also a school-wide responsibility (15, p. 423).

Reeves (20) described a realistic reading experiment used to meet the needs of less able readers in the Houston Public Schools, Houston, Texas. This experiment was the result of the feeling that students who were considerably below their grade placement in reading could not satisfactorily use the same textbooks as their more able classmates. It was felt that a plan for teaching of reading should provide stimulating material for all intellectual levels.

The experiment began by using three low-eighth-grade classes. These classes were composed of students whose reading ability was below-average, average, and above-average. Seven teachers were found who were willing to help with the experiment and who were to teach these classes. This group consisted of three English teachers, three teachers of social studies, and one science teacher. The main plan of attack

seemed to be one in which the students would read extensively in books on their own ability level rather than using a single textbook. Each subject-area teacher prepared a bibliography of materials and a guide to the materials on the shelves of the school library, indicating the degree of difficulty of each book concerning each subject area.

This bibliographic material was used extensively during the school year. During the class period, students were given time to discover the kinds of material in their books. Discussion groups were formed upon the basis of types of reading, and reports were made on the material read. These eighth-grade students were given standardized reading tests in the fall of the year and in the spring.

Reeves (20, p. 18) stated that not only was progress being made in the English classes, but also in "social studies and science classes, the same students were reading library material on their own level. When the reading tests were given at the end of the year, everyone was convinced that we were making progress."

The second year of the experiment described by Reeves seemed to be characteristic of what really happens in a school situation. She said that of the three English teachers who had participated in the experiment the first year, one married and moved away, one was assigned to another area in which she was needed, and the third was given

extra-curricular duties which were time- and energy-consuming.

Reeves (20, p. 19) stated:

During the first year, three teachers, the English supervisor, the principal, and the librarian were all intensely interested in the English phase of the project; now during the second year individual teachers were working alone. The results of the spring testing showed us that we were not now on the right track. It had been the control of the experiment, the organization by the group working together, the focus of interest on improvement in reading, that had made for success.

A program of reading improvement used by the Norview High School in Norfolk, Virginia, has been described by Campbell (7) as one in which the whole faculty of the school participated. This program was based upon the belief that reading improvement could be obtained through the development of specific skills. The reading improvement committee recommended that the following steps be taken to assist students in developing skills in reading:

1. Determination of the exact reading skills to be taught.
2. Instruction in each selected skill for ten minutes of each class period for two weeks by teachers of four subject matter fields; namely, language arts, social studies, mathematics, and science.
3. Instruction in the selected skills by the teachers of other subjects when applicable to their particular classroom activities.
4. Use of textual materials at hand, supplemented by subject matter materials written on various grade levels.
5. Administration of the Iowa Silent Reading Test prior to and at the end of the program (7, p. 43).

The specific skills selected to be taught were vocabulary development, adaptive rates of reading, effective oral reading,

analytical thinking in reading, synthetic thinking in reading, and reading for appreciation and pleasure.

Campbell stated that a program of this type was based upon several ideas:

(1) Insufficient attention is given to the development of reading skills beyond the primary grades. In the secondary school, the mastery of materials in subject-matter areas seems to become the primary objective. The reading instruction is generally delegated to the language arts teachers.

(2) Reading skills may vary according to the particular subject-matter area. This emphasizes the responsibility of each teacher to teach reading as a part of the subject being studied.

(3) Such a program does not result in a loss of attention to the subject-matter content. Instruction in all subject areas should be more effective through improvement of the students' reading skills.

(4) Reading improvement depends upon actual instruction directed toward that end. Reading skills can be improved, provided effort is made in that direction.

The results of this reading program based upon the Iowa Silent Reading Test showed a rise of 2.3 in the median grade level of reading ability among the students. It was also indicated that the percentage of pupils who failed for all classes decreased from 7.3 to 6.7. This report shows how

one faculty has attempted to improve the reading program of the school through a co-operative effort to develop the specific reading skills of the pupils.

Caskey (8) suggested a procedure which all junior high school teachers could use in working with the passive reader. Help for this type of pupil seems to be best when providing him with such kinds of guidance as will stimulate him to:

- a. Ask questions of himself before he reads.
- b. Make a conscious effort to relate his reading to his own experience.
- c. Notice carefully the author's cues to the relationship of ideas expressed.
- d. Adjust his reading approach to the task before him.
- e. Summarize and use the information gathered through reading (8, p. 562).

Caskey insisted that much can be done to improve reading "through emphasis on improving specific reading skills in the day-to-day teaching, testing, and making assignments in all subject areas" (8, p. 562).

In order to evaluate the developmental reading program, some type of evaluative criteria must be used. In an article written in two parts, Herrick (13) defined development in reading as indicating progress toward a defined maturity. He outlined four major criteria to be used in appraising the instructional techniques used in the developmental reading program. These four criteria are:

(1) Defined Goals. Are the goals of the reading program clearly defined? The goals should indicate the scope and

direction of the program and serve as a basis for the evaluation of the instructional practices and materials.

(2) Continuity. Are the instructional procedures and materials of such a nature that they contribute to the essential continuity of the child's present and future reading development?

(3) Interrelationships. Are the instructional procedures and materials used in such a manner as to recognize and utilize the interrelationships which exist between reading and other functions of language, and between language and other subject areas?

(4) Two-Dimensional Evaluation. Are the instructional procedures and material used for the child's reading development evaluated on the basis of the two dimensions of reading goals and developmental patterns?

In the light of the literature concerning reading improvement programs, the conclusion made by Toops (23) is one of the possible generalizations that could be made. She stated:

In conclusion, in the junior high school we must begin with the pupil as we find him, learn the reasons for his superior, average, or inferior reading, and then provide the proper materials and instruction. The desire to read on the part of the child must come first, and we can do much to create that desire. Let's give more attention to the reading growth of each individual adolescent and less to grade standards. Let's provide our pupils with the fine things written today and adjust these reading materials to the needs of each child (23, pp. 69-70).

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CHAPTER III

METHODS AND PROCEDURES

The methods and procedures used in an experimental study are influenced by many environmental factors that enter into the problem situation. An understanding of as many environmental factors as possible provides a more meaningful frame of reference for the interpretation of the data. The description of the community, the school system, and the subjects is included in order to provide a setting for the methods and procedures used in this study.

Description of Community, School, and Subjects

Denton is geographically located in North Central Texas, approximately thirty-nine miles northwest of Dallas and thirty-seven miles north of Fort Worth, and is the county seat of Denton County. The city of Denton has a population of approximately 30,000 inhabitants and is the home of two institutions of higher learning; namely, North Texas State College and Texas Woman's University.

The Denton Independent School District includes all of the city of Denton and parts of the county. The total enrollment in the Denton Public Schools is approximately 4,700 students. Approximately 700 students are transported into

the city daily by school buses from various parts of the county to attend school. The Denton Public Schools consist of a regular twelve-grade system that is approved by the Texas Education Agency and that is an accredited member of the Southern Association of Colleges and Secondary Schools.

Denton Junior High School is one of two junior high schools in the Denton public school system. The students used in this study were seventh-grade students enrolled in the Denton Junior High School for both the fall and the spring semesters of the school year, 1959-1960. The students enrolled in the seventh grade live in all sections of the city and in parts of the county. The pupils in the seventh grade represented all levels of socio-economic strata within the community. It might be said that these students seemed to be a fairly representative population.

Table I presents the intelligence distributions of the seventh-grade population of Denton Junior High School and the intelligence distribution of the normal population as given in the Manual California Test of Mental Maturity. This table depicts the Language I.Q., the Non-Language I.Q., and the Total I.Q. at various percentiles for all the seventh-grade students. The term "normal population" as used in the CTMM Manual refers to the test standardization population.

TABLE I

A COMPARISON OF INTELLIGENCE DISTRIBUTION
BETWEEN DENTON JUNIOR HIGH SEVENTH
GRADE AND THE NORMAL POPULATION*

Percentile Rank	Normal Pop.** I.Q.	7th Grade Language I.Q.	7th Grade Non-Lang. I.Q.	7th Grade Total Data I.Q.
90	117-123	122.34	119.86	117.73
70	107-110	107.09	108.32	107.45
50	98-102	98.15	101.00	100.58
30	90-93	92.02	92.46	93.18
20	84-89	87.73	87.41	89.27
Mean	100.00	100.24	100.27	100.44

*Normal Population as given in CTMM Manual.

**Percentile norms for normal population is the same for Language I.Q., Non-Language I.Q., and Total Data I.Q.

The two populations were compared on the basis of means, medians, and percentiles. It was observed that these measures seemed to approximate each other to the extent that it could be reasonably assumed that the seventh-grade population of Denton Junior High School was a representative population insofar as I.Q. distribution was concerned.

Procedure for Collecting Data

In the spring of 1959, arrangements were made with the superintendent of schools and the principal of the Denton Junior

High School to schedule seventh-grade students into two equivalent groups for the purpose of an experimental study of the reading program in language arts.

The reading-improvement program and the regular program in language arts consisted of six classroom sections respectively, involving four teachers. Two of the teachers instructed five classroom sections each, while the other two teachers taught only one classroom section each. One teacher who had five classroom sections and a teacher who had one classroom section instructed the reading-improvement program in language arts, while one teacher who had five classroom sections and a teacher who had one classroom section instructed the regular program in language arts. The teachers involved in each of the language arts programs were limited to their respective groups for both the fall and the spring semesters.

The data were collected in the following manner:

1. All seventh-grade students were scheduled for language arts, in either the reading-improvement program or the regular program. The assignment to classes was made from a list of test scores in reading achievement which were obtained by the system-wide testing program. These test scores were placed in rank order, and students were placed in the respective programs by random assignment.

2. The students who were placed in the experimental group participated in the reading-improvement program during

the fall semester and took regular instruction in language arts in the spring. The students who were assigned to the control group participated in the regular program in language arts during the fall semester and took the reading-improvement program in the spring.

3. The instruments used in the collection of data were the California Test of Mental Maturity, Form-S, 1957 Edition, and the California Achievement Tests, Reading Section, Form X, Y, and W, 1957 Edition.

4. Prior to the beginning of the experiment, two standardized tests were administered to all the seventh-grade pupils. One of the tests was the California Test of Mental Maturity, Form-S, 1957 Edition; the other test was the California Achievement Test, Reading Section, Form X, 1957 Edition. The teachers participating in this study were responsible for the administration of the tests. These two tests were administered in a classroom group situation during the regular class period. Two days were allowed for the administration of each test. Interval timers were provided for timing the various sections of the tests. The answers were marked on separate answer sheets and were scored on an IBM Test Scoring Machine. The pre-test scores obtained by using the CAT-RS, Form X, were used to determine the differences between the post-test scores at the end of the first semester and at the end of the school year.

The mental ability scores obtained from using the CTMM, Form-S, were used to determine the Language I.Q., Non-Language I.Q., and Total I.Q. for each student. The Total I.Q. of each student was used to separate the experimental and the control groups into four intellectual subgroups respectively.

After the administration of the CTMM and the CAT-RS, Form X, to all of the seventh-grade students, two teachers began using the SRA Reading Laboratory with the experimental group. These two teachers of the experimental group had had experience in using the SRA Reading Laboratory the year before. The Denton public school system does not have, at the present time, any special personnel employed to work in the reading programs. The teachers using the SRA Reading Laboratory attempted to follow the directions for administering the laboratory as given in the SRA Reading Laboratory Teacher's Handbook.

The two teachers who were in charge of the regular program in language arts used the regular textbooks which were supplied by the state of Texas and designated for the seventh-grade level. The main activities of this program consisted of reading, spelling, grammar, and composition. Students were encouraged to read outside materials, but no effort was made to enforce outside reading. The library was available for all seventh-grade students.

The first portion of this study lasted from October 5, 1959, to January 12, 1960; approximately sixty school days elapsed between the beginning of the reading laboratory and the administration of the mid-term post-test.

5. After approximately sixty class hours of instruction, all students in the seventh grade were given the CAT-RS, Form Y, as the mid-term post-test. The test was administered and scored as previously described.

The mid-term data were used to test the significance of hypotheses one, two, and part (a) of three.

6. The remaining portion of this study was concerned with the effects of both semesters upon the reading achievement of the experimental and the control groups after the treatments had been reversed for the second semester of the school year. The experimental group participated in the regular program in language arts, and the control group participated in the reading-improvement program. This portion of the study lasted from January 25, 1960, to April 19, 1960. Approximately sixty school days were allowed for the reversal of the treatments. After those sixty class hours of additional instruction, the California Achievement Test, Reading Section, Form W, was administered to both groups at the conclusion of the reversal of treatments. The tests were administered and scored as previously described.

The data from the spring semester were used to test the significance of hypotheses four, five, and part (b) of three.

Procedure for Treating Data

The data collected were treated in the following way:

1. The seventh-grade students who were enrolled in either the reading-improvement program or in the regular program in language arts were separated into four categories or groups, respectively, according to total mental ability as measured by the CTMM. The four categories were as follows:

Group	Total I.Q.	Experimental Group	Control Group
I	110-Above		
II	100-109		
III	90-99		
IV	89-Below		

The number of cases used in each cell was determined by the cell with the least number of cases. The cases used in the remaining cells were chosen by random selection from the cases in that cell. There were no less than thirty cases in the cell with the least number of cases.

The raw score data used in the treatment by levels of the reading achievement scores were differences; that is, the raw score data used in each cell were obtained by finding the differences between the pre-test scores and the post-test

scores in each cell. The differences used in each cell near the end of the first semester were obtained by subtracting the pre-test score for the beginning of the year from the post-test scores for the end of the first semester. The differences used in each cell near the end of the school year were obtained by subtracting the pre-test scores for the beginning of the year from the post-test scores for the end of the year.

2. The analysis of variance technique was used to test the significance of the hypotheses.

- a. The F ratio was used to test the significance of the interaction variances and thus to test hypotheses one and four.
- b. The F ratio was used to test the significance of the main effects and thus to test hypotheses two and five.

3. The t test was used to determine the significance of the difference between (1) the change in reading achievement of students whose Non-Language I.Q. exceeded their Language I.Q. by ten or more points and who participated in the reading-improvement program, and (2) the change in reading achievement of students whose Non-Language I.Q. exceeded their Language I.Q. by ten or more points but who participated in the regular program of language arts. Thus parts (a) and (b) of hypothesis three were tested.

CHAPTER IV

ANALYSIS OF DATA

The data obtained from the CTMM were used to determine the Language I.Q., the Non-Language I.Q., and the Total I.Q. for all the seventh-grade students. The Total I.Q. was used as the basis for separating the experimental group and the control group into the four intelligence levels. Table II was prepared to illustrate the four intellectual levels, the mean I.Q., and the number of students in each cell.

Table II indicates that the mental ability of students who participated in the experimental group seemed to be equivalent to the mental ability of students who participated in the control group. The difference between the total mean I.Q. of the experimental group and the total mean I.Q. of the control group was considered, for all practical purposes, to be insignificant. This seemed to be equally true for each of the differences of the cell means of the various intellectual levels. Thus, the experimental group and the control group were considered to be equated in terms of measured intelligence.

The number of cases used in each cell in the treatment by levels was determined by the cell with the least number of cases. Table II indicated that the cell with the least number

TABLE II
 DISTRIBUTION OF SEVENTH-GRADE STUDENTS ACCORDING
 TO INTELLECTUAL LEVELS, SHOWING MEAN I.Q.
 AND NUMBER OF STUDENTS

Group	Total I.Q.	Experimental Group	Control Group
I	110-Above	Mean I.Q. 116 N 40	Mean I.Q. 119 N 43
II	100-109	Mean I.Q. 104 N 45	Mean I.Q. 103 N 40
III	90-99	Mean I.Q. 94 N 38	Mean I.Q. 94 N 40
IV	89-Below	Mean I.Q. 80 N 32	Mean I.Q. 82 N 30
Total		Mean I.Q. 99 N 155	Mean I.Q. 101 N 153

of cases was thirty; therefore, thirty cases were used in the remaining cells. These cases were chosen by random selection from all the cases within the cell.

The raw score data used in the treatment by levels of the reading achievement scores were differences; that is, the raw score data used in each cell were obtained by finding the differences between the post-test scores and the pre-test scores in each cell. The differences used in each cell for the mid-term data were obtained by subtracting the pre-test score for the beginning of the year from the post-test score for the end of the semester.

Table III illustrates both the means of the differences and the mean totals for the data of the first semester.

TABLE III
MEANS OF DIFFERENCES FOR FIRST-SEMESTER DATA

Group	Total I.Q.	Experimental Group	Control Group	Total
I	110-Above	Mean 9.10	Mean 5.57	Mean 7.33
II	100-109	Mean 12.97	Mean 11.93	Mean 12.45
III	90-99	Mean 13.30	Mean 10.07	Mean 11.68
IV	89-Below	Mean 5.87	Mean 7.73	Mean 6.80
Total		Mean 10.31	Mean 8.82	Mean 9.57

Table III indicates that the means of the cells for the experimental group are slightly higher than the means of the cells for the control group, with the exception of Group IV, in which the control group has a slightly higher mean than the experimental group. The total mean for the experimental group is higher than the total mean for the control group. In terms of the total means of the intellectual levels Groups II, III, and IV, it is revealed that a progressively smaller mean is found as the intellectual levels decrease; however, Group I, which would be expected to have the highest total mean, did not conform to expectations.

The analysis of variance technique, together with the data obtained over the first semester of the school year, was used to test the significance of hypotheses one and two. Table IV was prepared as a summary table to illustrate the source of variance, sum of squares, degrees of freedom, and variance estimate for the data obtained at the end of the first semester of the school year.

TABLE IV
ANALYSIS OF VARIANCE FOR FIRST-SEMESTER DIFFERENCES

Source of Variance	Sum of Squares	df	Variance Estimate
Levels	1,526.166	3	508.722
Treatments	132.016	1	132.016
Interaction	280.351	3	93.449
Within-Cells	25,884.400	232	111.570
Total	27,822.933	239	

The F ratio was used to test the significance of the interaction variances. The test for interaction was based on the ratio of the mean square for treatments by levels and the mean square for within-cells. This ratio was used to test the significance of the first hypothesis, which stated that, over the first semester of school, the difference between the

mean change in the reading achievement of students who participated in the reading-improvement program and the mean change in the reading achievement of students who participated in the regular program in language arts would vary from one intellectual level to another.

The interaction F for the mid-term data was .837, which falls considerably short of the F of 2.68, required for significance at the .05 level. The interaction variance was not significant, so the null hypothesis could be retained. This would seem to indicate that the differences between the cell means for the corresponding treatments were due only to sampling error and that any differences in the cell means in either direction, with the marginal means, were attributed to chance. Thus, it might be said that neither of the two methods of instruction in language arts used in this study seemed to be superior to the other at various intellectual levels.

The F ratio was used to test the significance of the main effect in the second hypothesis, which stated that, over the first semester of school, the main effect for all students who participated in the reading-improvement program would be significantly greater than the main effect for all students who participated in the regular program in language arts. The test of significance for the main effect of treatments was based on the ratio of the mean square for treatments and the mean square for within-cells. The main effect F for the mid-term data was 1.183, which falls short of the F of 3.92

required for significance at the .05 level. The main effect was not significant, so the null hypothesis could be retained. This seemed to indicate that the differences in the means corresponding to the various treatments were not significant. This suggested that the two methods of instruction in language arts used in this study were comparable in improving the reading achievement of seventh-grade students.

When one considers the possibility of improving the reading achievement of students, it seems logical to assume that students whose Non-Language I.Q. exceeds their Language I.Q. by ten or more points would make greater achievement gains in reading while participating in a reading-improvement program. There were thirty-three such students who participated in the reading-improvement program in language arts; there were thirty-five students in the same classification who participated in the regular program. Table V was prepared to illustrate the distribution of students whose Non-Language I.Q. exceeded their Language I.Q. by ten or more points and who participated in the experimental group and in the control group.

Table V indicates that the distribution of students in this classification is similar for the two groups. These students were used to determine the effectiveness of the two methods of instruction in language arts for students who fitted into this classification.

TABLE V
STUDENTS WHOSE NON-LANGUAGE I.Q. EXCEEDED THEIR
LANGUAGE I.Q. BY TEN OR MORE POINTS

Group	Total I.Q.	Experimental	Control
I	110-Above	N 7	N 7
II	100-109	N 14	N 13
III	90-99	N 9	N 9
IV	89-Below	N 3	N 6
Total		N 33	N 35

The t test was used to test the significance of part (a) of the third hypothesis, which stated that, over the first semester, the gain in reading achievement of students whose Non-Language I.Q. exceeded their Language I.Q. by ten or more points, and who participated in the reading-improvement program in language arts, would be significantly greater than the reading achievement of students whose Non-Language I.Q. exceeded their Language I.Q. by ten or more points, but who participated in the regular program.

The t ratio for the mid-term data was .6448, with 66 degrees of freedom. The t falls short of the required value of 2.00 for significance at the .05 level. The t was not significant, so the null hypothesis could be retained. Thus, the difference between the mean of the students in the experimental

group and the mean of the students in the control group was not greater than would be expected by chance.

Table VI was prepared to illustrate the means of the differences and the mean totals for the data at the end of the spring semester.

TABLE VI
DATA OF MEAN DIFFERENCES FOR BOTH SEMESTERS

Group	Total I.Q.	Experimental	Control	Total
I	110-Above	Mean 14.83	Mean 14.70	Mean 14.77
II	100-109	Mean 13.73	Mean 18.80	Mean 16.27
III	90-99	Mean 16.80	Mean 16.60	Mean 16.70
IV	89-Below	Mean 9.70	Mean 15.37	Mean 12.53
Total		Mean 13.77	Mean 16.37	Mean 15.07

Table VI reveals that the means for the spring-semester data do not seem to follow any definite pattern in their relationship from one intellectual level to another.

The analysis of variance technique was used to test the significance of hypotheses four and five. Table VII was prepared as a summary table to illustrate the source of variance, sum of squares, degrees of freedom, and variance estimate for the data at the end of the spring semester.

TABLE VII
ANALYSIS OF VARIANCE DIFFERENCES FOR BOTH SEMESTERS

Source of Variance	Sum of Squares	df	Variance Estimate
Levels	636.933	3	212.311
Treatments	405.600	1	405.600
Interaction	462.000	3	154.000
Within-Cells	29,886.400	232	128.820
Total	31,390.933	239	

The F ratio was used to test the significance of the interaction variances of the fourth hypothesis, which stated that the difference between the mean change for students who participated in the improvement program the first semester and the regular program in the second semester, and the mean change for students who participated in the regular program the first semester and in the improvement program the second semester, would not vary from one intellectual level to another when the effects of both semesters were considered.

The interaction F for the data at the end of the spring semester was 1.195, which falls short of the F of 2.68 required for significance at the .05 level. The interaction variance was not significant, so the null hypothesis could be retained. The differences between the cell means for

corresponding treatments were insignificant, and any differences that existed could be attributable to chance fluctuations, or sampling errors.

The F ratio was used to test the significance of the main effect of the fifth hypothesis, which stated that, when the reading achievement of both semesters was considered, the main effect for all students who participated in the reading-improvement program in language arts would not be significantly greater than the main effect for all students who participated in the regular program.

The main effect F for the end of the spring-semester data was 3.148, which falls short of the F of 3.92 required for significance at the .05 level. The main effect of the treatments was not significant, so the null hypothesis could be retained. The differences between the means corresponding to the various treatments were not significant, and any difference that existed could be attributed to chance fluctuations, or sampling errors.

The t test, including the data obtained at the end of the spring semester, was used to test the significance of the third hypothesis. The t ratio for the data of the spring semester was .9897, with 66 degrees of freedom. The t falls short of the required value of 2.00 for significance at the .05 level. The t ratio was not significant, so the null hypothesis could be retained.

In summary, hypotheses one and two were rejected on the basis of the mid-term data. Hypotheses four and five were accepted on the basis of the spring-semester data. The third hypothesis was rejected on the basis of the data for both the mid-term and the spring semester. These hypotheses indicated that the gains in reading achievement made by the experimental group were not significantly different from the gains in reading achievement made by the control group. The literature concerning reading-improvement programs revealed that there are many reasons for their failure. Some of the main reasons are as follows:

1. The lack of financial resources needed to provide specialists or qualified personnel to be responsible for the reading program.

2. The lack of emphasis on the two critical factors needed to improve the reading ability of students: (1) the focusing of attention of the teacher on reading improvement of the pupils, and (2) the focusing of attention of each pupil on the possibility of his own self-improvement in reading.

3. The lack of initiative of regular classroom teachers who are not convinced that a reading-improvement program is necessary.

4. The lack of understanding by the faculty of the importance of the reading program and the lack of emphasis they consequently give to it. The key to a good reading

program seems to be the co-operative efforts of the principal and teachers working together.

The reading-improvement materials used in this study were designed to enable the gifted, the superior, the average, and most of the retarded students in secondary grades to receive highly individualized instruction for the improvement of reading and study skills through their regular classroom teacher. Some of the possible reasons for no significant gains in reading achievement between the experimental group and the control group may have been attributable to any one or more of the following accessory conditions:

1. There was no one person responsible for the reading-improvement program.
2. The interest in the improvement program the second year may not have been so great as the interest the first year.
3. The student's use of his progress record-book may not have been adequate in stimulating the possibility of his own self-improvement in reading.
4. The SQ3R method of approach to new material may not have been either properly presented or sufficiently emphasized to the students.
5. The specific directions for introducing the Power Builders, the Note Builders, and the Listening Skill Builders,

may not have been either thoroughly understood or carefully followed.

6. The goal-setting and overview of purposes and methods of the improvement program may not have been adequately established for either the school staff or the students.

CHAPTER V

SUMMARY AND CONCLUSIONS

The purpose of this study was to determine the differences in gains in reading achievement between two seventh-grade groups taught by two different methods of instruction in language arts. One of the groups used the SRA Reading Laboratory, and the other group participated in the regular program. The effectiveness of these two methods of instruction was determined for four intellectual levels and for the two total groups.

The hypotheses tested by this study were:

1. That over the first semester of school, the difference between the mean change of the experimental group and the mean change of the control group would vary from one intellectual level to another.

2. That over the first semester of school, the main effect of the experimental group would be significantly greater than the main effect of the control group.

3. That (a) over the first semester and (b) at the end of the second semester, the gain in reading achievement of students in the experimental group would be significantly greater than the gain in reading achievement of students in

the control group, when comparing students whose Non-Language I.Q. exceeded their Language I.Q. by ten or more points.

4. That over the school year, after the treatments had been reversed for the second semester, the difference between the mean change of the experimental group and the mean change of the control group would not vary from one intellectual level to another.

5. That over the school year, after the treatments had been reversed for the second semester, the main effect of the experimental group would not be significantly greater than the main effect of the control group.

In this study there were used 240 seventh-grade students who were enrolled in either the experimental group or the control group. The CTMM was used to determine the Language I.Q., Non-Language I.Q., and Total I.Q. of both groups. The students in the experimental group and in the control group were separated into four intellectual levels on the basis of Total I.Q. as follows: Group I, 110 or above; Group II, 100-109; Group III, 90-99; and Group IV, 89 or below. The CAT-RS, Forms X, Y, and W were administered, respectively, at the beginning of the experiment, at mid-term, and at the end of the school year.

Four teachers were used in this study. The teachers taught their respective classes throughout the school year. Two teachers taught the experimental group the first semester

of school, using the SRA Reading Laboratory. Two teachers taught the control group in regular classes in language arts the first semester of school. This portion of the study consisted of approximately sixty class periods of instruction. During the second semester of school, the experimental group participated in the regular program in language arts, while the control group participated in the SRA reading-improvement program. This portion of the study consisted of approximately sixty class periods of instruction. The data obtained over the first semester of the school year were referred to as mid-term data; the data obtained over both semesters were called spring-semester data.

The analysis of variance treatment by levels design was used to test the significance of hypotheses one, two, four and five. The t test was used to test hypothesis three. The tests of significance for the hypotheses revealed that hypotheses one and two were rejected upon the basis of the data over the first semester. Hypotheses four and five were accepted on the basis of data obtained at the end of the spring semester. The third hypothesis was rejected on the basis of data for both mid-term and the end of the spring semester.

In the light of the evidence and within the limitations of this study, the following conclusions seem to be justified:

1. The difference in gains in reading achievement between the experimental group and the control group did not vary significantly from one intellectual level to another at the end of either the first or the second semester of school. This indicated that there was no interaction between methods of instruction and intellectual levels.

2. The difference in gains in reading achievement between the main effect of the experimental group and the main effect of the control group was not, at the end of either the first or the second semester of the school year, significantly greater than would be expected by chance.

3. The difference in gains in reading achievement between experimental students and control students whose Non-Language I.Q. exceeded their Language I.Q. by ten or more points was not, at the end of either the first or the second semester of the school year, significantly greater than would be expected by chance.

4. The two methods of language arts instruction used in this study seemed to be similar in their effects upon the reading achievement of this sample of seventh-grade students.

It is recommended that the following variables might be used to clarify some of the questions raised in this investigation:

1. A study to determine the differences in gains in reading achievement between (1) students who participated

in a reading-improvement program where the teachers were assisted by trained reading specialists, and (2) students who participated in a reading-improvement program conducted by regular classroom teachers.

2. A study to determine the differences in gains in reading achievement between (1) students who participated in a reading-improvement program where the teachers were assisted by trained reading specialists, and (2) students who participated in the regular program of reading conducted by regular classroom teachers.

3. A study to determine the differences in gains in reading achievement between (1) students who participated in a reading-improvement program conducted by regular classroom teachers without special assistance, and (2) students who participated in the regular reading program conducted by regular classroom teachers assisted by trained reading specialists.

4. A study to determine the differences in gains in reading achievement between (1) students who participated in a reading-improvement program taught by teachers who were assisted by reading specialists, and (2) students who participated in a regular reading program taught by teachers who were assisted by reading specialists.

5. A study to determine the differences in gains in reading achievement in language arts between (1) students

who participated in a reading-improvement program, taught by regular classroom teachers, in which homogeneous groups were provided for various intelligence levels, and (2) students who participated in the regular program, also taught by regular classroom teachers, in which homogeneous groups were provided for various intelligence levels. Another study could be made with the above group but taught by regular classroom teachers assisted by reading specialists.

6. An in-service education program could be provided to acquaint the teachers with the potential of an adequate reading-improvement program. The co-operation of the total school staff seems to be one of the best ways to insure desirable results from the reading program.

APPENDIX

EXPERIMENTAL GROUP RAW DATA

Student Number	Total I.Q. CTMM	Pre-Test Score CAT-RS-X	Post-Test Mid-Term CAT-RS-Y	Post-Test End-of-Year CAT-RS-W
1	106	97	103	112
2*	115	98	108	108
4	95	93	114	110
5	89	56	65	78
7	92	81	86	77
8	104	77	105	115
9	109	67	86	79
10	102	51	71	61
11*	102	58	83	76
13	69	43	46	49
14**	102	62	74	82
15*	97	58	69	54
16	98	67	81	81
18	108	82	106	104
19*	85	66	41	62
20*	95	64	81	83
21	117	76	99	92
22*	95	54	63	82
23	74	44	33	39

APPENDIX

Student Number	Total I.Q. CTMM	Pre-Test Score CAT-RS-X	Post-Test Mid-Term CAT-RS-Y	Post-Test End-of-Year CAT-RS-W
24	72	31	38	44
25	118	72	101	111
27	127	97	98	107
29	91	75	82	99
30*	93	48	51	67
31	80	77	89	91
34	119	122	125	132
35	108	110	113	108
36	93	53	49	63
37**	95	64	60	73
39	91	43	54	66
40	110	89	99	114
42	102	65	86	89
43	118	126	110	125
44	114	98	125	113
45*	96	44	50	45
46*	102	72	77	81
47*	111	56	51	50
48	76	55	63	48
49	121	119	118	135

APPENDIX

Student Number	Total I.Q. CTMM	Pre-Test Score CAT-RS-X	Post-Test Mid-Term CAT-RS-Y	Post-Test End-of-Year CAT-RS-W
51	111	58	95	91
52*	111	73	73	93
53*	108	66	87	71
54	86	44	32	49
55**	102	82	102	110
56**	95	65	51	74
57	94	76	83	89
58	90	86	113	123
59	101	98	112	118
60	93	66	71	81
61	98	90	102	94
62**	108	94	101	112
63*	100	64	61	92
64*	86	62	82	92
65*	109	65	66	73
66	94	51	49	53
68	108	97	109	109
69	70	52	53	48
70	116	93	106	105
71	78	65	60	64

APPENDIX

Student Number	Total I.Q. CTMM	Pre-Test Score CAT-RS-X	Post-Test Mid-Term CAT-RS-Y	Post-Test End-of-Year CAT-RS-W
72	80	53	68	70
73	74	46	48	57
74*	118	80	101	113
76	87	52	61	78
78	118	112	129	131
79	85	46	51	58
80	105	92	94	98
83	86	40	33	38
85	82	49	62	56
86	100	50	61	70
87	130	113	124	132
88	83	46	66	61
89	123	110	116	114
90*	107	81	94	99
93*	83	53	45	45
94	106	104	127	111
95	87	43	50	60
96	114	100	103	117
98	114	101	109	118
99*	105	71	80	69

APPENDIX

Student Number	Total I.Q. CTMM	Pre-Test Score CAT-RS-X	Post-Test Mid-Term CAT-RS-Y	Post-Test End-of-Year CAT-RS-W
100	93	54	75	75
101	106	85	104	111
103	97	98	107	115
104	139	126	127	122
105	102	40	54	48
106	83	61	91	85
107*	104	51	60	54
108	86	73	65	88
109*	112	99	123	118
110	92	89	107	99
111	94	68	87	95
112	101	98	98	106
113	93	91	98	92
114	76	58	68	68
115	103	83	108	111
116	68	43	60	51
117	94	56	68	77
118	97	95	112	116
119**	109	81	79	91
121**	112	78	90	98

APPENDIX

Student Number	Total I.Q. CTMM	Pre-Test Score CAT-RS-X	Post-Test Mid-Term CAT-RS-Y	Post-Test End-of-Year CAT-RS-W
122	113	92	68	115
123*	95	54	59	52
124	109	69	75	82
125	96	78	100	105
126	87	50	68	72
127**	100	68	62	71
128	84	76	85	89
129	116	93	115	108
130	73	38	46	50
131	110	105	114	120
132	102	88	91	106
133	105	91	102	90
134	112	99	112	117
136*	110	93	107	104
137*	103	74	86	89
139	96	48	67	69
140	87	69	83	79
141	90	72	100	104
142	92	83	102	113
143	112	105	103	113

APPENDIX

Student Number	Total I.Q. CTMM	Pre-Test Score CAT-RS-X	Post-Test Mid-Term CAT-RS-Y	Post-Test End-of-Year CAT-RS-W
144	85	76	71	86
145	116	96	107	108
146	96	52	93	94
147	102	52	72	56
148	70	59	79	62
149*	99	52	65	70
152	104	61	77	83
154	118	97	105	112
155	127	117	127	122

*Student whose Non-Language I.Q. exceeds his Language I.Q. by ten or more points.

**Student whose Non-Language I.Q. exceeds his Language I.Q. by ten or more points but who was not included among those randomly selected for the cell cases.

APPENDIX

CONTROL GROUP RAW DATA

Student Number	Total I.Q. CTMM	Pre-Test Score CAT-RS-X	Post-Test Mid-Term CAT-RS-Y	Post-Test End-of-Year CAT-RS-W
1	119	104	105	126
2*	87	46	67	56
4	96	66	81	88
5	103	106	116	110
6	127	106	110	121
7	111	114	94	104
8*	100	65	80	85
9	128	119	139	137
10	112	99	110	125
11*	103	67	67	69
12	70	22	32	53
13	74	34	48	41
14*	109	53	73	86
15	100	70	66	76
16	83	34	47	47
18	112	79	96	109
19*	88	32	44	41
21*	82	41	32	42
22	95	51	63	57

APPENDIX

Student Number	Total I.Q. CTMM	Pre-Test Score CAT-RS-X	Post-Test Mid-Term CAT-RS-Y	Post-Test End-of-Year CAT-RS-W
23	90	38	47	58
24	84	52	61	69
25	85	56	82	85
26	86	55	72	69
28	125	123	125	131
31*	90	36	46	33
32*	95	47	60	71
33	117	115	120	125
34	103	39	66	60
35*	93	42	49	49
36*	102	66	66	75
38	83	54	36	47
39*	112	95	70	74
40	142	132	140	132
41*	89	34	32	44
42	100	77	89	80
43*	89	55	65	80
44	99	76	72	89
45	95	42	70	73
46	100	69	90	100
49	118	106	100	126

APPENDIX

Student Number	Total I.Q. CTMM	Pre-Test Score CAT-RS-X	Post-Test Mid-Term CAT-RS-Y	Post-Test End-of-Year CAT-RS-W
50	115	95	117	119
53	98	71	95	100
54	80	47	66	90
56	105	49	75	87
58	113	101	96	99
59*	106	62	80	88
60	88	48	47	68
62	99	72	72	98
64	79	24	29	30
65	115	107	116	122
66	92	58	62	78
67	100	74	82	103
69	114	85	105	109
70	128	112	115	132
71*	98	54	73	69
75	96	64	79	86
76	101	72	86	94
77**	104	43	67	78
78	71	66	67	94
79*	89	49	49	84
80	112	82	102	101

APPENDIX

Student Number	Total I.Q. CTMM	Pre-Test Score CAT-RS-X	Post-Test Mid-Term CAT-RS-Y	Post-Test End-of-Year CAT-RS-W
81	88	63	66	88
84*	80	53	61	62
85	107	97	103	110
86	74	54	56	59
87	110	72	60	101
88	97	72	101	112
89	92	39	55	44
90*	123	76	92	97
91	88	45	57	52
92	100	72	81	102
93	118	84	94	90
94*	119	95	113	110
96	65	38	39	29
97	91	57	64	56
98*	99	70	70	83
100	97	90	96	102
103	102	85	83	86
104	100	63	67	78
105	90	88	96	98
106*	110	49	55	87
107*	86	57	67	71

APPENDIX

Student Number	Total I.Q. CTMM	Pre-Test Score CAT-RS-X	Post-Test Mid-Term CAT-RS-Y	Post-Test End-of-Year CAT-RS-W
108	82	37	62	55
109	89	42	48	46
110	99	68	91	79
111*	103	45	55	74
112	98	87	94	96
113	101	53	51	47
115**	115	76	93	105
116*	118	79	81	98
117	118	101	129	124
118	92	75	85	105
120*	104	49	74	75
121	87	64	77	105
123	132	118	120	132
124	129	125	115	124
126*	102	72	84	97
127*	91	39	43	54
128	82	49	76	86
129	91	47	52	70
130	104	88	97	99
131	105	87	91	114
132	92	47	57	60

APPENDIX

Student Number	Total I.Q. CTMM	Pre-Test Score CAT-RS-X	Post-Test Mid-Term CAT-RS-Y	Post-Test End-of-Year CAT-RS-W
133	91	50	46	65
134	75	39	44	45
135	107	100	117	119
136*	100	58	81	70
137	105	43	56	51
138*	108	45	61	82
139	109	76	90	94
140	103	63	82	96
141	90	81	77	86
142	90	52	68	90
143	90	57	75	68
144	115	73	86	97
145	88	58	56	63
146**	100	32	37	49
148	129	92	97	113
149	98	52	52	70
150*	81	40	35	48
151*	117	98	105	101
152	113	87	83	98
153*	101	66	80	85

*Student whose Non-Language I.Q. exceeds his Language I.Q. by ten or more points.

**Student whose Non-Language I.Q. exceeds his Language I.Q. by ten or more points but who was not included among

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