

EFFECTIVENESS OF A SEVENTH GRADE
DEVELOPMENTAL READING COURSE

A THESIS
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CHAPTER I

INTRODUCTION OF THE PROBLEM

Introduction

There seemed to be a general feeling among Clark County, Nevada educators that many junior high school students were not adequately prepared in their reading skills. This consensus of opinion led some junior high school principals in Clark County to incorporate developmental reading courses into their curriculums.

In the spring of 1964 a decision was made to begin a developmental reading program for seventh grade students at K. O. Knudson Junior High School, Clark County, Nevada. This was one of several developmental reading programs begun in Clark County that year. Developmental reading in this study refers to a reading program designed to improve the reading abilities of all students, except students enrolled in remedial reading, through the use of materials designed to help all students regardless of ability.

Instructional materials that would meet a wide range of reading abilities were sought since the reading abilities of students in each class varied greatly. Arithmetic and English classes were ability grouped, but reading was not because of class scheduling difficulties.

Two types of individualized reading laboratories were used in the program: Science Research Associates Reading Laboratory IIIa and the Junior Reading for Understanding Laboratory. The Educational

Developmental Laboratories Controlled Reader was later added to supplement work in the individualized laboratories.

SRA and RFU reading laboratories utilize multi-level materials to teach reading skills necessary to become a more proficient reader. The materials are in the form of self-directed short lessons that range in difficulty from low elementary levels to high school levels. Each student works at a level at which he can experience success and he is allowed to advance to more difficult materials as rapidly as he is able. The controlled reader utilizes filmstrip projection of reading material on a small group basis to improve the visual reading skills of pupils.

With the advent of new approaches to reading instruction in the last five to ten years, such as individualized reading laboratories, it is inevitable that frequent inquiries concerning the overall effectiveness of current reading programs have been made.

Although statistics show that children are learning and retaining as much as, if not more than, pupils in the past, teachers and administrators should be equipped to explain and justify the methods used in their own schools. Through a process of evaluation, educators can come to understand the strengths and shortcomings of their programs, and thus seek ways to improve, or change them if necessary.

By understanding the strengths and shortcomings of their educational programs, educators are in a far better position to make their efforts known to the public. Perhaps, as the public gains greater understanding of reading programs, it will begin to realize the problems facing educators

in their attempt to provide appealing and challenging approaches to learning.

Prior to the time of this writing no research had been conducted in Clark County, Nevada which had attempted to assess the merits of a new seventh grade reading course.

Statement of the Problem

This study was carried out to determine the effect on students' reading achievement resulting from participation in an individualized, multi-level, seventh grade developmental reading program at K. O. Knudson Junior High School in Clark County, Nevada.

CHAPTER II

REVIEW OF THE LITERATURE

Educators are coming to regret the tradition that reading is, and should be, taught as a separate discipline only in the primary and intermediate grades.

Almost twenty years ago Russell (1949, p. 229) stated:

No longer do school people accept the belief of a generation or two ago that children "learn to read" in the primary grades. Instead teachers, school administrators, and many parents accept the fact that reading instruction must continue through the junior and perhaps the senior high school years.

Early recognition of a need for developmental reading programs led educators to search for the best type of program. One idea for such a program was expressed as follows (Umans, 1963, p.3):

A developmental program for students who are able readers should be a continuous sequential program of reading instruction, and should reinforce and extend those desirable reading skills...and develop new skills of appreciation as they are needed to comprehend and enjoy advanced and complex forms of written communication.

Many materials have been developed which intended to help teachers provide a good program of reading instruction. Science Research Associates Reading Laboratories, Reading For Understanding Laboratories, published by Science Research Associates, and Educational Developmental Laboratory Controlled Readers are examples of such materials.

The SRA Reading Laboratory has provided the basic tool for many new developmental reading programs, just as it did for the program under

question in this study. Since the SRA Reading Laboratory was the basic tool in this study this review concentrates on experiments that intended to evaluate the effectiveness of SRA Reading Laboratory programs.

THE SRA READING LABORATORY

The first report of SRA Reading Laboratory programs was made by Don H. Parker (1957) in his doctoral dissertation at Columbia University. Parker is the author of the SRA Reading Laboratory.

Parker's project report indicated that when students were placed in a given grade according to similarity of chronological age, there was a wide range of individual differences in learning rate, capacity, and reading achievement. He concluded that from what was known of intelligence, child development, learning theory, and reading instruction, more highly individualized materials and techniques for improving reading were called for. The purpose of Parker's study was to develop multi-level materials and laboratory-type techniques, the use of which would enable most retarded, average, superior, and gifted students in secondary grades to receive highly individualized instruction for 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.

Parker (1957, p. 5) contended, "This type of instruction enables each student to begin at a level on which he can experience success, regardless of his starting level, and to progress through successive levels as fast and as far as his learning rate and capacity will permit him."

A controlled experiment, discussed in Parker's report (1957, pp. 7-8), was conducted in 1954-55 comparing achievement gains made by students using Parker's multi-level method with achievement gains of students instructed with single level materials. One hundred thirty students, whose instruction in reading and study skills improvement was individualized by the multi-level method, made statistically significant gains over a matched group instructed with single level materials. One-level students gained no more than a matched control group whose program included no special emphasis on reading improvement. Groups were matched with respect to mean IQ.

Test-retest results on two forms of the California Reading Achievement Test showed that by using multi-level materials bright students averaged a reading level gain of ten months and duller students gained eighteen months during the eleven week instructional period (Parker, 1957, p. 7). Boys and girls made equal gains. Eighteen students, ordinarily considered "remedial cases," gained an average of eighteen months during the experiment. Parker reported that this was equal to gains usually made by students placed in remedial classes.

The findings of this study led to the development of a complete set of multi-level laboratory materials published in 1957 by Science Research Associates.

About one year after publication of the SRA Reading Laboratories an investigation was carried out with seventh grade students in Sutherlin Junior High School, Sutherlin, Oregon (Sutherlin School District, 1958).

Forty students were divided into two groups. The purpose of the study was to determine the effectiveness of the multi-level reading program in the Sutherlin Junior High School.

At the start of the experimental period the Otis Quick Scoring Mental Ability Test was administered to all students of both groups. Also, Form A of the Coordinated Scales of Attainment Test was administered to the pupils. The median IQ from the Otis was 102 for the control group and 105 for the experimental group. The median score on the CSAT was 7.2 for both groups.

Fifty class sessions were spent using the SRA Reading Laboratory.

At the end of the experimental period, both groups were administered Form B of the Coordinated Scales of Attainment Test. The results showed that the experimental group's median score gained .6 of a grade compared to .1 of a grade loss for the control group. The authors also pointed out that the mean score of the experimental group showed a gain of 1.6 grades compared to .4 of a grade for the control group. These results were significant at the .01 confidence level.

The reported conclusions were that the use of the SRA Reading Laboratory was highly beneficial to children of all ability levels.

Another experiment carried out to test the effectiveness of SRA Reading Laboratory materials came from the State of Western Australia (Western Australia Secondary Schools, 1958). This investigation was designed to evaluate the multi-level materials under "normal" conditions of operation. The objectives for the experiment were: 1) To determine

the average improvement in reading grade months of the total sample of first, second, and third year students using the laboratory for three grade months. 2) To compare the improvements shown by retarded, average, and advanced readers in order to determine the group for whom the laboratory is most beneficial.

Teachers, operating the laboratory, carried out pre- and post-testing of students to determine the amount of comprehension gain. Reading Test Form A, constructed for the purpose by Science Research Associates, was used for both the pre- and post-testing.

In an effort to estimate the practice effect of testing and retesting with the Reading Test Form A, the test and retest procedure was carried out with a control group of 100 first year students who experienced the normal school program.

The results of the experiment showed gains for the first, second, and third year students in the experimental group of 12.6, 13.1, and 16.0 months respectively, as compared with 3 months gain for the 100 students that experienced the normal school program. The authors concluded that students who were retarded in reading ability derived maximum benefit from the SRA Reading Laboratory, but those who were average or advanced also derived "significant" improvement.

Sister Mary Madeliene (1959) studied relative effectiveness of multi-level instructional materials as compared to one level instructional materials.

The study was concerned with the progress in total reading

achievement, in comprehension, and in vocabulary for grades four, five, and six. The study also sought to determine if level of intelligence had an effect on reading progress.

A control group worked with a basal text and accompanying workbook appropriate for the grade being taught. Pupils from seventy-two classes comprised the subjects for this experiment. The Otis Quick Scoring Mental Ability Test was used to divide the pupils into thirds; upper, middle, and lower. Twenty pupils were randomly selected from each of these thirds. Two groups of ten pupils each were formed in these thirds. Each class participating in this experiment then consisted of thirty pupils, ten in each third. This ultimately led to 2,160 pupils being used as experimental subjects. Classes and teachers were randomly assigned to the treatments.

Following is a summary of the findings as presented in an abstract published by Science Research Associates (Madeleine, 1959, pp.15-16):

1. A significant difference in total reading means was found between the experimental and control groups of Grades Four, Five, and Six as measured by the SRA Achievement Series Reading Test, Form A. The hypothesis that the pupils using the multi-level instructional materials and laboratory approach and the pupils using the conventional one-level instructional materials approach do not differ in their total reading means is therefore rejected.
2. A significant difference was found between the experimental and control groups of Grades Four, Five, and Six in terms of comprehension as measured by the SRA Achievement Series Reading Test, Form A. The hypothesis that the two groups do not differ in comprehension means is therefore rejected.
3. A significant difference was found between the experimental

and control groups of Grades Four, Five, and Six in terms of vocabulary growth as measured by the SRA Achievement Series Reading Test, Form A. The hypothesis that the two groups do not differ in vocabulary growth means is therefore rejected.

4. A significant difference at the Fourth Grade level was found between the three ability subgroups compared successively. The hypothesis that the relative effectiveness of the SRA multi-level approach to reading does not depend upon the level of intelligence of pupils is therefore rejected. The multi-level reading approach is not equally effective for pupils at all levels of intelligence at the Fourth Grade level.
5. A significant difference at the Fifth Grade level was found between the three ability subgroups compared successively. The hypothesis that the relative effectiveness of the SRA multi-level approach to reading does not depend upon the intelligence of pupils is therefore rejected. The multi-level reading approach is not equally effective for pupils at all levels of intelligence on the Fifth Grade level.
6. A significant difference at the Sixth Grade level was found between the three ability subgroups compared successively. The hypothesis that the relative effectiveness of the SRA multi-level approach to reading does not depend upon the level of intelligence of the pupils is therefore rejected. The multi-level reading approach is not equally effective for pupils at all levels of intelligence on the Sixth Grade level.

Sister Mary Madeliene concluded that children in the fourth, fifth, and sixth grades who were taught with the SRA multi-level materials would achieve greater competence in reading comprehension and vocabulary growth than children whose reading program is limited to the conventional one-level reader with accompanying workbook. Contrary to what has previously been found the author also concluded that more intelligent pupils made greater gains, probably because those children were more

capable of assuming more self-direction in this type of program.

Bullock and Von Brock (1960) conducted a study in the Glen Ellyn School District in Illinois. The purpose of the study was to determine the effectiveness of multi-level materials in improving reading skills as measured by the Iowa Silent Reading Test. The skills measured by this test were rate, comprehension, vocabulary, identifying central thoughts, finding details, and total reading improvement.

Forty-six fifth grade subjects with a median IQ of 118 were used in the experiment. A control group was not used.

A pre- and post-test experimental design was used in the study. Two post-tests were administered, one at the end of six weeks and another at the end of twelve weeks. Different forms of the Iowa Silent Reading Test were used for each testing period.

Pre- and post-tests showed a significant growth for the total group for the first six week period. The twelve week period scores showed a median score increase of one year and five months. Bullock and Von Brock concluded that the use of selected multi-level materials were beneficial.

Jones and Van Why (1961) studied the effect of training with multi-level materials on reading ability of fourth grade students. The experimental and control groups, 52 subjects in each, were matched on the basis of IQ. Differences in the experimental and control groups were measured on the variables vocabulary, reading comprehension, and total reading ability. Further, they investigated differences in performance on the variables for those students of low, middle, and high achievement

levels according to the pre-tests. The "t" values computed for each of the above groups considered separately and together proved significant.

Walker (1961) compared the effectiveness of the SRA Reading Laboratory and a more conventional individualized approach with a control group using one textbook and accompanying workbook. The conventional individualized approach involved the using of a variety of materials designed to help students with their particular needs.

The sample was comprised of 86 sixth grade students. The students were assigned to groups matched according to reading ability and taught according to the appropriate group method for a period of six weeks.

Pre- and post-testing, using Diagnostic Reading Test, Forms A and B, showed that both the group using SRA materials, and the group using the more conventional individualized approach, made significantly greater gains than the control group. The group using the conventional individualized approach made greater gains than the SRA group, however, the difference in gains was not statistically significant.

Elijah (1963) conducted a study to determine the effectiveness of SRA Reading Laboratory materials as compared with other materials meant for group instruction. Differences in effectiveness of the two approaches were determined for students of varying abilities and different sexes.

The subjects were 230 seventh grade students from Issaquah Junior High School, Issaquah, Washington. Results of the California Mental Maturity Test and the California Achievement Tests were used to match experimental and control groups on language ability and achievement level.

A form of the California Achievement Test, reading section, different from the pre-test, was given at the end of the first semester. "t" scores were then computed to determine if significant differences existed among the variables.

Elijah (1963, p. 52) summarized the findings as follows:

The use of the individualized multi-level instructional materials when compared to the use of materials appropriate for group instruction did not result in significantly different growth in reading achievement for any of the following groups investigated in this study: the total group, the boys excepting those with high language ability, the girls excepting those with high language ability, the high ability group, and average ability group, and the low ability group.

It should be pointed out that the students in Elijah's study were very carefully grouped according to reading ability. Under a carefully grouped plan, whole group teaching techniques might have been more effective than in a heterogeneous group situation.

An unpublished master's thesis by Seaver (1966) was the most recent study of multi-level reading materials found in the literature. The SRA Reading Laboratory, designed for use by junior high school students, was used by one group of students twice a week for one semester. An EDL Controlled Reader was used to supplement the program. Another group used the conventional one-level instructional materials approach.

Seaver intended to determine: 1) if there existed a difference in the two approaches, and 2) if intelligence was a factor in determining the most effective approach.

All eighth grade pupils, 131 in all, of the Monadnock Regional

Junior High School comprised the experimental and control groups of the experiment. Sixty-eight subjects were in the experimental group. Sixty-three subjects were in the control group. Both groups were administered the Sequential Tests of Educational Progress for reading at the beginning of the study and at the end of the study. The Otis Quick Scoring Test of Mental Ability was administered to all subjects prior to the experiment. Results of the Otis were used to determine each subject's approximate level of intelligence.

Seaver (1966, p.27) found that:

1. A significant difference in reading means was found between the experimental and control groups of grades seven and eight as measured by the STEP Reading Test. The hypothesis that the pupils using the multi-level instructional materials and laboratory approach, and the pupils using the conventional one-level instructional materials approach do differ in their total reading means is substantiated.
2. A significant difference was found within the experimental group. The hypothesis that the relative effectiveness of the multi-level approach to reading does not depend upon the intelligence of pupils is therefore rejected.
3. A significant difference was found within the control group. The hypothesis that the relative effectiveness of the conventional one-level approach to reading does not depend upon the intelligence of pupils is therefore rejected.

THE READING FOR UNDERSTANDING LABORATORY

The Reading For Understanding Laboratory is another reading program published by Science Research Associates, Inc. The purpose of the program is to improve critical reading. Ten thought provoking paragraphs are

presented on cards ranging in difficulty from primary grade levels through high school levels. Students chose, from four possibilities, a word or phrase that provides the best ending for each paragraph. If students experience success and are able to provide the best ending to the paragraphs they can move themselves to a slightly more difficult level. Most students progress from relatively easy to increasingly more difficult paragraphs.

During the 1956-57 school year, Thurstone (1963, pp.22-26) carried out the first Goldsboro, North Carolina study. The experiment was conducted before the materials for the RFU program were completed. The purpose of the study was to test the effectiveness of the proposed materials.

Nineteen classes made up the experimental group, while eight classes constituted the control group. In all, 729 students in grades five through twelve were used.

Pre- and post-tests were administered to all students. Two parallel forms of a Reading For Understanding Test were used. Form A was administered to all students in December, before they began work on RFU materials. Form B was administered to all students in May, after the last practice sessions took place.

Results of the experiment were summarized by Thurstone (1963, p. 26) as follows:

Two aspects of the results seem worthy of special comment. The first is that the lower grades in the study show a difference between experimental and control groups, although reading is a part of the school program for all children at these levels. The second is that, in the upper grades of the experiment, only the experimental groups show a significant gain from

Form A to Form B. This is not surprising, however, since reading instruction is not carried out as a part of the regular school program at these levels.

It is also interesting to note that the students in grade 9 who completed the smallest number of practice exercises showed no gain, whereas students who practiced as recommended showed significant gains.

Thurstone's (1963, pp. 26-27) second Goldsboro study was conducted during the second half of the 1959-60 school year. The public schools of Goldsboro, North Carolina also provided the setting for this study.

On the basis of the Reading For Understanding Placement Test, 2100 students in grades 3 through 8 were assigned a practice level in the RFU laboratory. The students worked on the lessons twice a week for twenty weeks.

To evaluate the progress of students, pre- and post-test forms of the reading section of the Stanford Achievement Test were administered to all students.

The experimental work covered a period of five school months, thus the expected gains in reading ability were set at one-half a year. Actual gains obtained are presented in the following table (Thurstone, 1963, p. 27):

TABLE XIII
 READING GAINS IN ONE-HALF SCHOOL YEAR
 (Measured in Grade Units)

Grade	Number of Pupils	Stanford Reading		
		Vocabulary	Paragraph Meaning	Total Reading
3	350	.89	1.06	1.09
4	367	.84	1.36	1.10
5	347	1.04	1.21	1.14
6	385	1.36	1.29	1.33
7	308	1.40	.87	1.19
8	282	1.13	.63	.84

Since the experimental period covered one-half the school year, expected gains for each variable measured by the Stanford Reading Achievement Test were .50. As shown in the above table all of the obtained gains exceeded the expected gains.

THE CONTROLLED READER

The Controlled Reader is an educational tool produced by Educational Developmental Laboratories, Huntington, New York. EDL (Taylor and Frackenpohl, 1962, p. 5) explains Controlled Reading as follows:

Controlled Reading is that part of a reading program that involves the left-to-right presentation of picture or reading material at predetermined rates. The left-to-right control

provides a way of directly training functional visual skills and directional attack; the covering and uncovering of material at timed rates places a high premium on the ability to perceive correctly, remember well, and comprehend and interpret quickly and in an organized manner.

An experiment to find out if a special short-term reading program involving the Controlled Reader might be more effective in boosting reading speed and comprehension than the regular developmental reading program was conducted by Bottomly (1961).

In this experiment 46 elementary pupils were divided into experimental and control groups and matched on the basis of age, scores on the Otis Quick Scoring Mental Abilities Test, battery scores on the Stanford Achievement Test, and sex. The experimental group proceeded with a Controlled Reader program while the control group proceeded with the regular developmental reading program using regular and reference reading books along with lessons and projects designed to meet pupils interests and needs.

The Cooperative Reading Test was given after completion of the experiment. It was found that although both groups gained appreciably, no significant differences could be found between the control and experimental groups. However, investigators did find that five months after termination of the experiment significant results on another form of the Cooperative Reading Test did exist in favor of the experimental group. The investigators interpreted this as possibly indicating that the skills acquired were late blooming, revealing themselves after the pupils had returned to participate in their regular developmental reading classes.

Warren (1962) investigated the effect of a controlled reading program

at the junior high school level. An experimental and control group used identical reading and perceptual material, but in the experimental group a Controlled Reader was used to present the material.

At the start of the experiment two groups, each with 25 eighth grade students, were matched on the basis of scores received on Form Am of the Iowa Silent Reading Test. An eye-movement photograph test, taken with the Reading Eye on standardized test cards, was also administered at the start of the study. The purpose of eye-movement photography is to determine the number of fixations and regressions a student has while reading. It also measures the rate at which a student reads with good comprehension.

At the completion of twenty-one sessions, all subjects were retested with the Iowa Silent Reading Test Form Bm, and a second eye-movement photograph test. The results of the Iowa tests showed that the group using the Controlled Reader made significantly greater improvement in both rate and overall reading level than the group not using the Controlled Reader. The eye-movement photography test indicated that after training significant differences existed in fixations, regressions, and rate, in favor of the experimental group.

SUMMARY OF THE REVIEW

Evidence collected in this review strongly suggests that materials have been developed that will help educators provide good reading instruction at the secondary school level. Significant improvements in reading achievement have been found in students utilizing SRA Laboratory materials.

Reading For Understanding materials and Controlled Readers were also shown to aid reading improvement.

It seemed probable that a reading program using a SRA Reading Laboratory, supplemented by RFU materials and Controlled Reader filmstrips would provide an effective reading program for junior high school students.

The purpose of this study was to test the effectiveness of such a program.

CHAPTER III

METHODS AND PROCEDURES OF THE EXPERIMENT

DESIGN OF THE EXPERIMENT

The approach to this problem was to offer half a seventh grade class a one semester course in developmental reading and then compare reading achievement levels with those of students not taking such a course.

Students were placed into developmental reading on a random basis. Random placement was carried out during pre-school registration, August 29 and 30, 1966, by alternately placing students into science or reading as they presented their enrollment cards to the two school district employees responsible for class scheduling. The writer supervised and kept tally on the alternate placement.

Students continued to be alternately placed into science or reading through the first and second weeks of the semester. After Friday of the second week new students were eliminated as subjects in the experiment, however, they were scheduled into science or reading and did receive instruction along with the subjects of the experiment.

Students leaving school prior to the end of the semester were also eliminated as subjects in the experiment.

All students not enrolled in developmental reading took a one semester science course. Since science was normally a part of a curriculum not offering developmental reading, the assumption was that any differences in reading achievement levels caused by science would occur in the ordinary school

curriculum.

Students selected for remedial reading instruction were eliminated as subjects from the study. Remedial reading offered intensive individual help to students that were felt to be two or more years below their potential level in reading. Normally, the developmental reading teacher and the remedial reading teacher work together to select students for remedial reading. No recommendations for student placement into remedial reading were made by the developmental reading teacher during the experimental period because it was felt such recommendations might create a situation in which more lower level readers would be taken from developmental reading. The remedial reading teacher selected some students on the basis of verbal and non-verbal test scores on their permanent records. Some students were selected because of sixth grade teacher recommendations. As soon as remedial reading classes began students selected for remedial reading were rescheduled so that they no longer took developmental reading.

Two hundred fifty-seven subjects remained after students were eliminated for late enrollment, withdrawal from school, or selection for remedial reading. Experimental group subjects, taking developmental reading, numbered 128 seventh grade boys and girls. Control group subjects, taking science, numbered 129 seventh grade boys and girls.

INSTRUCTIONAL PROGRAM

The instructional program was carried on over the first semester,

beginning September 4, 1966 and ending January 13, 1967.

Half of the seventh grade students, except those taking remedial reading, took developmental reading for one semester. The purpose of the developmental reading program was to raise the reading ability of all students, largely through the use of individualized multi-level materials.

The instructional program closely followed the recommended procedures as established by Parker (1964, pp. 13-36), Thurstone (1963, pp. 3-11), and Taylor and Frackenpohl (1962, pp. 12-32) in their teacher's handbooks. Since the SRA Laboratory was the major part of the instructional program, the procedures used in following the programs recommended for Controlled Reader and the RFU Laboratory were changed slightly to fit in between and after regularly scheduled SRA Laboratory work days. An approximation of the semester schedule can be seen in Appendix A, pages 32 - 35.

Major responsibilities of the teacher in this program were to introduce laboratory procedures, administer tests, serve as a resource person for questions the students had, evaluate and discuss student progress in individual conferences with the students, and present lessons designed to teach important reading skills which were then reinforced by laboratory work.

IOWA SILENT READING ELEMENTARY TEST

At the end of the first semester all seventh grade students were administered Form Am of the Iowa Silent Reading Elementary Test. The test was administered by the writer and one other teacher on Monday and Tuesday, January 16 and 17, 1967. On each of these days groups of from 40 to 55

students were assigned to one of the six periods to take the test. Makeup testing for students absent one or both of the regularly scheduled testing days was held on Thursday, January 19, 1967.

The Iowa Silent Reading Elementary Test has six subtests; Rate and Comprehension, Directed Reading, Word Meaning, Paragraph Comprehension, Sentence Meaning, and Location of Information.

Evidence of the validity of the test is given by the authors of the test in the manual of directions by comparing the extent to which the subtests cover the specific knowledges and skills that experienced authorities consider fundamental to success in reading (Greene and Kelley, 1943, pp. 3-5). The data on correlations of the subtest raw scores, given in the test manual, indicate a relatively high contribution of each subtest to the total measure of silent reading abilities (Green and Kelley, 1943, p.4).

Specific items for the test were selected on the basis of (1) their power to discriminate between high and low levels of the special silent reading abilities measured by each subtest, and (2) their systematic decline in difficulty in successive grades.

Based on the Kuder-Richardson (1937, pp. 151-160) Formula 21, the reliability coefficient of the test was computed to be .951. The computations were based on scores obtained from 1689 seventh grade students in a national standardized population. All four forms of the Iowa Silent Reading Elementary Test (Am, Bm, Cm, Dm) entered equally into the determination of the reliability coefficient.

ANALYSIS

Mean grade level scores, as determined by the Iowa Silent Reading Elementary Test Form Am, were calculated for both the experimental and control groups. The null hypothesis that no difference in reading level exists between the experimental and control group was tested by a comparison of these scores. A "t" test was applied to test for significant differences in these mean levels. A "t" test was felt to be appropriate since the distribution of scores appeared to be fairly normal.

CHAPTER IV

RESULTS AND DISCUSSION OF THE RESULTS

Results of the Study

There was only one basic question under consideration in this study: Was the null hypothesis that no difference in reading level exists between the developmental reading group and the control group to be rejected or not?

The null hypothesis was rejected at the .01 level of confidence. A "t" score of 2.81 indicated that the differential treatment of the two groups produced a statistically significant difference in performance on the Iowa Silent Reading Elementary Test Form Am.

Appendix B, page 36, contains the raw data obtained for the experiment. In table I a summary of the results of the experiment is shown.

TABLE I

Differences of Means on the Iowa Silent Reading Elementary Test Form Am Scores of the Experimental and Control Groups

Mean Grade Level Scores			Significance Level
Experimental (N=128)	Control (N=129)	Difference	
8.65	7.89	.76	.01

Discussion of the Results

Judging from the results obtained it seems justifiable to state that the students who were taught according to the developmental reading program

achieved greater competency in reading than the students who did not receive such instruction.

It appears, likewise, that the methods and materials used in this study provided an effective seventh grade developmental reading program.

Results of this experiment are in accord with most of the reported findings of related studies. Elijah (1963) with the SRA Reading Laboratory and Bottomly (1962) with the Controlled Reader did report that no significant differences existed between these techniques and more conventional approaches to teaching reading. However, in Elijah's study the design was such that a favorable situation existed for conventional whole group teaching methods and in Bottomly's study a follow-up study did show significant results in favor of the Controlled Reader group. All of the other related studies reported results favorable to the multi-level approach.

Only the composite score was used in evaluating the effectiveness of this program because at the time of this experiment the Clark County School District was concerned primarily with the overall effectiveness of the program, not with discovering individual areas of weakness or strength. Now that the overall effectiveness has been established with a high degree of confidence it might be desirable to direct further research to discovering areas in which the program might be improved.

It was the observation of the writer that students at K. O. Knudson Junior High School were slightly below average in intellectual ability, and that they came from slightly below average socioeconomic areas. It would be difficult to generalize the results of this experiment to populations that

are high or very low in intellectual ability or socioeconomic status.

It might seem unlikely that students of below average intellectual ability would obtain reading scores that are above average. However, it must be remembered that norms for the Iowa Silent Reading Test were established in 1942. Norms for a 1967 population would probably be higher.

An observation by the writer that might be of interest to others doing research on instructional programs was that it seemed as though seventh grade students taking developmental reading during the second semester made greater improvements in their reading than did seventh grade students taking developmental reading during the first semester. If this observation is correct there is the possibility that if this experiment had been conducted during the second semester the differences in reading levels between the control and experimental groups might have been greater.

CHAPTER V

SUMMARY

A seventh grade developmental reading program taught with multi-level instructional materials was evaluated in this study. The SRA Reading Laboratory, the Reading For Understanding Laboratory, and EDL filmstrips were the materials used.

Prior research indicated that in most cases multi-level instructional materials provided an effective method for improving the reading ability of students. An experimental and control group procedure used in this study was intended to determine if the multi-level approach to reading instruction would provide an effective developmental reading program for seventh grades students in Clark County, Nevada. The experimental group received reading instruction with multi-level materials. The control group received no reading instruction.

Significant results obtained in this study in favor of the group using multi-level reading materials tends to support the findings of most previous studies and indicate that these types of materials can be used in providing effective reading instruction for junior high school students.

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APPENDIX A

DAY-BY-DAY SCHEDULE*

FIRST WEEK

Monday	SRA. Set goals and administered the Starting Level Guide.
Tuesday	SRA. Discussed individual differences, introduced the Student Record Book; presented SQ3R and the Power Builder Starter.
Wednesday	SRA. Reread the Power Builder Starter; completed "How Well Did You Read?" comprehension check.
Thursday	SRA. Completed the Power Builder Starter.
Friday	SRA. Checked work on the Power Builder Starter; recorded scores on progress charts; evaluated work on the Power Builder Starter.

SECOND WEEK

Monday	SRA. Began multi-level work with Power Builders.
Tuesday	SRA. Power Builder session.
Wednesday	SRA. Introduced Rate Builders.
Thursday	SRA. Multi-level work with Rate Builders.
Friday	SRA. Power Builder session.

THIRD WEEK

Monday	SRA. Classwork on vowel patterns and syllable rules.
Tuesday	SRA. Completed classwork on vowel patterns and syllable rules.
Wednesday	SRA. Power Builder session.
Thursday	SRA. Rate Builder session.
Friday	SRA. Power Builder follow-up.

FOURTH WEEK

Monday	SRA. SQ3R lesson. Power Builder session.
Tuesday	SRA. Rate Builders.
Wednesday	SRA. Practiced SQ3R with textbooks.
Thursday	SRA. Power Builder session.
Friday	SRA. Power Builder session.

*Please note: This is not an exact duplicate of the schedule followed. It is intended to show the reader the amount and kind of emphasis given during the program.

FIFTH WEEK

Monday	SRA. Power Builder Follow-up 2.
Tuesday	SRA. Power Builder session.
Wednesday	SRA. Rate Builder session. Introduced Listening Skill Builders.
Thursday	SRA. Rate Builder session. Listening Skill Builder 2.
Friday	SRA. Power Builder session. Listening Skill Builder 3.

SIXTH WEEK

Monday	SRA. Power Builder session.
Tuesday	SRA. Rate Builder session. Listening Skill Builder 4.
Wednesday	SRA. Rate Builder session. Listening Skill Builder 5.
Thursday	SRA. Power Builder session.
Friday	SRA. Rate Builder session. Listening Skill Builder 6.

SEVENTH WEEK

Monday	SRA. Power Builder session.
Tuesday	SRA. Rate Builder session. Listening Skill Builder 7.
Wednesday	SRA. Power Builder session. Listening Skill Builder 8.
Friday	SRA. Power Builder session.

EIGHTH WEEK

Monday	SRA. Power Builder session.
Tuesday	SRA. Rate Builder session. Listening Skill Builder 9.
Wednesday	SRA. Rate Builder session. Listening Skill Builder 10.
Thursday	RFU. Reading For Understanding Laboratory goal setting.
Friday	RFU. Placement test.

NINTH WEEK

Monday	SRA. Power Builder session.
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Tuesday	RFU. Assigned practice levels. Introduced student record books.
Wednesday	SRA. Rate Builder and Power Builder session.
Thursday	RFU. Established classroom procedures. Adjust practice levels.
Friday	RFU. Adjust practice levels. Discussed with students procedures for adjusting levels.

TENTH WEEK

Monday	SRA. Power Builder session. Vocabulary lesson.
Tuesday	RFU.
Wednesday	SRA. Rate Builder session.
Thursday	RFU.
Friday	SRA. Power Builder session.

ELEVENTH WEEK

Monday	RFU.
Tuesday	SRA. Power Builder session.
Wednesday	RFU.
Thursday	SRA. Power Builder session.
Friday	RFU.

TWELFTH WEEK

Monday	SRA. Rate Builder and Power Builder session.
Tuesday	RFU.
Wednesday	Introduced EDL Controlled Reader. Discussed goals and procedures.
Thursday	Divided each class into three groups for EDL work. Reviewed goals and procedures.
Friday	RFU.

THIRTEENTH WEEK

Monday	EDL. Filmstrips.
Tuesday	SRA. Power Builder session.
Wednesday	EDL. Filmstrips.
Thursday	SRA. Power Builder session.
Friday	RFU.

FOURTEENTH WEEK

Monday	EDL. Filmstrips.
Tuesday	SRA. Rate Builder and Power Builder session.

Wednesday RFU.
 Thursday SRA. Power Builder session
 Friday EDL. Filmstrips.

FIFTEENTH WEEK

Monday RFU.
 Tuesday SRA. Rate Builder and Power Builder session.
 Wednesday EDL. Filmstrips.
 Thursday SRA. Power Builder session.
 Friday RFU.

SIXTEENTH WEEK

Monday EDL. Filmstrips.
 Tuesday SRA. Rate Builder and Power Builder session
 Wednesday RFU.
 Thursday SRA. Power Builder session.
 Friday EDL. Filmstrips.

SEVENTEENTH WEEK

Monday RFU.
 Tuesday SRA. Rate Builder and Power Builder session.
 Wednesday EDL. Filmstrips.
 Thursday SRA. Power Builder session.
 Friday RFU.

EIGHTEENTH WEEK

Monday EDL. Filmstrips.
 Tuesday SRA. Power Builder session.
 Wednesday RFU. Final evaluation.
 Thursday SRA. Final evaluation.
 Friday EDL. Final evaluation.

APPENDIX B

SCORES OBTAINED ON THE IOWA SILENT
READING ELEMENTARY TEST FORM AM

EXPERIMENTAL GROUP

Student	1		Subtest Standard Scores*				6		Grade Equiv.
	Rate	Comp.	2	3	4	5	A	B	
1	135	162	170	160	157	140	164	188	8.3
2	153	185	156	173	157	170	182	188	11.6
3	168	162	158	182	161	163	160	168	9.2
4	176	162	152	156	161	156	151	168	8.0
5	156	178	143	152	136	136	129	139	5.7
6	163	152	150	164	141	159	168	160	8.8
7	158	162	156	164	141	153	151	143	7.5
8	144	123	124	121	123	118	129	139	4.3
9	122	118	134	131	118	129	134	139	4.9
10	162	148	148	148	157	178	160	132	7.5
11	160	167	154	168	161	170	154	156	7.9
12	155	148	146	166	157	163	160	164	8.0
13	168	148	137	154	157	156	139	164	7.5
14	153	148	146	144	118	138	154	156	6.4
15	149	148	150	166	136	170	168	160	7.5
16	147	136	132	148	145	145	151	143	6.3
17	142	148	146	164	136	138	182	176	6.4
18	162	152	158	156	145	138	182	134	7.7
19	135	132	150	158	131	156	160	160	7.2
20	172	172	150	158	171	170	154	160	10.3
21	178	167	176	160	171	163	182	172	10.5
22	147	128	137	129	157	123	146	160	5.8
23	140	152	129	160	165	159	177	168	8.2
24	133	152	163	178	161	163	177	176	8.7
25	140	172	182	173	171	159	168	180	10.5
26	197	157	146	164	141	159	157	164	7.9
27	168	185	163	164	168	166	177	176	9.6
28	163	152	163	143	157	156	168	156	7.7
29	163	167	163	160	196	163	172	156	8.7

*An explanation of the subtests can be found in the Iowa Silent Reading Tests Manual of Directions (Greene and Kelly, 1943, pp. 2 and 3). Grade equivalent scores were derived from composite scores (Greene and Kelly, Table 17, p. 13).

Student	Subtest Standard Scores								Grade Equiv.
	1		2	3	4	5	6		
	Rate	Comp.					A	B	
30	172	185	172	180	181	178	164	176	11.9
31	151	152	139	146	149	140	149	134	6.7
32	149	167	158	175	165	183	172	176	10.0
33	105	136	137	135	113	129	160	139	5.2
34	181	152	129	143	136	133	177	152	5.6
35	171	172	167	180	183	183	172	180	11.6
36	144	148	146	143	157	153	132	147	6.4
37	172	172	163	185	189	178	172	180	11.6
38	158	178	167	171	149	145	164	168	9.2
39	170	128	156	173	161	138	151	160	7.9
40	168	172	152	173	153	170	154	147	8.3
41	187	162	180	180	181	163	160	172	11.6
42	151	167	163	148	174	145	172	176	9.0
43	156	157	163	171	176	153	154	143	7.7
44	162	157	163	171	168	150	177	160	8.7
45	167	162	154	166	168	156	160	160	8.3
46	191	185	186	173	174	170	168	180	11.9
47	175	167	178	178	181	163	182	176	11.9
48	140	148	141	150	141	156	154	143	6.3
49	151	128	146	158	145	150	172	152	7.3
50	170	148	160	175	183	170	182	164	10.0
51	180	167	167	158	174	178	172	180	10.8
52	162	152	178	166	174	178	172	164	9.8
53	138	172	170	166	174	170	177	188	10.5
54	163	192	184	182	174	188	164	176	12.7
55	144	172	148	166	161	174	154	160	8.3
56	163	185	178	180	192	174	182	180	13.1
57	144	157	156	162	145	145	182	147	7.1
58	138	162	158	158	168	148	182	176	8.2
59	153	148	148	158	149	163	172	176	7.6
60	176	152	167	171	174	170	160	160	10.3
61	183	192	178	204	192	188	177	180	14.1
62	153	136	137	125	141	133	132	120	5.1
63	131	167	163	173	157	163	172	147	8.7
64	138	144	137	146	141	148	151	147	6.2
65	135	157	165	180	183	150	182	176	8.3
66	178	157	148	158	171	153	146	160	8.0
67	147	144	158	154	165	150	177	160	7.6
68	178	185	158	180	176	170	182	160	11.9
69	138	136	137	158	136	140	182	176	5.5
70	155	157	160	185	171	178	182	176	11.0
71	162	162	165	178	157	170	177	176	9.6
72	155	157	165	180	145	174	172	152	8.3

Student	Subtest Standard Scores								Grade Equiv.
	1		2	3	4	5	6		
	Rate	Comp.					A	B	
73	135	162	148	158	149	163	160	139	7.3
74	175	136	152	143	157	150	149	168	6.9
75	125	152	146	150	127	145	182	156	6.5
76	144	185	156	178	165	166	172	188	9.8
77	162	152	170	162	161	145	177	172	8.5
78	140	157	170	154	153	156	172	172	7.7
79	175	136	150	158	176	188	151	164	8.3
80	153	144	146	173	165	136	172	156	7.5
81	172	140	139	168	165	163	164	130	8.8
82	160	144	143	164	141	148	157	160	7.2
83	142	172	184	185	171	188	182	176	12.7
84	153	148	158	168	171	163	121	156	7.7
85	168	172	184	178	174	183	172	176	11.3
86	174	157	156	175	149	188	172	176	10.8
87	155	167	170	148	161	123	182	180	7.9
88	171	172	176	192	211	188	182	180	13.6
89	147	144	160	160	145	143	168	180	7.3
90	179	178	170	178	183	188	164	180	12.7
91	149	144	148	152	149	140	164	152	6.7
92	176	178	170	178	196	183	172	164	11.9
93	155	172	176	162	168	148	168	156	9.0
94	119	157	139	146	131	133	157	147	6.0
95	171	185	197	201	183	188	177	180	14.2
96	135	157	146	154	149	150	141	160	6.8
97	135	128	139	154	145	136	143	134	5.4
98	138	162	158	178	165	170	160	156	8.3
99	135	172	172	178	174	178	160	164	10.5
100	170	167	165	164	161	156	172	176	9.2
101	140	148	137	148	157	159	164	139	6.5
102	174	152	156	160	161	163	164	176	8.5
103	147	167	172	119	157	138	154	156	7.5
104	147	172	165	178	165	178	172	180	10.5
105	133	157	143	144	145	148	151	143	6.2
106	140	132	132	158	153	136	132	139	5.4
107	156	152	165	152	168	163	182	168	9.4
108	147	172	180	204	179	174	182	188	13.1
109	163	172	139	150	149	143	139	139	6.3
110	151	185	158	164	181	188	182	176	12.7
111	163	140	146	156	136	138	164	156	6.9
112	187	192	188	171	181	188	182	176	14.3
113	170	152	150	144	161	178	164	139	7.7
114	180	123	156	160	153	170	160	143	7.9
115	174	192	182	160	196	153	154	164	10.3

Student	Subtest Standard Scores						6		Grade Equiv.
	1		2	3	4	5	A	B	
116	133	167	176	162	161	153	172	172	9.0
117	171	162	150	148	165	163	154	156	7.0
118	174	123	141	146	145	153	151	168	6.7
119	144	167	184	192	157	153	182	180	11.0
120	186	140	154	146	149	159	151	152	7.1
121	149	144	178	178	176	170	182	172	11.0
122	122	123	127	127	107	138	154	130	4.3
123	175	148	148	148	141	140	160	143	6.5
124	167	172	156	162	171	170	177	176	10.3
125	168	152	143	168	145	148	172	147	6.8
126	172	162	154	178	186	170	157	172	10.3
127	155	123	137	117	145	133	143	147	5.6
128	149	144	148	166	123	150	143	143	6.3

CONTROL GROUP

1	128	148	156	158	145	153	182	180	7.5
2	138	144	170	171	153	178	177	164	9.4
3	155	136	139	139	127	159	154	134	5.5
4	155	167	154	167	153	171	172	164	9.2
5	175	167	191	178	168	148	157	164	9.6
6	162	157	158	178	171	159	154	180	8.3
7	182	152	152	160	145	140	153	188	7.2
8	168	172	158	168	171	136	154	168	9.6
9	151	128	170	143	149	145	157	168	6.8
10	160	152	160	173	149	153	168	188	8.2
11	163	157	165	150	141	153	182	188	8.2
12	158	178	184	187	189	178	177	176	12.3
13	170	141	158	178	183	163	188	168	9.8
14	147	148	134	152	157	140	168	150	6.7
15	122	157	154	180	153	133	182	150	7.3
16	144	167	167	171	189	178	172	180	10.5
17	155	148	154	150	168	159	168	164	7.7
18	167	132	156	150	145	153	164	134	7.1
19	183	157	176	175	168	140	168	176	10.5
20	144	139	152	160	149	166	177	147	6.9
21	174	144	156	164	141	174	177	160	7.9
22	158	148	156	156	123	148	164	153	7.6
23	149	144	154	165	165	169	160	153	7.7
24	125	136	118	117	127	129	121	107	3.9
25	156	152	163	168	161	166	172	176	9.0
26	172	152	137	150	131	143	134	139	5.7

Student	Subtest Standard Scores								Grade Equiv.
	1		2	3	4	5	6		
	Rate	Comp.					A	B	
27	151	172	156	173	165	169	149	150	8.3
28	162	172	170	180	168	171	177	188	10.5
29	156	185	167	198	206	171	177	180	12.7
30	186	162	178	175	181	166	182	176	11.9
31	162	167	165	162	165	156	157	168	8.8
32	144	144	132	139	141	140	172	143	5.8
33	125	136	139	150	141	159	146	134	5.6
34	125	132	152	138	136	148	160	160	6.0
35	151	144	174	164	131	159	172	168	8.5
36	156	152	158	192	186	183	177	188	13.1
37	155	144	148	156	153	183	160	143	7.3
38	135	152	158	165	141	171	168	147	7.5
39	174	152	152	164	174	171	177	164	9.6
40	142	162	154	158	157	133	177	143	7.6
41	133	172	137	190	153	166	168	153	8.2
42	175	118	152	136	161	126	168	143	6.5
43	142	136	156	154	149	129	177	164	7.1
44	160	167	163	173	100	166	177	176	9.4
45	142	162	154	167	157	153	160	143	7.6
46	186	152	170	167	157	156	172	160	8.8
47	149	148	163	165	157	143	164	168	8.2
48	151	185	167	180	161	171	172	176	9.8
49	147	152	152	147	157	133	154	150	6.9
50	140	148	137	160	141	166	168	156	7.1
51	133	148	163	156	131	178	168	168	8.2
52	155	157	156	167	168	148	172	153	7.7
53	181	141	150	162	149	159	143	134	6.8
54	140	178	160	192	153	148	160	153	7.7
55	163	162	152	136	153	140	139	147	6.8
56	174	152	165	158	157	153	177	176	8.5
57	158	157	156	168	149	145	168	176	7.9
58	160	167	160	173	168	166	160	143	8.7
59	179	136	152	171	141	126	172	180	8.5
60	142	148	154	158	165	166	172	147	7.6
61	142	157	158	162	141	169	157	150	7.7
62	135	128	134	123	123	123	149	125	4.3
63	138	157	160	173	161	153	168	160	8.3
64	131	139	146	162	127	133	164	168	6.0
65	138	148	154	164	141	140	177	153	6.9
66	179	172	163	162	174	171	177	176	10.8
67	155	162	154	178	168	169	151	147	8.0
68	168	141	174	154	145	133	182	180	8.3
69	156	141	132	143	123	136	149	125	5.5

Student	Subtest Standard Scores								Grade Equiv
	1		2	3	4	5	6		
	Rate	Comp.					A	B	
70	149	152	178	182	141	153	182	176	9.0
71	172	185	176	187	186	188	172	188	14.3
72	138	148	148	154	136	156	154	153	6.9
73	182	162	156	178	161	166	182	153	7.3
74	140	123	139	147	145	145	160	134	6.0
75	125	152	146	144	123	143	172	147	6.2
76	160	152	152	156	153	156	164	156	7.6
77	122	152	152	171	136	148	160	150	6.9
78	179	152	165	156	141	166	182	176	9.2
79	174	152	163	154	153	178	160	153	7.7
80	182	157	178	162	171	153	164	188	9.6
81	160	162	170	173	186	178	182	180	11.6
82	158	162	146	173	145	133	168	147	7.1
83	167	167	165	162	145	156	182	164	9.0
84	186	167	178	192	168	166	182	164	10.8
85	149	152	160	103	157	159	149	164	7.5
86	163	172	154	180	161	166	182	188	9.8
87	179	162	167	180	161	166	182	180	10.8
88	149	148	150	149	157	159	168	147	6.8
89	140	172	172	175	171	178	177	176	11.0
90	162	148	158	167	145	169	182	176	9.0
91	125	148	141	135	136	163	177	153	6.2
92	174	152	174	165	145	171	168	164	9.4
93	181	132	156	156	153	148	182	164	7.6
94	116	148	154	164	136	148	160	147	6.5
95	128	157	156	144	136	126	177	150	6.4
96	186	148	160	173	157	169	177	168	9.8
97	163	162	160	168	171	166	182	164	9.0
98	151	118	158	152	131	156	182	176	7.3
99	163	128	146	147	141	143	182	147	6.4
100	142	141	152	135	131	143	141	143	5.8
101	125	118	132	121	123	140	134	114	4.0
102	160	141	154	162	145	163	182	156	7.9
103	133	172	165	167	141	140	168	153	8.0
104	156	144	158	152	153	140	146	160	7.2
105	140	139	139	133	149	140	151	139	5.6
106	167	109	132	156	161	143	151	160	7.3
107	144	144	141	177	165	148	146	153	6.4
108	175	148	158	160	145	153	172	153	7.7
109	195	172	152	187	181	178	168	176	11.9
110	125	118	150	144	123	126	143	156	5.1
111	103	136	134	143	116	133	143	147	5.1
112	128	152	154	147	131	133	172	139	6.3

Student	Subtest Standard Scores								Grade Equiv.
	1		2	3	4	5	6		
	Rate	Comp.					A	B	
113	133	132	141	131	141	143	164	134	5.7
114	168	157	156	164	153	159	172	139	7.9
115	125	128	124	141	100	115	134	134	4.3
116	131	136	156	152	136	159	157	156	7.3
117	131	152	150	154	157	178	154	153	7.3
118	125	132	148	143	136	145	151	139	5.7
119	144	178	154	167	157	156	139	153	7.5
120	170	136	165	171	149	178	182	188	10.3
121	122	139	150	162	131	143	177	150	6.4
122	172	178	137	152	165	178	168	156	9.4
123	151	148	156	162	149	159	172	168	7.9
124	135	139	141	143	153	145	157	150	6.1
125	144	118	154	141	95	136	121	139	5.4
126	144	162	167	192	168	159	149	168	9.0
127	149	123	137	121	127	126	137	134	4.7
128	168	167	172	187	157	171	157	156	9.6
129	170	157	174	160	168	148	172	176	9.8