The Effect of Systematic Developmental Reading Instruction at the Junior High School Level Upon Reading Ability and General Achievement.

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THE EFFECT OF SYSTEMATIC DEVELOPMENTAL READING INSTRUCTION AT THE JUNIOR HIGH SCHOOL LEVEL UPON READING ABILITY AND GENERAL ACHIEVEMENT

A Dissertation

Submitted to the Graduate Faculty of the Louisiana State University and Agricultural and Mechanical College in partial fulfillment of the requirements for the degree of Doctor of Philosophy

in

The Department of Education

by

G. Le. Coussan

M. A., Louisiana State University, 1946

June, 1956
ACKNOWLEDGMENTS

This dissertation is dedicated to the writer's parents, Mr. and Mrs. Paul Coussan, Sr. Their sacrifice and consistent encouragement made various phases of undergraduate and graduate work possible.

Grateful acknowledgment is extended Superintendent Jerome A. Broussard of West Feliciana Parish Schools for making available the St. Francisville High School for this study; to Mrs. Alline Haralson, teacher of English, for helping with the planning and execution of teaching procedures; and to the teachers and pupils of the school who helped in many ways throughout the progress of this study.

The writer wishes to acknowledge his indebtedness to his major professor, Dr. George H. Deer, for guidance and encouragement offered during his advanced graduate work and for painstaking assistance given in the preparation of this report.

To Dean E. B. Robert, Dr. John Hunter, Dr. Russell Helmick, and Dr. W. A. Lawrence, the writer offers kind thanks for suggestions in planning the study and preparing the dissertation in final form.

The author is indebted to his wife, Mary B., for her loyal assistance and encouragement and for typing the manuscript.

G.L.C.

St. Francisville, Louisiana
June 2, 1956
# TABLE OF CONTENTS

<table>
<thead>
<tr>
<th>CHAPTER</th>
<th>PAGE</th>
</tr>
</thead>
<tbody>
<tr>
<td>I. PRESENTATION OF THE STUDY</td>
<td>1</td>
</tr>
<tr>
<td>The problem</td>
<td>2</td>
</tr>
<tr>
<td>Sources of data</td>
<td>9</td>
</tr>
<tr>
<td>II. RELATED LITERATURE</td>
<td>10</td>
</tr>
<tr>
<td>General reading instruction as related to academic success</td>
<td>12</td>
</tr>
<tr>
<td>Specific reading instruction in content areas and academic achievement</td>
<td>20</td>
</tr>
<tr>
<td>Systematic reading instruction versus incidental guidance in reading</td>
<td>29</td>
</tr>
<tr>
<td>III. STUDENT GROUPS AND PROCEDURES FOR EQUATING</td>
<td>36</td>
</tr>
<tr>
<td>The groups</td>
<td>36</td>
</tr>
<tr>
<td>Method of equating the groups</td>
<td>38</td>
</tr>
<tr>
<td>Tests administered</td>
<td>38</td>
</tr>
<tr>
<td>Statistical measures applied to equate the groups</td>
<td>40</td>
</tr>
<tr>
<td>Factors equated</td>
<td>41</td>
</tr>
<tr>
<td>Normality of sample</td>
<td>48</td>
</tr>
<tr>
<td>IV. MATERIALS AND PROCEDURES USED TO DEVELOP COMPETENCIES IN READING</td>
<td>52</td>
</tr>
<tr>
<td>The general plan</td>
<td>52</td>
</tr>
<tr>
<td>Materials concerning the reading process</td>
<td>53</td>
</tr>
<tr>
<td>Mechanical devices used</td>
<td>58</td>
</tr>
<tr>
<td>CHAPTER</td>
<td>PAGE</td>
</tr>
<tr>
<td>------------------------------------------------------------------------</td>
<td>------</td>
</tr>
<tr>
<td>Reading readiness activities</td>
<td>59</td>
</tr>
<tr>
<td>Teaching procedure</td>
<td>67</td>
</tr>
<tr>
<td>Improving comprehension</td>
<td>67</td>
</tr>
<tr>
<td>Vocabulary improvement</td>
<td>74</td>
</tr>
<tr>
<td>Developing skills for content reading</td>
<td>80</td>
</tr>
<tr>
<td>Increasing reading rate</td>
<td>96</td>
</tr>
<tr>
<td>V. PRESENTATION AND ANALYSIS OF THE DATA</td>
<td>104</td>
</tr>
<tr>
<td>Group comparisons</td>
<td>105</td>
</tr>
<tr>
<td>Comparisons of the upper, middle and lower thirds of the groups</td>
<td>116</td>
</tr>
<tr>
<td>VI. SUMMARY AND CONCLUSIONS</td>
<td>122</td>
</tr>
<tr>
<td>Summary</td>
<td>122</td>
</tr>
<tr>
<td>Conclusions</td>
<td>124</td>
</tr>
<tr>
<td>BIBLIOGRAPHY</td>
<td>128</td>
</tr>
<tr>
<td>APPENDIX A. Reference tables</td>
<td>134</td>
</tr>
<tr>
<td>APPENDIX B. Examples of materials used</td>
<td>141</td>
</tr>
<tr>
<td>AUTOBIOGRAPHY</td>
<td>153</td>
</tr>
</tbody>
</table>
## LIST OF TABLES

<table>
<thead>
<tr>
<th>TABLE</th>
<th>PAGE</th>
</tr>
</thead>
<tbody>
<tr>
<td>I. Comparison of the Reading Achievement of the Two Groups on Form AA of California Reading Test, September</td>
<td>42</td>
</tr>
<tr>
<td>II. Comparison of the General Achievement of the Two Groups on Form AA of the California Achievement Tests, September</td>
<td>43</td>
</tr>
<tr>
<td>III. Comparison of the Mental Ability of the Two Groups on The Science Research Associates Primary Mental Abilities Test, Form AH, September</td>
<td>44</td>
</tr>
<tr>
<td>IV. Summary Table: Comparison of the Two Groups on the Five Factors Considered in Equating Them</td>
<td>45</td>
</tr>
<tr>
<td>V. Comparison of the Upper, Middle and Lower Thirds of the Groups in Reading Achievement and Primary Mental Abilities, September</td>
<td>47</td>
</tr>
<tr>
<td>VI. Comparison of the Percents of the 74 Cases in This Study Which Were Distributed at Points of .5 Sigma Units From The Means With the Percents Found in a Normal Distribution at The Same Successive Points</td>
<td>49</td>
</tr>
<tr>
<td>TABLE</td>
<td>PAGE</td>
</tr>
<tr>
<td>-------</td>
<td>------</td>
</tr>
<tr>
<td>VII. Deviation of the Total Sample from Normality; and the Significance of Skewness of the Sample in Reading, General Achievement and Mental Ability</td>
<td>50</td>
</tr>
<tr>
<td>VIII. Comparison of the Mean Gains Made by the Control and Experimental Groups on the California Achievement Test in Reading</td>
<td>106</td>
</tr>
<tr>
<td>IX. Comparison of the Mean Gains Made by the Control and Experimental Groups on the California Achievement Test in Arithmetic</td>
<td>109</td>
</tr>
<tr>
<td>X. Comparison of the Mean Gains Made by the Control and Experimental Groups on the California Achievement Test in Language</td>
<td>110</td>
</tr>
<tr>
<td>XI. Comparison of the Mean Gains Made by the Control and Experimental Groups on the California Achievement Tests in Social and Related Sciences</td>
<td>112</td>
</tr>
<tr>
<td>XII. Comparison of the Mean Gains Made by the Control and Experimental Groups on the California Tests of Achievement</td>
<td>114</td>
</tr>
<tr>
<td>XIII. Summary of the Comparisons of the Mean Gains Made by the Control and Experimental Groups on the California Tests of Achievement</td>
<td>116</td>
</tr>
<tr>
<td>TABLE</td>
<td>PAGE</td>
</tr>
<tr>
<td>-------</td>
<td>------</td>
</tr>
<tr>
<td>XIV.</td>
<td>Comparisons of the Mean Gains of the Upper, Middle and Lower Thirds of the Two Groups on the California Achievement Test in Reading</td>
</tr>
<tr>
<td>XV.</td>
<td>Comparisons of the Mean Gains of the Upper, Middle and Lower Thirds of the Two Groups in General Achievement as Measured by California Achievement Tests</td>
</tr>
<tr>
<td>XVI.</td>
<td>Quotient Scores on the Science Research Associates Primary Mental Abilities Test and Chronological Ages in September</td>
</tr>
<tr>
<td>XVII.</td>
<td>Grade Placements of the Control and Experimental Groups on The California Achievement Tests in Reading</td>
</tr>
<tr>
<td>XVIII.</td>
<td>Grade Placements of the Control and Experimental Groups on the California Achievement Tests in Arithmetic</td>
</tr>
<tr>
<td>XIX.</td>
<td>Grade Placements of the Control and Experimental Groups on The California Achievement Tests in Language</td>
</tr>
</tbody>
</table>
TABLE | PAGE
XX. Grade Placements of the Control and Experimental Groups on the California Achievement Tests in Social and Related Sciences .................. 139
XXI. Grade Placements of the Control and Experimental Groups in General Achievement as Measured by California Achievement Tests .... 140
ABSTRACT

Ordinarily classes in formal reading instruction are discontinued after the sixth grade. This study is an attempt to determine whether at the seventh and eighth grade level, a regular class in reading, using generally accepted procedures and taught by one not necessarily a reading specialist, would produce significant gains in reading achievement and in achievement in other academic subjects.

In September, 1954, two groups of seventh and eighth grade pupils of the St. Francisville High School were equated on the basis of: (1) mental ability, (2) reading ability, (3) chronological age, (4) academic achievement, and (5) number.

The two groups followed the same daily program with one exception. The experimental group was taught reading in a systematic formal class which met daily for sixty minutes. The control group did not receive this instruction. Instead, those pupils went to a conventional period of supervised study or free reading, as is usually provided at this level.

The program followed in teaching the experimental group included various materials and procedures generally accepted in developmental reading instruction.

In May, 1955, the groups were tested again with alternate forms of the California Tests of Achievement.

Effects of the reading instruction were tested by comparing
mean gains of the two groups in reading and in general achievement.

The experimental group made significantly larger gains than the control group in both reading achievement and in general academic achievement. Differences significant at the .01 level favored the experimental group in reading, arithmetic, social and related sciences, and in general academic achievement. In language (tests used measured spelling and mechanics of English and grammar), the difference was statistically not significant.

To test whether formal reading instruction affected achievement differently at different ability levels, each group was divided into three sections based upon initial reading ability.

Each section of the experimental group made greater progress in both reading and general achievement, than its counterpart in the control group. Differences were significant at the .01 level between the upper thirds and lower thirds, but not between the middle thirds.

The following conclusions appear warranted:

1. A systematic developmental reading program at the junior high school level, using methods and materials readily available to the staff of any school, and taught by teachers not necessarily reading specialists, produces significant growth in reading achievement.

Implications of this are important. It indicates that such instruction results in (1) maintaining, refining, and strengthening
reading skills already gained, (2) reducing the probability that regressions in reading proficiency might occur during junior high school years, and (3) meeting new demands for reading specialized materials in the high school curriculum.

2. A systematic reading program in the junior high school produces concomitant gains in ability to achieve in (1) arithmetic, (2) social and related sciences, and (3) general academic achievement.

Effective as a means for developing specific skills needed in content subjects, a formal class in reading should make the learner aware of the nature of reading skills, as well as their use. This awareness sharpens purposeful development of maturity in reading.

3. A formal systematic program of developmental reading in junior high school has statistically significant effect upon reading achievement and general achievement among initially good readers, as well as among poorer readers.

This program should not be regarded merely as a remedial service to poor readers; it may provide a key to challenging those in the upper range of reading ability.

4. A formal systematic program of developmental reading in junior high school may constitute a more economical approach for applying the school's resources than remedial work affords.
CHAPTER I

PRESENTATION OF THE STUDY

Effectiveness in teaching reading is a great concern of schools everywhere. Much has been done toward caring for the reading needs of increasing numbers of students at every school level. Carefully conducted studies show that median silent reading achievement has not changed significantly in the past thirty years, yet one authority in the field of reading points out:

... despite the fact that the average attainment in reading of boys and girls today is probably as good as or somewhat superior to that found at any time in the past, there are more poor readers in the schools now than ever before — especially in junior and senior high school.¹

Parents, teachers and administrators everywhere recognize reading as one of the major problems facing schools today. In attempting to raise the general level of reading achievement, many are aware of unfavorable conditions such as heavy teaching schedules, large classes in junior and senior high schools, lack of special training of teachers, excessive costs of employing specialists, lack of suitable materials and other necessities for instituting formal reading programs, and other conditions peculiar to the separate situations.

This study, conducted in a normal school situation which

generally posed the same unfavorable conditions, had the purpose of
determining the effectiveness of one procedure for helping junior
high school students learn to read better.

THE PROBLEM

Ordinarily in the school program, classes in formal reading
instruction are discontinued after the sixth grade. This study is
an attempt to determine whether at the seventh and eighth grade
level, a regular class in reading, using generally accepted proce­
dures and taught by one not necessarily a reading specialist, would
produce significant gains in reading achievement and in achievement
in other academic subjects.

Statement of the problem. It was the purpose of this study
to determine the effect of specific reading instruction in the
seventh and eighth grades upon (1) development of competence in
reading, and (2) achievement in arithmetic, language, and social
and related sciences, as measured by standardized tests.

The effect of this instruction was to be determined (1) by
making comparisons of the growth in reading and academic achieve­
ment of two groups of seventh and eighth grade pupils in the same
school, one group being given specific reading instruction one hour
each day in addition to the regular curriculum followed by all
students in those grades, and (2) by comparing the growth in the
same areas of achievement and in reading of the upper third, middle
third, and lower third of the experimental group with corresponding thirds of the control group.

Delimitation of the problem. The scope of this problem is limited to a careful examination of the performance of two equated groups, each with 37 seventh and eighth grade pupils at St. Francisville High School, with the purpose of determining answers to the following questions:

a. Ordinarily formal reading instruction is not given above the sixth grade level. What effect, if any, does such instruction provided by regular teachers in grades seven and eight have upon achievement in reading competence?

b. Does such reading instruction contribute significantly to achievement in other academic fields?

c. Does this specific reading instruction affect differently pupils in various reading ability groups (upper, middle, and lower thirds of the class) in:

1) Reading achievement?

2) General academic achievement?

The study is further limited to use of the data from standardized tests in reading and in general achievement used for marking growth from September to May of the school year.

Importance of the study. Probably no other school subject has received so much attention in the professional or lay press as the subject of reading. Literally thousands of articles have been
devoted to treatment of some phase of this problem. This concern over reading has caused a careful reexamination of the position of the schools in regard to the teaching of fundamentals. Gray and Iverson, after careful study of criticisms of the schools' job in teaching reading, conclude that neither laymen nor professional educators are satisfied; that professionals have the duty to pursue questions further, especially as they refer to the neglect of reading, and the effectiveness of current methods. Although citing the fact that more than 2500 studies had been concluded between 1925 and 1952, the authors maintained that "... intensive studies of the effectiveness of the work of specific schools and school systems are needed." This is especially true if an appraisal of the reading situation on a national level is to be made.

Elsewhere it was reported that twenty to thirty per cent of the students who enter high school are seriously handicapped in reading. Discussion of the need for positive programs in fundamental reading instruction at the junior high school level has appeared in numerous conferences, workshops, annual meetings, state, regional, and national conventions of teachers as well as adminis-

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trators. "... reading retardation is recognized by administra-
tors as being the school's most acute problem," writes Witty re-
cently. He cites the fact that many students feel inadequate and
express dissatisfaction over their limited ability, and that little
is done to help them, since formal reading usually ceases after the
sixth grade.

The National Association of Secondary School Principals de-
voted a large portion of its 1954 convention program to considering
the reading problem at the junior and senior high school level.
Chatham, commenting on the concept of each secondary teacher being
a teacher of reading, reported "all teachers at the secondary-
school level need to be teachers of the subject they teach. Admin-
istratively, secondary schools have left pupils with no instruction
in reading skills.\(^{5}\)

Traxler and Townsend\(^{6}\) point to the need for specific
studies similar to the present one, carried on in normal school
situations. After reviewing hundreds of reading studies, these
authors conclude:

\[\text{Before teachers in the content subjects in general...}\]

\(^{4}\text{Witty, op. cit., 28.}\)

\(^{5}\text{Theodore R. Chatham, "How Can We Develop Better Reading}
Skills and Habits in Junior and Senior High-School Students,"}

\(^{6}\text{Arthur E. Traxler and Agatha Townsend, }\textbf{Another Five Years}
will become greatly interested in the reading program of a school they need to be convinced that such a program will make noteworthy improvement in the achievement of the pupils in the different subject fields. If each school which has introduced a program of reading improvement would carry on a careful study of the effect of such a program on achievement in the school, there can be little doubt that a better basis for enlisting the whole-hearted cooperation of the faculty would be available.

Much attention has been given recently to the developmental aspect of reading, as opposed to the remedial. Rather than relying upon the remedial type of instruction, this point of view would give increased attention to the sequential development of reading skills at all levels of the school program. Yoakam\(^7\) believes that potential failures can be averted by proper attention to procedures already developed in research and available to the teaching corps of any school. Gorman\(^8\) expresses the view that the process of learning to read continues as long as an individual extends his reading experiences into unfamiliar areas and levels of difficulty, citing the need for teaching specifically needed reading skills even to the good and average readers in all grades. McDowell\(^9\), taking the psychological and physiological approach, views the


junior high school as a logical place for upward extension of instruction in reading skills among adolescents who are "still open to change." Gray, whose annual surveys of the literature in the field have provided special insights into the efforts being made, as well as the needs in reading, traces the developmental concept leading to the present day emphasis upon attitudes and skills for enriching the experiences of children through reading.* Citing the use of reading as a basic tool for learning, he concludes:

All evidence available . . . supports the contention that vigorous efforts should be made at every level to develop a high degree of competence in the attitudes and skills common to all reading activities.10

Colleges and universities generally have found that large numbers of their students are unable to read with proficiency in the content areas. Business and industry require greater ability now than ever to interpret the printed symbol. High schools are being called upon more and more to assist students develop skills and abilities at all levels of reading difficulty. To do so, the schools are faced with a two-fold purpose. The general body of skills common to most reading activities must be developed to a greater degree as needs become more and more complex; and specific reading skills needed in the content areas must be developed. The process should be a continuous one, taking into consideration the

*See February issues, Journal of Educational Research

10William S. Gray, "Relation of Basic Instruction in Reading to the Total Reading Program," Education, LXXIV (May, 1954), 537.
maturity and development of the individual student, and adjusting the type of reading instruction to individual needs.

The junior high school has the further responsibility of assisting pupils strengthen basic reading attitudes and skills, and in developing new understandings for high-level efficiency in reading for different purposes.

The literature on reading instruction indicates that studies in experimental situations have provided satisfactory means for teaching reading. Yet, it has often been found that large numbers of junior and senior high school and college students read at levels below that of their ability and their grade placement. It has been determined also that reading disability is related to limited achievement in academic fields. It has also been found that many students have achieved better academic work when given specific reading instruction.

The procedures and the materials and equipment used in this study are readily available to the teaching staff of any school. Should not the school's daily schedule include the opportunity for good, average and poor students to learn to read better?

It is important that there be established the conviction that the ordinary school situation offers the possibilities of providing the needed direction in reading instruction; that positive gains can be made in increasing proficiency in reading; and that such increased proficiency produces a concomitant gain in the pupils' general academic progress.
SOURCES OF DATA

The data used in this study were obtained from the permanent record files of the St. Francisville High School and from the administration of the following tests:

1. Science Research Associates Primary Mental Abilities Test, form AH.

2. California Achievement Tests, Complete Battery, forms AA and BB.

3. California Tests in Social and Related Sciences, forms AA and BB.
CHAPTER II

RELATED LITERATURE

Research in reading instruction predates 1900, with experiments concerning measurement of eye movements during the process of reading. These studies contributed to an understanding of the reading process and to the later development of reading tests, which, in turn, showed the tremendous range of reading ability of pupils in a given grade. Diagnostic reading tests soon made their appearance. About 1930, researchers were attempting to isolate causes of reading deficiencies. The inability to read on the part of some was charged to hereditary deficiencies. Others had physiological explanations. Still others viewed cases of poor readers as functional and therefore likely to respond to proper treatment.

These investigations, with their continued emphasis on case studies and testing of theories, led to important discoveries concerning the pupils with pronounced reading difficulties. Pupils with such pronounced deficiencies, however, constitute a relatively small portion of the total school population. A much larger and more significant reading problem faces the American school. This problem is that of providing a developmental program of reading instruction that will help all children develop their full potential of ability, so as to prevent deficiencies at their source. Such a program would enable the school to use the major portion of its resources and its energies constructively, rather than have them so
greatly diverted into remedial programs. Put simply, it involves the question of whether, rather than leaving it largely to special remedial teachers and remedial programs, the reading problem might be dealt with more effectively through a positive program based upon known insights and procedures. Through this emphasis, would it be possible to diminish the now increasing number of "retarded" readers who require special care?

The literature dealing with this phase of reading instruction is reviewed here. Obviously, it is not the purpose to present a detailed report of the technical findings of all the various research studies, nor to survey the field of remedial reading. Only those investigations are reviewed that pertain to effective use of normal school environment, readily available material and equipment, and methods and procedures which can be used by regular school personnel in improving reading at the junior high school level.

Investigations have been conducted to test the effectiveness of reading instruction given under certain conditions and following definite procedures. Relationships have been reported between specific reading requirements in content areas of the junior and senior high school and certain general reading skills common to most reading. Other investigators find little such relationship. Similarly, there appears conflicting evidence concerning the relative merits of systematic reading instruction versus incidental reading guidance within the classroom. Since this study
is concerned with factors common to those discussions, this chapter is divided into three parts: (1) investigations of the relation between general reading achievement and achievement in the different fields, (2) investigations concerning specific reading instruction in the content areas and subject matter achievement in those areas, and (3) findings with respect to systematic reading instruction versus incidental guidance in reading.

**General reading instruction as related to academic success.**

The need for reading instruction at all levels is increased by the emphasis upon extensive reading in the modern curriculum, dependence of the pupils upon printed materials for large portions of the information and experience to be acquired, and by findings of research. Intellectual independence can more readily be achieved among pupils who have mastered the skills required for gaining thought from printed symbols. Many studies have shown that there exists a positive relationship between this ability to communicate thoughts through reading and achievement in subject matter fields. Recently these findings have been supplemented by studies of the relationship between general reading achievement and achievement in the different fields. Artley\(^1\) suggests that if teachers of reading can bring about improvement in general reading, there probably will

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\(^1\)Sterl A. Artley, "A Study of Certain Relationships Existing Between General Reading Comprehension and Reading Comprehension in a Special Subject-Matter Area," *Journal of Educational Research*, XXXVII (February, 1944), 464-73.
be concomitant improvement in reading in specific areas. Swenson, after conducting a carefully controlled experiment concerning skills required in content subjects, concludes "poor general readers generally are poor on special subject-matter material." Finck, Dickinson, and Toops, in separate studies and following different procedures, also support the conclusion that general reading ability and the ability to make progress in school subjects are closely related.

Finck's study included 22 pairs of students equated "as nearly as possible in age, mental ability, and scholastic achievement." The Otis Self-administering Test was used to measure mental ability and the New Stanford Achievement Test to classify the students in general ability. Pupils in the experimental group were excused daily for one semester to spend a half-hour period with one of two special teachers, who worked with them on reading and vocab-


4Charles S. Dickinson, "A Study of the Relation of Reading Ability to Scholastic Achievement," School Review, XXXIII (October, 1925), 616-26

5Myrtle Dewey Toops, "The Core Program Does Improve Reading Proficiency," Educational Administration and Supervision, XL (December, 1954), 494-503.

6Finck, op. cit., p. 260.
Instruction was individual and private; and the teachers were allowed to choose material which "appealed" to the child. Neither of the teachers was a specialist in teaching reading, but both were experienced teachers with an interest in reading. The average gains of the experimental group in the ten factors measured was 1.86 times that of the control group. The author thus concluded that improvement in ability to read is accompanied by improved achievement in those subjects which involve a great deal of reading.

Many writers suggest that poor results in the field of reading are attributable, not so much to lack of attention by individual subject-matter teachers but to the use of methods that do not function completely enough to carry over into other phases of school work. Dickinson found coefficients of correlation ranging from .233 to .743 between general reading ability and ability to make proper progress in the several school subjects. From this carefully conducted three-year investigation, involving a sample of 149 cases, the author concludes:

Since there is apparent inability on the part of pupils to read and comprehend accurately the material which confronts them daily in their tests and since the tests disclose the fact that those pupils who make the poorest ratings in silent reading and vocabulary ability are the ones who invariably drop out of school because of failure to do passing work, the writer feels justified in making the statement that more stress should be placed on silent reading and word study in the sixth, seventh, and eighth

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7Dickinson, op. cit., p. 261
grades and that this work should not be discontinued in high school.8

Toops9 investigated the effectiveness of opportunistic instruction in reading in connection with the adolescent-needs core program. Her results indicate that such attention meets the reading needs of the pupils and that the better readers generally are more capable of doing the independent work characteristic of core activities.

Comparing the characteristics of good and poor eleventh grade students, Aukerman reports:

Results indicate that general reading ability is the most significant differentiating factor between good and poor eleventh grade students in all four (English, social science, science, and mathematics) academic fields.10

In a similar study, Pond11 found measured reading ability a useful basis for prediction of scholastic achievement. The multiple-correlation coefficient of .6532 which he found between five reading factors, i.e., vocabulary, rate, comprehension, quality and quantity of reading, together with intelligence and the factor of school success as measured by school marks, is high enough to pre-

8 Ibid., p. 626.
9Toops, op. cit., pp. 497-503.
11 Frederick L. Pond, "Influence of Reading Abilities on School Success in Grade IX," School Review, XLVIII (June, 1940), 437-44.
dict group placement. Pond warns, however, that quality and quantity of reading experiences do not necessarily contribute materially to success in school courses. Several studies of this aspect, summarized by Traxler and Townsend,\textsuperscript{12} reveal low positive correlation between amount of voluntary reading and school marks. This points out the need to develop reading habits which emphasize the skills useful in specific study of school subjects.

Investigators have identified particular skills required for effective reading in certain fields. Gray\textsuperscript{13} recognizes two types of skills: those common to most reading activities, and those which function specifically in certain content areas. He concludes that development of skills and attitudes common to all reading activities is important at all levels, if reading is to stimulate mental activity and enrich the experiences of children, and at the same time provide a basic tool for learning. Lists, such as Gray's,\textsuperscript{14} of basic concerns of reading instruction illustrate the need for continued emphasis upon common reading skills at the higher levels. Traxler's summary of objectives of reading instruction indicates that continued attention should be given to

\textsuperscript{12}Arthur E. Traxler and Agatha Townsend, \textit{Another Five Years of Research in Reading} (New York: Educational Records Bureau, 1946), p. 192.

\textsuperscript{13}William S. Gray, "Relation of Basic Instruction in Reading to the Total Reading Program," \textit{Education}, LXXIV (May, 1954), 535-43.

\textsuperscript{14}\textit{Ibid.}, p. 537-8.
developing the common core of reading skills.\textsuperscript{15}

General reading ability cannot be gained once and for all to a sufficient degree to meet all needs of the reader. Reading difficulties must be continually analyzed to eliminate specific deficiencies. Gates\textsuperscript{16} found such deficiencies common at all levels. From an investigation conducted at the Laboratory School of the University of Chicago, McCallister\textsuperscript{17} suggests categories in which reading instruction might remedy the situation. In each of the categories, basic reading skills were found lacking.

Many studies have been made with respect to general reading and specific subject matter areas. Hughes\textsuperscript{18} studied the relationships among several language abilities and reports coefficients of correlation ranging from .50 to .56 between reading in general and in specific language abilities, such as language usage, sentence sense, paragraph organization and punctuation. He concludes:

The indication is that the developmental reading program might well be the "pivot" or the center of focus for


\textsuperscript{17}James McCallister, "Reading Difficulties in Studying Content Subjects," \textit{Elementary School Journal}, XXXI (November, 1930), 191-201.

a great deal of the general language arts program. Said another way, the reading skills are developed, but also as an avenue through which related language skills are developed concomitantly.\(^{19}\)

For students in grades four through eight, Coffing\(^{20}\) reports a "considerable degree" of positive relationship between scores on the paragraph meaning section and the arithmetic reasoning section of the New Stanford Achievement Test. Carter\(^{21}\) reports gains in achievement in science as a result of reading instruction, and Young,\(^{22}\) summarizing a number of studies, found "improved reading ability generally results in improved achievement in social studies." Townsend\(^{23}\) shows coefficients of correlation of .502 to .565 between reading ability and spelling among intermediate grade students.

Not all investigators agree that general reading ability is closely related to achievement ability in academic subjects. McKim studied the effect of training in interpretation of verbal

\(^{19}\)Ibid., p. 104.


\(^{22}\)William E. Young, "Recent Research on Reading in the Social Studies," \textit{Education}, LXII (September, 1941), 18-26.

directions and materials upon achievement in algebra. She con-
cludes that it is "unwarranted to assume that ability to read ver-
bal explanations and problems in algebra is an important factor in
algebra achievement."24 Shores,25 with 380 ninth grade pupils,
studied the relationship between specific reading skills and com-
prehension of science and history materials. His results indicate
that measures of general reading ability are not suitable to pre-
dict achievement in subject matter fields. This study does show
that ability to read science material and ability to comprehend
historical material are interrelated. Conversely, the ability to
read historical material was shown to bear significant relationship
to fourteen other specific skills useful in most reading.26 Treacy27
reports a negative relationship between general reading level
and problem solving ability in arithmetic. His study included 244
seventh grade students in two junior high schools. He concludes:

... In helping students with problem solving, in-
struction in reading should be concerned with a compos-

24 Margaret Grace McKim, The Reading of Verbal Material in
Ninth Grade Algebra. Teachers College Contributions to Education,
Number 850. (New York: Teachers College, Columbia University,
1941), p. 133.

25 Harlan J. Shores, "Skills Related to the Ability to Read
History and Science," Journal of Educational Research, XXXVI
(April, 1943), 584-93.

26 Ibid., pp. 587-8.

27 John P. Treacy, "The Relationship of Reading Skills to
the Ability to Solve Arithmetic Problems," Journal of Educational
Research, XXXVIII (October, 1944), pp. 94-5.
ite of specific skills rather than generalized ability.

... Relationships of reading and problem solving should be in terms of specific reading skills, rather than in terms of general reading ability.

Although there is not unanimous agreement, investigations into this relationship appear to be well summarized by Gray and by Traxler and Townsend. Gray writes:

All of the findings ... support the view that teachers at every level should do everything possible to develop a high degree of competence in the basic reading skills common to all reading and study activity.28

Traxler and Townsend conclude:

When the various studies of the relationship between general reading ability and reading ability in different areas are considered as a group, it is apparent that there is a great deal in common between reading in a single field and reading in general and that improvement in general reading ability should have a favorable influence upon ability to read in a specific field. However, the correlations are by no means perfect, and it seems clear that in addition to training in general reading skill, there is a definite need for instruction in the reading skills peculiar to each field.29

Specific reading instruction in content areas and academic achievement. Various studies have shown that varying degrees of relationships exist between the skills in reading and achievement


in certain content fields. McCallister suggests that pupils be taught specifically (1) different methods of attack required by different reading activities, (2) how to recognize relations and perform various forms of thinking required in reading activities, (3) how to recognize their own reading shortcomings and secure information requisite to understanding new materials, (4) how to overcome vocabulary difficulties, and (5) to develop a sense of necessity for accurate interpretation. Chatham points out the necessity for specific reading instruction:

Pupils of the secondary-school level are required to read a variety of specialized materials. The core or common reading skills are insufficient to enable the pupil to read special materials without their receiving some additional instruction for reading specialized material.

Eva Bond made an extensive study of the relationship of reading to achievement in content areas of the ninth grade. She concludes:

These findings demonstrate the fact that combining achievement into one general measure obscures many of the more subtle relationships which exist between reading skills and scholastic achievement in various school

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32 Eva Bond, Reading and Ninth Grade Achievement. Teachers College Contributions to Education, Number 756. (New York: Teachers College, Columbia University, 1938), pp. 53-4.
subjects. This detailed study of relationships (seventy in all), showing the relation between various reading skills and various school subjects, suggests:

1. The need for specialization in reading ability to meet the requirements of different subjects.

2. The need for further information about the types of reading skills required in specific subjects at different grade levels . . .

3. The need for teaching reading and study techniques for each subject.

Yoakam\(^3^3\) emphasizes the need further: "Unless specific attention is paid to reading problems involved in the curricular fields the child will fail to profit from the subject or the unit." In a survey of 28 studies in this field, Yoakam\(^3^4\) lists evidence to support the conclusion that drills involving work-type reading in many different fields and at various levels are generally favorable to achievement.

Studies dealing with the relation of reading to subject matter areas are more numerous in the social studies field. Young,\(^3^5\) summarizing a number of such studies, points out certain specific skills which are recommended for more adequate development


\[^3^5\]William E. Young, "Recent Research on Reading in the Social Studies," Education, LXII (September, 1941), pp. 25-6.
of "meanings and values implicit in these (social studies) materials..." Further, Young indicates the need for a "continuous series of problem-solving situations" used to develop critical thinking so necessary to understand historical material. Stearns indicates that reading in content subjects requires certain basic reading skills, and suggests techniques for teachers that might assist the pupils to develop reading skills and attitudes which would profit them in the content areas.

Several studies have been made to examine the relation of work-type skills to reading social studies materials. Vocabulary, locating main ideas, and outlining, were the skills most frequently emphasized. Leggitt, McKinnon and Burton, Brownell, and Corrigan all find that specific supplementary instruction in reading given to experimental groups resulted in greater gains in various social studies areas. Leggitt used the matched group technique,


equating number, age and intelligence. Special study and drill on selected skills was given the experimental group each week for eighteen weeks. The control group was given no special help. Tests for progress in work skills revealed that experimental pupils improved nearly fifty per cent over their initial status, while the control group showed no improvement. McKinnon and Burton studied the effect of direct instruction in four specific study techniques in history. Results show that such definite instruction improved the students' ability to use those skills, and their ability in related mental processes required in historical reading. Brownell showed that the ability to do critical thinking can be improved through a reading-skills improvement program. Two regular teachers in a ninth-grade social studies core program gave detailed assistance to students two hours per week for twenty-eight weeks. The procedure was "functional, utilizing the materials of the course" and was based upon constant appraisal of student needs and attainments. From his findings, he contends:

Significant gains in more mature types of interpretation, critical reaction, reasoning, and integration involved in efficient reading in the content fields can be made in a relatively short period of time by secondary school pupils as the result of a properly designed

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41 Leggitt, op. cit., p. 676.
43 Brownell, op. cit., p. 31.
44 Ibid., p. 28.
Mathematics is another area where considerable attention has been given to the relationship between specific reading skills and achievement. Monroe and Engelhart report an experiment among thirteen classes of fifth grade pupils, each matched with a control group, to test the effectiveness of systematic instruction in reading verbal problems in arithmetic. Teachers in the control classes used methods customarily employed at that level, and only incidentally did they use techniques to develop ability to read problems. Experimental teachers made definite, comprehensive use of such techniques. No statistically significant differences were found in mean gains of the experimental and control groups. Greene provided ten minute drills per day for eight days, the practice exercises used varying in complexity from one arithmetic operation per drill in the first four to a combination of three or more in the final one. Greater mean gains by the experimental group show that drill in reading comprehension and application of what is read had favorable effect on performance in arithmetic. Results from a similar study over a five week period with no control group, shows

45Brownell, loc. cit.


mean gains of 1.3 years among 34 boys and girls at the sixth grade level.\textsuperscript{48} Eva Bond reports that specific drills in the use of an index proved the reading factor most significantly related to achievement in ninth grade algebra, although ability in reading comprehension was also significant.\textsuperscript{49} According to this study, skill in work-study reading ability is the only one of seven reading skills which shows a significant relationship to achievement in general mathematics. In another report, Treacy\textsuperscript{50} concludes that "t" tests of significance show good achievers in problem solving, superior to poor achievers at the one per cent level of significance in the specific reading skills studied. In addition, the factors of quantitative relationships, vocabulary in context, general vocabulary and arithmetic vocabulary, produced significance between good and poor achievers in problem solving.

Teachers and researchers agree that greater knowledge of the vocabulary of content subjects increases achievement in those subjects. Johnson made a specific study of the effect of training in mathematics vocabulary upon achievement in mathematics. He used

\begin{itemize}
\item \textsuperscript{48}Estaline Wilson, "Improving the Ability to Read Arithmetic Problems," \textit{Elementary School Journal}, XXII (January, 1922), 380-86.
\item \textsuperscript{49}Eva Bond, \textit{Reading and Ninth Grade Achievement}. Teachers College Contributions to Education, Number 756. (New York: Teachers College, Columbia University, 1938), p. 51.
\item \textsuperscript{50}John P. Treacy, "The Relationship of Reading Skills to the Ability to Solve Arithmetic Problems," \textit{Journal of Educational Research}, XXXVIII (October, 1944), 86-95.
\end{itemize}
the matched-group technique and conducted the study within the organizational structure of the classroom to assure practical application. Children in the experimental group were furnished practice exercises to develop meaningful understanding of vocabulary beyond that provided in the textbook. He concluded that "use of instructional materials in mathematics vocabulary leads to significant growth in knowledge of terms included, as well as in solution of numerical problems involving the use of the terms." The author also writes that there occurred "no transfer of learning from those words specifically studied to others in the text," and also that such exercises "do not tend to bring about a general improvement in arithmetical learnings." Traxler and Townsend report that pupils show "higher achievement in the solution of verbal problems when they have studied the vocabulary of their textbook and have had practice with reading materials in the field of mathematics."

Carter's study of the effect of specific reading instruc-


52 Ibid., p. 118.


tion in the field of science indicates that such instruction is valuable in developing the necessary skills for understanding details and problem solving, as well as seeing the relationship of details to the major context. Reading instruction using scientific materials also increased vocabulary and pupils' knowledge of science. This shows that learning to read contributes concomitantly to reading to learn. Work-type reading drills proved helpful to mastery of science material in a study made by Jacobson. In this investigation, an experimental group of 111 ninth-grade pupils was equated with another group of 95 pupils in the same grade on the basis of intelligence and reading ability. Exercises in comprehension, organization, and location of information were provided the experimental group each day for sixty days. The drills consisted principally of answering true-false and multiple choice questions; of writing one question for each paragraph; and of outlining with the help of skeleton outlines prepared by the teacher. Jacobson concludes that such lessons produce superior knowledge in the subject, which cannot be explained by chance; that beneficial effect was had on general scholastic achievement; and that while proving most beneficial to poor initial readers such exercises were


56 Ibid., pp. 80-81.
of benefit to a considerable portion of pupils.

The fact that good and average students, as well as "retarded readers," can profit by continued reading instruction is seen in the literature concerning the developmental concept of reading.

Systematic reading instruction versus incidental guidance in reading. Since its report in 1925, the Committee on Reading of the National Society for the Study of Education has had far-reaching effect upon the teaching of reading, and more especially concerning the emphasis placed upon teaching reading beyond the elementary-school level. Writing for the Committee, Goodykoontz concludes:

Available evidence from both experiments and progressive practice tends to favor specific provision for guidance in reading at times reserved for the purpose. The Committee recognizes that this evidence is not conclusive, but, until it has been established that fundamental reading habits can be developed economically for all pupils without such provision, the Committee recommends specific periods for guidance in reading throughout the elementary school, the secondary school, and the college. Since the functions are not the same, the Committee further recommends that basic instruction in reading and guidance in literature be provided during separate periods . . .

As to the relative effectiveness of the direct and incidental methods in reading . . . certain investigations have shown that a "modern systematic method" secured

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considerably greater average achievement in silent and oral reading... than an "opportunistic method"... 58

Several studies show that the recommendations of the committee have been implemented. Brink and Witty 59 discuss the relatively large number of students who enter high school with serious handicaps in reading: "... relatively few students have developed fully the abilities and skills essential to efficient and intelligent reading." Their investigation reveals that of 500 school systems to whom queries were addressed, 183 replied that they did provide special instruction in reading. Questionnaires were sent to all 183 systems and nine which appeared to have outstanding programs were visited. Since this study shows typical procedures in practical situations, it is reviewed in some detail.

The study shows that nine of the systems provided specific reading instruction in each of the four grades of high school; six had a three year program; fifty taught reading in the tenth grade; and the remainder were in the first year of high school.

Thirty-one of the systems investigated permit students to enter or leave whenever they desire. The remaining number assign students at the beginning of the semester, and 75 permit them to


resign when they have shown sufficient improvement.

Time spent ranged from six weeks to four years, with credit which can be substituted for English credits being given in about three-fourths of the cases. Of the 126 teachers who conduct the programs, only 26 of them are reading specialists; the remaining are regular teachers interested in the reading problem.

Since the preponderance of emphasis found was upon the idea of becoming sufficiently proficient to drop out, the authors view these classes as being largely remedial in nature. They conclude that not enough emphasis is placed on assisting students to read in content fields, but find encouragement in the concerted effort to promote favorable attitudes toward reading; to develop skill in reading; and to eliminate causes of anxiety and other emotional disturbances.

Adams presents a detailed technique for teaching reading in high school. She concludes:

Many . . . pupils will make progress if they can work in a situation which is free from threat and tension and where they can have an understanding, accepting teacher who is willing to take them at the level at which she finds them and who makes a real effort to teach them the skills which they need . . .

It often means that the pupil can continue with his education, confident that he has the tools with which to read with adequate speed and comprehension. 61

60 Ibid., pp. 265-66.

One report on a series of studies pertaining to systematic skillful instruction in reading as compared with incidental guidance, concludes that both have merit, each contributing certain values in improving the total reading process. This review presents the added conclusion that work-type exercises have undoubted value, especially among more mature pupils, and that direct and systematic instruction proves superior to incidental methods in the matter of improving vocabulary.

Gates reports an experiment in which gains in nine reading skills were measured among students who had been taught systematically in contrast with an equated group which had been taught by what is described an "opportunistic" method. The systematic method required more definite determination of procedure, outlined and arranged more rigidly as to time, sequence of developing the topics, and prescribed to master certain materials and skills which had been arranged in developmental order by the teacher. The opportunistic method required the teacher to await the proper opportunity so that she might utilize the pupils' own self-initiated urges to learn to read, write, spell, etc. Facts and skills were furnished

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in the latter method only when the opportunity demanded. In nine
tests of reading skills, the group taught systematically excelled.

An experiment 64 in the upper fifth and sixth grades in a
rural consolidated school shows the results of close individual
reading instruction as compared with wide reading assignments in
connection with purposeful activities. O'Brien indicates that wide
reading assignments proved very effective among the brightest
pupils, but cautions:

Do not depend upon interest and wide reading to in­
crease reading abilities of slow learning children nor
to overcome real reading difficulties of any children.
Give slow children the maximum of instruction in the
mechanics of reading and in remedial work. Provide
reading materials suited to the level of the pupil,
both for reading instruction and for reading in con­
nection with other interests and activities. 65

This survey of related investigations reveals that much has
been done in the field of reading, and much interest is evident in
the further development of reading ability in general and specific
reading skills as tools for subject matter study. The various pro­
cedures and techniques, the various points of emphases and methods
employed in the separate studies, and the different administrative
approaches to teaching reading, emphasize the need for continued
research on practical means to teach boys and girls at all levels

64 Ida O'Brien, "A Comparison of the Use of Intensive Train­
ing and of Wide Reading in the Improvement of Reading," Educational
Method, X (March, 1931), 346-49.

65 Ibid., p. 349.
to read better. Gray writes:

... The virtue of a given method may lie not so much in its unique characteristics as in the stimulation and leadership of the teacher, the determination of the pupil to succeed, or some other like factor. The need is urgent for studies of the relative merits of different procedures now in use and of the purposes for which they can be employed to greatest advantage. 66

Summary. Investigations reviewed and expert opinions quoted in this chapter are many and varied. Different degrees of success were reported among the several investigations. Contrasting opinions concerning the value of general and specific instruction were cited. The relative merits of specific and incidental methods of teaching reading were presented. All studies presented indicate the need for continued research in reading. From a review of the literature presented here, the following generalizations are made:

1. From the data considered, there is apparent a relatively close relationship between general reading ability and ability to achieve in the separate content subjects.

2. Specific instruction in the reading skills required in the separate content subjects are beneficial to varying degrees in subjects requiring a great deal of reading. Least pronounced is the relationship found between specific reading drills and achieve-

ment in the field of mathematics. When increased reading practice is provided in a given content field, concomitant gains in achievement in reading and in the subject may be caused by the additional mental content thus achieved.

3. There is general agreement that improvement of both general and specific vocabulary usage is beneficial to achievement generally and in the specific content areas.

4. Systematic rather than incidental instruction provides the greater contributions in promoting basic understandings and skills in reading. Incidental instruction, guidance, and activity programs in reading are excellent for motivation, fostering good attitudes toward reading, and enriching experiences of pupils.

5. The total reading program in any school has a two-fold responsibility: that of providing instruction in the reading skills for those pupils who have not fully developed the abilities essential for comprehending and organizing thoughts from printed symbols; and that of providing opportunity for enriching experiences and developing reading skills as needed at new and higher levels.
CHAPTER III

STUDENT GROUPS AND PROCEDURES FOR EQUATING

THE GROUPS

This study involves two equated groups of seventh and eighth grade pupils, each with thirty-seven members. One was used as the experimental group; the other as the control group. The two groups were equated by the pairing method. Each child in the experimental group was matched with one in the control group who was relatively his equal. The pairings were made on the basis of these factors: age, intelligence, reading achievement, and general academic achievement.

The two groups participated in the same school program during each day for the year, except that the experimental group for one hour each day was given formal class instruction in reading. The control group did not participate in this instruction. During this hour the control group went to the study hall instead for study or general reading.

Both the experimental and the control groups were given the same tests at the beginning of the year and at the end of the year. On the basis of these tests, the two groups were compared as to (1) gain in achievement in reading, and (2) gain in achievement in other school subjects.
**Information concerning the school.** St. Francisville High School is organized on a six-six-basis. Throughout the elementary grades each teacher has her class all day and is responsible for the total program of that group. Beginning with the seventh grade and continuing throughout the high school grades, instruction is departmentalized. Prior to this study, no formal instruction in reading was given above the sixth grade, except that which individual teachers might have provided within the curriculum of the respective classes.

**Interest in reading.** It may be of some importance to point out here that considerable interest had been manifest in reading instruction in this school. Four years prior to initiating this study, teaching reading had been selected as one of the problems the faculty of the elementary and high school wished to emphasize as a professional study. Much time and effort had been given by faculty members to studying and analyzing the reading situation as it existed in the school for the purpose of improving their own methods and procedures. The community, too, was taken in on planning and evaluating the program. Yearly reports of individual pupil progress had been made to parents during the three years immediately preceding this study; and general reports on the reading program had been made through radio and newspaper reports. A pilot experiment in speed reading and comprehension with elementary and high school students, as well as with adults of the community par-
participating, during the summer of 1952, had also served to stimulate interest.

METHOD OF EQUATING THE GROUPS

Except for the one factor of chronological age, the data used in matching the groups were obtained from standardized tests of ability and of achievement. Tests of achievement also served to mark the initial point from which final gains were computed.

Tests administered. In September, all seventh and eighth grade students of the St. Francisville High School were given a series of tests, the results of which serve as major bases for equating the groups included in this study.

Form AH of the Science Research Associates Primary Mental Abilities Test, intermediate level, ages 11 to 17, was used to measure mental ability. The test had been standardized on a random sampling of over 18,000 students in junior and senior public high schools\(^1\) and thereby lends itself particularly well to testing this junior high school sample. The separate scores, which are readily converted into percentile scores and plotted on individual profile sheets, provide valuable guidance information with respect to five components of total mental ability (verbal meaning, space, reason-

ing, number and word fluency). Moreover, well established norms are provided for computing total score in percentile form or in terms of I.Q. Reliability coefficients on five parts range from .89 to .96.

Forms AA of two groups of achievement tests from the California Achievement Tests series were also administered in September. Pupils were tested with (1) California Achievement Tests, Complete Battery (Intermediate level), including separate tests in reading, language, and arithmetic. These provide separate norms for each of the three tests. The fact that percentile norms, as well as grade placement norms, are provided on four available forms of these tests contributes to their use in making comparisons. (2) To complete the evaluations of general achievement, the battery of tests was supplemented with California Tests in Social and Related Sciences (elementary level, grades 4-8). These tests, too, provide separate percentile and grade placement norms established from large samplings on each of six tests, i.e., American Heritage, Peoples of Other Lands and Times, Geography, Basic Social Processes, Health and Safety, and Elementary Science. Since these two achievement test groups measure all areas of academic emphasis in the junior division of St. Francisville High School, they were selected to determine general achievement in this study.

Factors used in equating the groups. Five major factors were used for equating the groups: (1) reading achievement, (2)
intelligence quotient scores from the primary mental abilities test, (3) a general achievement score represented by a composite of the grade placements in the nine achievement tests administered, (4) age, and (5) number.

Statistical measures applied to equate the groups. After the groups had been formed tentatively on the basis of informal pairings, statistical measures were applied to test whether they were equal generally. Standard deviations were determined and critical ratios of the difference between means of the groups were computed for each test administered. To check whether the groups were matched, critical ratios obtained were compared with those necessary before the difference between means can be considered statistically significant. Whenever the "t" score or critical ratio obtained here was less than that required for significance, a null hypothesis was retained and the groups were declared to be equated statistically in the factor measured. Formulas used are found in Garrett's Statistics in Psychology and Education:

\[ \sigma' = \sqrt{\frac{E x^2}{N - 1}} \]

FACTORS EQUATED

Reading achievement. The grade placements which the pupils made on the California Reading Test was one of the chief factors used in equating the groups. Table I shows that no difference exists between the mean reading achievement of the control group and that of the experimental group. The fact that the standard deviation of the control group, 1.4, and that of the experimental group, 1.3, are so nearly the same indicates further that the two samples were about equally variable.

\[ 2 \quad \sigma_M = \frac{\sigma^2}{\sqrt{N}} \]

(Standard error of the means in small samples\(^3\))

\[ 3 \quad \sigma_D \quad \text{OR} \quad \overline{M_1} - \overline{M_2} = \sqrt{\sigma^2_{M_1} + \sigma^2_{M_2}} \]

(Standard error of the difference between two uncorrelated means\(^4\))

\[ 4 \quad CR = \frac{D}{\sigma_D} \]

(Critical ratio, where D is the difference between the means)

\(^3\)Ibid., p. 190.

\(^4\)Ibid., pp. 213-215.
### TABLE I

**COMPARISON OF THE READING ACHIEVEMENT OF THE TWO GROUPS ON FORM AA OF CALIFORNIA READING TEST, SEPTEMBER**

<table>
<thead>
<tr>
<th>Group</th>
<th>Number</th>
<th>Mean grade</th>
<th>Mean difference</th>
<th>Standard error of difference</th>
<th>Critical ratio</th>
</tr>
</thead>
<tbody>
<tr>
<td>Control</td>
<td>37</td>
<td>7.1</td>
<td>zero</td>
<td>1.4</td>
<td>.31</td>
</tr>
<tr>
<td>Exp.</td>
<td>37</td>
<td>7.1</td>
<td>zero</td>
<td>1.3</td>
<td>zero</td>
</tr>
</tbody>
</table>

*Based on data in Table XVII, Appendix A.

**General achievement.** After achievement tests in reading, language, arithmetic, and social and related sciences had been administered, a numerical average of each student's grade placements on these tests was computed. The average grade placement thus arrived at was termed general achievement. Table II shows the comparisons of the means of the two groups in general achievement. The mean for the control group was 7.3 and that for the experimental group 7.4. The control group with a standard deviation of 1.3 was slightly more variable in this factor than was the experimental group whose deviation was 1.1. The critical ratio of the difference of the standard deviations of the two means to the obtained difference of the means was computed and found to be .06. A critical ratio of 1.96 is necessary before the difference is significant even at the .05 level. To show significance at the .01 level, a
TABLE II
COMPARISON OF THE GENERAL ACHIEVEMENT OF THE TWO GROUPS ON FORMS AA OF THE CALIFORNIA ACHIEVEMENT TESTS, SEPTEMBER*

<table>
<thead>
<tr>
<th>Group</th>
<th>Number placement</th>
<th>Mean grade</th>
<th>Standard deviation</th>
<th>Mean difference</th>
<th>Standard error of difference or SD</th>
<th>Critical ratio of difference or SD</th>
<th>Critical ratio of difference or SD</th>
</tr>
</thead>
<tbody>
<tr>
<td>Control</td>
<td>37</td>
<td>7.3</td>
<td>.1</td>
<td>1.3</td>
<td>1.68</td>
<td>.06</td>
<td></td>
</tr>
<tr>
<td>Experimental</td>
<td>37</td>
<td>7.4</td>
<td>.1</td>
<td>1.1</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

*Based on data in Table XXI, Appendix A.

critical ratio of 2.58 would be necessary. The CR of .06 falls far short of 1.96. Consequently, the null hypothesis (that there is zero difference between the means) is retained, establishing the conclusion that the two groups are reliably equal with respect to general achievement.

Mental ability. It can be seen in Table III that the two groups were equated with respect to the factor of intelligence. The mean intelligence quotient for the control group was 102.95, and that for the experimental group 103.22. Since there was a slight difference in the two, statistical computation of the critical ratio of the difference of the deviations from the means to the obtained difference was made. Although the control group was more variable, with a standard deviation of 14.1 as compared with 12.8
# TABLE III

COMPARISON OF THE MENTAL ABILITY OF THE TWO GROUPS ON THE SCIENCE RESEARCH ASSOCIATES PRIMARY MENTAL ABILITIES TEST, FORM AH, SEPTEMBER*

<table>
<thead>
<tr>
<th>Group</th>
<th>Number</th>
<th>Mean Quotient</th>
<th>Mean Difference</th>
<th>Standard Deviation</th>
<th>Standard Error of Difference</th>
<th>Critical Ratio</th>
</tr>
</thead>
<tbody>
<tr>
<td>Control</td>
<td>37</td>
<td>102.95</td>
<td>103.22</td>
<td>14.1</td>
<td>12.8</td>
<td>3.13</td>
</tr>
<tr>
<td>Experimental</td>
<td>37</td>
<td>103.22</td>
<td>.27</td>
<td>12.8</td>
<td>3.13</td>
<td>.09</td>
</tr>
</tbody>
</table>

*Based on data in Table XVI, Appendix A.

for the experimental group, the two groups were found to be equated statistically. The null hypothesis is retained since the critical ratio of .09 falls far short of 1.96 required to show a difference significant at the .05 level.

Age. The mean chronological age of the control group was 154.6 months, and that of the experimental group was 154.5 months. The youngest pupil in the control group was 139 months, while the oldest was 182 months, thus accounting for a range of 43 months in chronological age of the control group. The experimental group ranged from 138 months to 188 months for a range of 50 months. As shown in Table XVI, Appendix A, this range was extended six months by one case.

Number. At the beginning of the study, forty pairs of
students were established. Because of one drop-out and two transfers to other schools, the number of pairs was reduced to thirty-seven. In the control group there were twenty girls and seventeen boys. The experimental group had twenty-two girls and fifteen boys.

A summary of these data, shown in Table IV, indicates clear-

**TABLE IV**

**SUMMARY TABLE: COMPARISON OF THE TWO GROUPS ON THE FIVE FACTORS CONSIDERED IN EQUATING THEM**

<table>
<thead>
<tr>
<th>Factor</th>
<th>Control group</th>
<th>Experimental group</th>
</tr>
</thead>
<tbody>
<tr>
<td>Reading achievement</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Mean grade placement, California Reading Test</td>
<td>7.1</td>
<td>7.1</td>
</tr>
<tr>
<td>Standard deviation</td>
<td>1.4</td>
<td>1.3</td>
</tr>
<tr>
<td>Critical ratio of difference of means</td>
<td>.00</td>
<td></td>
</tr>
<tr>
<td>General achievement</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Mean grade placement, C.A.T.*</td>
<td>7.3</td>
<td>7.4</td>
</tr>
<tr>
<td>Standard deviation</td>
<td>1.3</td>
<td>1.1</td>
</tr>
<tr>
<td>Critical ratio</td>
<td>.06</td>
<td></td>
</tr>
<tr>
<td>Mental ability</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Mean quotient score, SRA PMA**</td>
<td>102.95</td>
<td>103.22</td>
</tr>
<tr>
<td>Standard deviation</td>
<td>14.1</td>
<td>12.8</td>
</tr>
<tr>
<td>Critical ratio</td>
<td>.09</td>
<td></td>
</tr>
<tr>
<td>Mean chronological age in months</td>
<td>154.6</td>
<td>154.5</td>
</tr>
<tr>
<td>Number</td>
<td>37</td>
<td>37</td>
</tr>
</tbody>
</table>

*California Achievement Tests in reading, arithmetic, language, social and related sciences.

**Science Research Associates Primary Mental Abilities Test.**
ly that the two groups were statistically equal. Each of three sets of test data reveals no significant difference between the means of the experimental and control groups. In no case did the computed critical ratio approach significance. Mean chronological ages of the groups were considered equal since the actual average ages differed by only one tenth of one month.

Comparison of the upper, middle and lower thirds of the control and experimental groups. Having ascertained that the two groups were equated with respect to mental ability, reading achievement and general achievement as well as chronological age, a check was made as to the comparability of the sub-groups in reading achievement and mental ability. This check was made because these sub-groups were to be compared with each other later as a part of the analysis of data. Table V shows that no significant differences existed between the means of the three sub-groups, i.e., upper thirds, middle thirds and lower thirds, of the experimental and control groups. In no case was a critical ratio of 1.96 found, which is required for significant difference at the .05 level, even for an infinite number of degrees of freedom. Not only were the sub-groups found well equated, but it was also determined that there existed extremely similar variability in the groups compared. Table V also shows the standard deviation of the sub-groups and provides evidence to show that the sub-groups could be considered equal in the two factors, reading achievement and primary mental abilities.
TABLE V

COMPARISON OF THE UPPER, MIDDLE AND LOWER THIRDS OF THE GROUPS IN READING ACHIEVEMENT AND PRIMARY MENTAL ABILITIES, SEPTEMBER*

<table>
<thead>
<tr>
<th></th>
<th>Upper third</th>
<th>Middle third</th>
<th>Lower third</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Control group</td>
<td>Experimental group</td>
<td>Control group</td>
</tr>
<tr>
<td>Reading Achievement</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Mean</td>
<td>8.6</td>
<td>8.5</td>
<td>6.8</td>
</tr>
<tr>
<td>Standard deviation or SD</td>
<td>1.18</td>
<td>.90</td>
<td>.32</td>
</tr>
<tr>
<td>Standard error of the difference or SEp</td>
<td>.41</td>
<td>.41</td>
<td>.13</td>
</tr>
<tr>
<td>Critical ratio**</td>
<td>.24</td>
<td></td>
<td>1.53</td>
</tr>
<tr>
<td>Primary Mental Abilities</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Mean</td>
<td>118</td>
<td>117</td>
<td>100</td>
</tr>
<tr>
<td>Standard deviation or SD</td>
<td>9.35</td>
<td>7.38</td>
<td>3.06</td>
</tr>
<tr>
<td>Standard error of the difference or SEp</td>
<td>3.30</td>
<td>3.30</td>
<td>1.18</td>
</tr>
<tr>
<td>Critical ratio**</td>
<td>.30</td>
<td></td>
<td>1.69</td>
</tr>
</tbody>
</table>

*Based on data in Tables XVI and XVII, Appendix A.

**A critical ratio of 1.96 is required before the difference between the means of the two groups may be considered significant even at the .05 level.
NORMALITY OF SAMPLE

Results of the tests of reading achievement, general achievement and mental abilities were examined to determine how nearly the 74 cases approached a normal distribution. From Table VI it can be seen that the percents of distribution recorded at intervals of .5 sigma above the mean approximate that of a normal distribution. In the case of each measure, scores appear to be massed at the lower end of the scale. This indicates that a certain amount of positive skewness exists. The amount of skewness was checked statistically, its deviation computed, and critical ratios determined according to the following formulas:

\[ SK = \frac{(P_{90} + P_{10})}{2} - P_{50} \]

(Measure of skewness of a distribution in terms of percentiles)\(^5\)

\[ \sigma_{SK} = \frac{.5185 D}{\sqrt{N}} \]

(Standard error of the measure of skewness given above) when \( D = (P_{90} - P_{0}) \)\(^6\)

\[ CR = \frac{SK}{\sigma_{SK}} \]

---

\(^5\)Garrett, Ibid., p. 241.

\(^6\)Ibid.
TABLE VI

COMPARISON OF THE PERCENTS OF THE 74 CASES IN THIS STUDY WHICH WERE DISTRIBUTED AT POINTS OF .5 SIGMA UNITS FROM THE MEANS WITH THE PERCENTS FOUND IN A NORMAL DISTRIBUTION AT THE SAME SUCCESSIVE POINTS*

<table>
<thead>
<tr>
<th>S.D. units above means</th>
<th>Percent in normal distribution</th>
<th>Percent on California Reading Test</th>
<th>Percent on California tests of achievement</th>
<th>Percent on S.R.A. test of mental ability</th>
</tr>
</thead>
<tbody>
<tr>
<td>.5</td>
<td>19.15</td>
<td>22.97</td>
<td>14.86</td>
<td>13.51</td>
</tr>
<tr>
<td>1.0</td>
<td>34.13</td>
<td>31.08</td>
<td>27.03</td>
<td>24.32</td>
</tr>
<tr>
<td>1.5</td>
<td>43.32</td>
<td>35.14</td>
<td>37.84</td>
<td>35.13</td>
</tr>
<tr>
<td>2.0</td>
<td>47.72</td>
<td>41.89</td>
<td>39.19</td>
<td>40.54</td>
</tr>
<tr>
<td>2.5</td>
<td>49.38</td>
<td>44.59</td>
<td>40.54</td>
<td>41.89</td>
</tr>
<tr>
<td>3.0</td>
<td>49.86</td>
<td>45.95</td>
<td>44.59</td>
<td>43.24</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>S.D. units below means</th>
</tr>
</thead>
<tbody>
<tr>
<td>3.0</td>
</tr>
<tr>
<td>2.5</td>
</tr>
<tr>
<td>2.0</td>
</tr>
<tr>
<td>1.5</td>
</tr>
<tr>
<td>1.0</td>
</tr>
<tr>
<td>.5</td>
</tr>
</tbody>
</table>

*Based on data in Tables XVI, XVII and XXI, Appendix A.

Skewness of the 74 cases in this sample is shown in Table VII to be positive in three measures used for equating the groups. On the test for reading achievement the positive skewness of .295 was found to have a standard error of .23, which resulted in a "t"
TABLE VII
DEVUATION OF THE TOTAL SAMPLE FROM NORMALITY; AND THE
SIGNIFICANCE OF SKEWNESS OF THE SAMPLE IN
READING, GENERAL ACHIEVEMENT
AND MENTAL ABILITY*

<table>
<thead>
<tr>
<th>Test</th>
<th>SK</th>
<th>Standard error of skewness or $\text{SDF}_{SK}$</th>
<th>Critical ratio</th>
</tr>
</thead>
<tbody>
<tr>
<td>California Reading test</td>
<td>+ .295</td>
<td>.23</td>
<td>1.28</td>
</tr>
<tr>
<td>California Tests of</td>
<td>+ .0085</td>
<td>.17</td>
<td>.50</td>
</tr>
<tr>
<td>Achievement</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>S.R.A. Primary Mental</td>
<td>+ 3.80</td>
<td>2.01</td>
<td>1.89</td>
</tr>
<tr>
<td>Abilities Test</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

*Based on data in Tables XVI, XVII and XXI, Appendix A.

score of 1.28. Since significance at the .05 level is not reached before a critical ratio of 1.96 is found to exist, it can be concluded that this departure from normality is mild and non-significant. When achievement test scores in language, arithmetic, social and related sciences were combined to arrive at a general achievement score, it was found that the 74 cases represented here were distributed in such a manner as to give slight positive skewness to the total sample. The critical ratio of this skewness, shown in Table VII, is .50, indicating that this degree of departure from zero is clearly not significant.

From Table VI, it may be seen that 55.41 per cent of the
cases on the primary mental abilities test were distributed between zero and 3.0 sigma units below the obtained mean. This massing of the scores below the mean resulted in a positive skewness (shown in Table VII) of 3.80. The resulting critical ratio, 1.89, shows that this deviation from normal approaches the 1.96 necessary for significance, but does not reach it. This sample included rural boys and girls in the seventh and eighth grades, among whom it can be expected that mental ability is slightly higher than average for a normally distributed sample; those with the lowest I.Q.'s having dropped out of school before reaching this level.

Since no significant skewness was found to exist, it may be concluded that the 74 students included in this study form a group approximately normally distributed with respect to mental ability, reading achievement and general achievement.
CHAPTER IV

MATERIALS AND PROCEDURES USED TO DEVELOP COMPETENCIES IN READING

THE GENERAL PLAN

The first two weeks of the fall semester were devoted to testing the students, classifying the results, and equating the groups. The writer met daily with members of the experimental group for reading instruction for a period of one hour. Members of the control group went to the library for free reading or study during this time. Aside from receiving no formal instruction in reading, the control group followed the same curriculum as did the experimental group. In fact, members of both groups were in the same class sections throughout the day except during this first period when the experimental group was taught reading.

Reading was taught as a separate subject. Procedures were kept as practical as possible. Materials chosen for illustrative purposes and for practice exercises were taken from textbooks or supplementary textbooks in the content field, whenever possible.

Major objectives of the class were (1) to help the students develop sound attitudes toward the need for good reading habits, (2) to provide them with knowledge of the reading process which would enable them not only to make immediate gains, but to continue improving their reading proficiency after the class was terminated,
and (3) to provide practice exercises designed to improve specific reading skills. A unique feature of this study was to teach students about reading, not just "put them through the paces" of increasing their skills.

The last two weeks of the school year were devoted to teacher-pupil evaluation of the year's work.

MATERIALS CONCERNING THE READING PROCESS

Basic textbook. The book, How to Become a Better Reader,1 was used as a basic textbook for studying the nature of the reading process. It was selected because of its comprehensiveness with respect to the total reading act; because it is written simply enough for seventh and eighth grade pupils to understand; because it furnishes adequate explanatory and illustrative discussions and exercises; and finally, because its general make-up facilitates its use in conjunction with other materials to evaluate, record and examine reading progress.

Supplementary professional books. The following professional books were used regularly as supplementary ready-reference books:

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1. Helping High-School Students Read Better
2. Foundations of Reading Instruction
3. Handbook for Remedial Reading
4. A Manual For Remedial Reading

Published material used for practice exercises. In addition to the practice exercises furnished in the basic text, the following publications were used throughout the period of instruction:

1. SRA Better Reading Books, (1, 2 and 3). These are evaluation instruments, each containing twenty reading selections. For each selection, twenty multiple-choice type questions are provided. Timing procedure described enables the user to measure rate. Three levels of difficulty are provided for in the three separate books, but there is no purposive increase in difficulty within any one book. Used with the SRA Reading Progress Folder, these Better Reading Books provide opportunity to practice reading

---

for comprehension and speed, and to keep accurate records of individual progress.

2. **Study Exercises for Developing Reading Skills**, Books A, B, and C. The exercises in these books are designed to provide practice in (1) developing the reading skills, (2) understanding the total meaning of a selection, (3) following directions, (4) organizing, (5) improving vocabulary, (6) remembering what is read, and (7) reading for facts. The reading level, increasing in difficulty from book to book, ranges from fifth to ninth grade.

**Student- and teacher-made materials.** Certain materials were prepared by committees of the students, usually after particular topics had been discussed by the class as a whole. The preparation of these materials served a two-fold purpose: (1) they provided motivation through group activity, and (2) they helped in developing skill in organizing facts. Typical examples of these are found on pages 141-52 in Appendix B. These include:

(1) Objectives of the reading class  
(2) Vocabulary list  
(3) Eye movement helps  
(4) Factors Effecting Good Reading, A self-evaluation sheet  
(5) How to Read, A Summary of a Film

---

In addition to these materials, a series of twenty three-minute drills were used. These were taken from materials in fourth, fifth, sixth, seventh and eighth grade textbooks of science, social studies, arithmetic and reading. This range represents approximately that found in the experimental group in initial testing. The weekly comprehension test on this material consisted of answering one recall-type question on each 100 words of content read. Textbooks themselves were used in this practice exercise. Examples of the evaluation instruments used periodically to measure knowledge and understanding of the reading process are found on pages 142-43, Appendix B.

Films and film strips. Several appropriate films which are available on loan from the Louisiana State Library were used. They served three main purposes: (1) motivating the students, (2) contributing to readiness by adding to mental content, and (3) furnishing specific information. These films are presented here under three general categories:

1. General Reading

Better Reading. Distributed by Encyclopedia Britannica Films, Inc., this ten minute presentation reveals problems students encounter in learning to read and suggests ways in which they can be solved.

Improve Your Reading. A Coronet film, this is a ten minute attempt to convince students of the need for proper reading. Included are specific suggestions for making improvement in comprehension and rate.

How To Read A Book. Here Coronet presents ten minutes of practical suggestions for consideration in the choice of a book.
Choosing Books to Read. By following a young pupil who is seeking certain information, Coronet films here show progressive steps to wider reading interests.

Know Your Library. This Coronet film depicts the organization of a typical high school library. The Dewey decimal system, Reader's Guide, and vertical file usages are explained.

2. Specific reading skills

How to Study. This ten minute film presents the advantages of developing good study habits, and enumerates specific techniques for study.

How to Read a Newspaper. This Coronet release shows basic techniques for reading a newspaper.

Speeding Your Reading. Prepared by Teaching Aids Exchange, this film shows steps considered necessary for increasing the speed with which one reads.

Language of Mathematics. This is a practical application of mathematical terms showing how mathematics is a fundamental need of society in every phase of modern living. It is a Coronet ten-minute film.

Improve Your Spelling. Released by Coronet, this ten-minute film illustrates practical means of improving spelling.

3. Vocabulary development

Who Makes Words? A Coronet film this one shows the importance of knowledges concerning the origin of words, and illustrates three main sources of words.

Building Your Vocabulary. This is a story of a man who discovered his own deficiency in vocabulary ability and describes the systematic campaign which led to improvement of his vocabulary, and success in civic affairs.

Do Words Fool You? A Coronet presentation, this film dramatizes the danger of word confusion in conversation, newspapers and radio.
We Discover the Dictionary. This is a Coronet production which develops important points in the use of the dictionary.

Film strips from the Society for Visual Education, including How to Read, from the communication of ideas and ideals series, Make Words Work for You and Help Yourself Read, from the Phonics series, were used. In addition, Intermediate Graded Word Phrases, levels G and H, were used in connection with the work for increasing visual proficiency and phrase reading.

MECHANICAL DEVICES USED

During the course of the study, three types of mechanical devices were used. The main purpose served by each was to motivate the students.

Projectors. Sound films borrowed from the depositories of the Louisiana Film Library, a section of the Louisiana State Department of Education, were shown with sixteen millimeter projectors. Film strip projectors were used to present film strip and slide materials.

Film strip projectors were also used as inexpensive tachistoscopic devices. An attachment developed by the Society for Visual Education, Incorporated, was fitted to the lens barrel of the projector to convert it for such use. This "Tach-Adapter" consists of a shutter enclosed within a plastic and metal frame. In a closed position, the shutter opening is held out of phase with the
frame opening by a pressure button. As the pressure latch is released, the shutter is allowed to fall free, permitting a 1/25 second exposure of the material to be presented. This simple, inexpensive device was used in connection with exercises designed to increase perception span and speed, and to develop skill in reading phrases rather than individual words.

**Reading Rate Accelerator.** This mechanical apparatus features a curtain type device which descends along a page of written or printed material at a speed adjustable to the reader's purpose. Science Research Associates, its developer, advocate its use in connection with exercises for increasing speed and efficiency by reducing eye movement errors, regressions and word by word reading. Two such devices were used during the second half of this investigation.

**READING READINESS ACTIVITIES**

A major objective of the class was to assist the students to develop a sensitiveness for the need for good reading habits. Developing readiness was recognized as an important factor in carrying out this function. Throughout the study, two types of readiness activities were carried on: those designed to enrich experience background in a particular area; and those designed to motivate through creating interest in the subject.

**Experiential background.** Research workers and teachers in
this field agree that mental content previous to the reading act contributes to the effectiveness with which one reads. At the begin­ning of this study, an important series of activities was that with respect to mental content concerning the total reading act. Since reading was to be the subject of a year's study for the group, a knowledge of what constitutes effective reading was considered essential. Before presenting that body of facts for mas­tery, its nature was described and exemplified in a number of ways.

1. Discussions led by teachers. In describing the purpose of this experiment, the teacher had an opportunity to present a brief overview of reading as the process of interpreting thoughts from printed symbols. Illustrations were given of the different purposes for which reading is done and the different skills needed for each purpose. Illustrations provided were: a newspaper, in­cluding comics where imagination is a major faculty; a poem where language facility is important; a historical paragraph where de­tails as they relate to the whole were necessary; and a problem in arithmetic, emphasizing vocabulary.

Pupil discussion which followed revealed two specific re­actions: (1) amazement at the multiplicity of types of reading; and (2) a desire to know more about the difference between reading for pleasure or appreciation and reading for content study.

The English and literature teacher at St. Francisville High School led a discussion showing the value of reading for apprecia­
tion and pleasure. She presented a contrast between reading for content and reading for pleasure by relating experiences of Natty Bumpo in *Leatherstocking Tales* and then showing similar facts as presented in a historical account of the same period.

2. **Films and film strips.** The general procedure followed in presenting these materials included a preview (at first by the writer, later by committees of pupils) of the film, a discussion of its main points, showing the film, discussing and outlining its content. The last activity often required re-showing of certain parts of the film. An example of this type of outline is found on page 141, Appendix B.

3. **The basic text.** One copy of the book, *How to Become a Better Reader*, was furnished each pupil in the experimental section. This was to serve as a basic text to develop knowledge about reading skills. One class period was devoted to examining the book, and discussing it generally.

The class was then divided into four study groups, each containing approximately ten pupils. The groups were to look at the book in the manner of their choice. Members of each group discussed their findings and then the class as a whole held a discussion of the subject. The general make-up of the book was discussed. Particularly favorable were the remarks concerning the organization of materials, the rate and comprehension drills, and the vocabulary
exercises contained in the volume. Pupils were impressed with the direct approach with which the author cited the why, what and how of better reading for all, regardless of present reading ability. Again comments were made regarding the number and variety of skills which make up the total reading act. Skills listed in the chapter titles reemphasized those already observed by the students and seen in films and film strips presented before. This volume was used also as a textbook providing information about and analyses of specific reading skills and habits. Each pupil was thus provided an opportunity to understand the nature and function of each skill considered. Such knowledge and understanding enabled the pupil to plan and work independently toward more efficient reading.

4. Increasing mental content in specific areas. As interest was demonstrated in the various purposes for which reading is done, teachers of the respective content subjects were invited to discuss with the experimental class the reading needs in those areas. Visual aids materials were used to exemplify the need for specific study-type skills peculiar to certain content subjects. Field trips, designed to enrich experiences, were planned by the pupils. Cooperative organization, execution and evaluation of these learning experiences also provided background knowledge for the study of certain scientific processes.

5. Developing pupil objectives for the course. Four
groups of pupils met independently to consider goals for the reading class. To encourage participation by every pupil, it had been decided that all suggestions were to be placed on the list, then revisions, deletions and additions were made as the groups saw fit. Meeting thereafter as a whole, the class listed 193 items which had been suggested as goals for the class. By organizing the suggestions presented, and through a two-day process of outlining led by the English teacher, the pupils agreed upon a list of ten basic "Goals in Reading:"

a. To improve vocabulary  
b. To improve comprehension  
c. To increase speed  
d. To improve oral reading  
e. To improve ability to use references  
f. To improve ability to do school work  
g. To help us do our jobs better  
h. To increase enjoyment in life  
i. To improve ability to organize what is read  
j. To improve judgment in reading

Motivation. Constant effort was made to arouse and maintain a high degree of interest in the general area of reading, and in learning the specific skills required in certain reading jobs. Active pupil participation in planning and executing the activities described above provided motivation and furnished background material which improved mental content. Other activities designed to create and maintain interest include:

1. Organization of the class. Pupil participation was one of the major points of emphasis. The class was organized to carry
out many of its activities without teacher direction. The choice of a chairman was based upon three qualifications set up by the group:

a. The person selected must be a good leader, capable of meriting the respect of others.

b. He must be a capable speaker who is not too shy to speak up.

c. He must be serious.

The same qualifications applied to the choice of a vice-chairman and of a corresponding and recording secretary.

All class discussions thereafter were presided over by the chairman, and in her absence, by the vice-chairman. Each proved particularly adept at drawing contributions from fellow pupils. The class was divided into four groups for purposes of detailed work. Each group elected a presiding chairman and vice-chairman. These eight constituted the executive committee of the class. This committee presented detailed plans for activities of the class, including field trips, class parties, word games, competitive interpretative reading contests, and choral reading. All plans were subject to approval of the class.

2. How new words were met. The task of maintaining interest in improvement of vocabulary was an important one. The class first decided that each day one member from each of the four groups described above would introduce a new word. Each member of the remaining groups would compete in defining the word and using it in a sentence. The words so introduced were to make up a vocabulary
list to be recorded and mastered. It was soon apparent that words being introduced often were not functional at the seventh and eighth grade level, because each group sought words which might confound its competitors. After a spirited discussion, this matter was referred to the executive committee, which was to report the following day, recommending changes considered necessary.

Following the recommendations of the committee, the class adopted a new plan for introducing words. Each day and following the alphabetized list of members, one person would introduce a word found in one of his textbooks. The word should be new to the person presenting it, and he must, by questioning the class or by direct means, define it and demonstrate its usage in a sentence. By following this procedure, all students participated.

3. Use of mechanical devices. It was shown above that mechanical devices of three types were used in this study. Pupil participation in the previewing of films and film strips was especially beneficial to maintaining interest in those activities. As new materials were presented, volunteer committees of three to five were allowed to view a film the day before it was presented. Prior to showing the film, this group chose its own means of "advertising" important features of the presentation. Some chose panel-type discussions, others presented questions to be answered, and others stated the title and then listed on the blackboard the "guesses" of the class members as to the content of the film. These guesses
were checked for comprehensiveness and correctness after the presentation.

The tachistoscopic device described in the section on mechanical devices provided motivation in those activities. The children were especially fond of the drills for enlarging recognition span and for increasing speed of perception.

During the second half of the study, when improving and adjusting rate were of concern, the reading rate accelerator proved popular with the pupils.

4. Keeping records of progress. Three devices were used to keep records of the progress individuals made. First was the self-evaluation sheet (pages 144-46, Appendix B), which was compiled by the pupils and purported to assist the individual make periodic ratings of his own reading habits. The second was the SRA Reading Progress Folder, which enabled the pupil to record his progress in reading comprehension and rate. The graph which accompanies the folder is an aid to adjusting rate of reading to one's purpose. Additional bar graphs prepared by the writer (shown on pages 150-52, Appendix B), served to show individual and class progress.

The third type of record which served as a motivation was that of independent reading reports. Pupils were encouraged to do independent reading. Each person was permitted three minutes to review a book or present an oral book report. Each review was con-
densed and written on a 5 by 8 card. These cards provided a record of the books read by individual pupils. When eighty books had been reported, with at least one from each pupil in the class, the executive committee was authorized to submit plans for a class party. All books read must have been approved by the teacher, the English teacher, or the school librarian.

TEACHING PROCEDURE

Generally, the procedure followed for developing specific skills may be outlined in five basic steps: (1) presentation, (2) illustration, (3) group performance of the skill and evaluative discussion, (4) supervised practice and evaluation at appropriate levels, and (5) independent practice and application of the skill in other reading assignments.

The interrelatedness of reading skills is so pronounced that procedure designed to develop any one skill usually contributes to the development of others also. However, for purposes of organization, instructional procedures followed in this study are presented under four general categories: (1) those designed to improve comprehension; (2) those designed to develop vocabulary; (3) those designed to develop skills in content reading; and (4) those designed to improve and adjust reading rate.

**Improving comprehension.** All procedures described in this chapter were designed to improve the pupils' ability to understand
what was read. Readiness activities already presented show the need for adjusting reading method to the purpose for which a given selection is read. Specific practices involving three reading purposes are discussed here. The first describes what was done to improve ability to get the main idea; the second, to read for important detail; and the third, to answer specific questions.

The skill to locate quickly and accurately the main idea in a written selection was demonstrated before the class as a whole. Discussion, held in connection with outlining the contents of the film strip, "How to Read," served as an incentive for presenting this skill. A title was sought for one of the frames of the strip. Conflicting opinions were expressed as to the meaning of the picture. Other pictures were brought in and suggestions were made as to proper captions for them. It was pointed out that those brief sentences really presented the main idea of the picture; that parts of the picture itself presented details which supported the main idea; and that similar structure existed in the written paragraph.

Several paragraphs were read aloud to the class; and the pupils were asked to suggest statements of the main idea. These were written on the blackboard and discussed with respect to choosing the most appropriate one.

Paragraphs selected from the pupils' textbooks were then read silently. Each pupil wrote a main idea for each paragraph read. Subsequent discussions of these statements revealed some
difficulty among the pupils in differentiating between supporting detail and the main thought. A review of what constitutes the main idea was conducted, three student suggestions being followed: (1) examine newspaper headlines to determine how efficiently they present the main idea, (2) select an idea about which a paragraph can be constructed, and (3) begin with materials from lower levels of difficulty.

It was decided that usually newspaper headlines represent the main idea in the selection, but that this was by no means universal. The paragraph which was constructed about a main topic showed how supporting detail contributes to the whole, yet only the one expression includes the entire thought of the paragraph. The use of materials easy enough for the poorest student to understand was beneficial in explaining this skill.

Practice exercises were provided at three levels of difficulty. Books A, B, and C, of the series Study Exercises for Developing Reading Skills, were used, with three groups of pupils divided on the basis of initial performance in reading achievement. As groups X and Y worked silently, group Z discussed and appraised the various statements its members had selected as main topics in the series of paragraphs. This procedure was continued until each

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8Emma A. Neal and Inez Foster, Study Exercises for Developing Reading Skills, Books A, B and C (Chicago: Laidlaw Brothers, Incorporated, 1953).
group had opportunity to fix the main idea in at least ten examples.

The whole class then discussed the skill, finding the main idea in written selections. Uses of this skill were discussed, emphasis being placed upon the functional aspect so that pupils would be encouraged to practice independently. Additional practice exercises were pointed out to the students in study exercise books, and discussion brought out that a pupil's daily routine afforded many opportunities for practice in this skill. A period of time each week, for the ensuing four weeks, was devoted to examination and discussion of practice exercises in this skill done independently.

These activities were designed in an attempt to help pupils discover that reading for this purpose can be done quickly and accurately. It attempted to emphasize to them that this skill aided them in a number of ways; (1) to locate the author's purpose, (2) to decide quickly whether or not they wished to read a given selection, (3) to locate materials, (4) to focus attention upon the thought rather than upon words contained in written material, and (5) to evaluate, differentiating between supporting detail and main thought. Pupils were encouraged to note gains in comprehension of reading assignments in the content areas when they (1) quickly located the main idea of each paragraph, (2) noted it down on paper, and (3) read the selection carefully.

The second approach to improving comprehension was to de-
velop the skill of **reading for important detail**. Formal presentation of this objective followed readiness activities described above and was made to the class as a whole. A paragraph was read aloud. Pupils were asked to write as many as possible of the important details contained in the paragraph. These were listed on the blackboard and discussed. Pupils read independently a paragraph written at approximately the fifth grade level. Each noted important detail. These experiences were shared through whole-class discussion. Practice exercises in the reading textbook were carried out. These included reading an article at a comfortable rate and then taking a test consisting of simple questions whose answers appeared in one of two choices. When this exercise was discussed, individuals were required to re-read the sentence which contained the answer to which he referred. This served as a check for those whose judgment had been incorrect.

Independent practice exercises at three levels of difficulty were provided in this skill by the study exercise books. Again groups X, Y and Z alternated between doing silent work and discussing with the teacher the exercises completed. This practice was continued until the teacher felt all pupils were able to profit by doing the exercises independently.

During one discussion, a pupil, noting the items listed on the blackboard, suggested that his list represented "a sort of outline." Further discussion brought out that an outline contains
main topics and then supporting ideas. These seemed all "on the same level." Upon request, the English teacher demonstrated how an outline is made and how details go together to develop a main idea.

Thereafter, weekly drill exercises were held in developing the skill of "noting important detail." These drills assumed four forms: (1) practice exercises at three difficulty levels, provided in *Study Exercises for Developing Reading Skills*; \(^9\) (2) three-minute reading assignments, followed by questions in content textbooks at levels five through eight; (3) practice exercises at three levels in the *SRA Better Reading Books*; \(^10\) and (4) writing questions and finding answers in content textbooks of the pupils' own level.

Reading to answer specific questions was the third series of purposive reading exercises designed to increase general comprehension. Since this skill is closely related to that involved in reading for detail, it was introduced in connection with drills in the latter skill. Exercises in reading and then answering specific questions were provided from a number of sources. To check accuracy after completing such exercises, the individual pupil was required to locate the proper answer by re-reading parts of the selection. Thus, having read a question, his job became one of relocating the specific information called for.

\(^9\)Ibid.

Demonstration exercises for the class as a whole had two purposes: first, teams of pupils prepared questions from sections of their textbooks. This afforded practice in reading for detail. Secondly, team "A" then exchanged questions with team "B" and etc., each team being afforded the opportunity to practice answering specific questions. A high level of interest was maintained, resulting in wide pupil participation. These exercises were conducted in the form of games, which the pupils called "Information Scavenger Hunts."

Evaluative discussions of this skill were held. Its usefulness in study-type reading was emphasized. Functional aspects of this ability were further demonstrated through the cooperation of other teachers who made periodic assignments in the form of questions to be answered. Additional exercise materials at three difficulty levels were provided by Study Exercises for Developing Reading Skills, and SRA Better Reading Books.

Direct efforts for improving comprehension centered about three major skills: (1) reading to get the main idea, (2) reading for important detail, and (3) reading for specific information. Each skill was presented, illustrated, and practiced in situations meaningful to the pupils. Student evaluations of knowledge of the respective skills were made. Independent practice at appropriate difficulty levels was held. When evaluation revealed need for additional instruction or illustration, it was provided. Often these
were supplied by suggestions of pupils who participated freely in discussions. Functional aspects of these reading skills were kept before the students through the use of textbooks and materials which were used daily; through application of the skills to the study needs of the students in school work other than reading; and through frequent and informal evaluation and recording of individual proficiency in specific skills. After a skill had been introduced, it was practiced throughout the remainder of the year, emphasis being placed upon (1) its purpose, and (2) its contribution to the total reading act.

**Vocabulary improvement.** Procedures to assist the students improve vocabulary are described under three headings: (1) learning the importance of words and creating a desire to enlarge one's vocabulary, (2) word identification skills, and (3) learning new words directly.

The general readiness exercises which were held at the beginning of the instructional phase of this study so impressed the pupils with the importance of vocabulary ability that when they formulated a list of ten objectives for the course,* vocabulary improvement headed the list.

Discussions concerning the importance of word knowledge in the life of individuals followed the showing of a ten minute

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*See "Objectives For Reading," page 63.
Coronet film, *Building Your Vocabulary*, the story of a public-minded citizen who failed to gain support for his civic improvement plan because he was unable to present it explicitly enough. His determination, however, led him to conduct a home-made, systematic program for improving his own word power. Subsequently, he met with success and the community profited from his ideas which were now expressed clearly.

In the follow-up exercises the class discussed individual pupils' need for vocabulary improvement and ways by which new words might be learned. Further emphasis was given to word consciousness through the films *Who Makes Words?* and *Do Words Fool You?* Each of these films presents practical illustrations of the relationship between the usage of a word and its derivation. The former shows how a sixth grade class had classified words into three general divisions: borrowed words, combinations of words, and invented words. The latter dramatizes the confusion which results when words are used improperly in conversation, newspapers, and radio. Subsequent discussions by the class as a whole revealed that pupils felt a need for clearer understanding of the words they already knew and for adding new words to their vocabularies. It was decided to turn to the textbook and to supplementary reference books to discover definite ways by which vocabulary can be improved. From these sources, and from the background material provided in readiness activities, a definite, systematic approach to vocabulary im-
provement was developed by the class as a whole. The first part of the plan called for learning more about identification skills, or what to do when a new word is met, and the second part dealt with meeting new words.

Before going into instructional procedure, the teacher sought to determine what word identification skills were already generally practiced by the pupils. Pupils were asked to note what they actually did when encountering new words. Some admitted that the usual procedure was to skip over the word and forget about it. Some said they were sometimes helped by looking at the word to see if it looked like any word they already knew. If the word was encountered orally, its sound might indicate a meaning to some pupils. How it was used in sentence context was mentioned by some as a means of learning a new word. Among these students, the dictionary was used to discover a new word only when such a procedure became a part of a study assignment.

It was pointed out that the techniques mentioned comprised a system of identification skills which, if practiced systematically, would result in improved vocabularies. After studying the textbook and other sources, however, the group decided to list five "keys" for unlocking the meaning of new words as they are met; (1) general configuration, (2) context clues, (3) syllabication, (4) common prefixes and suffixes, and (5) use of the dictionary. Looking at the word for a second time, trying to see or hear its gener-
al make-up or configuration in some known word, was shown to be an important skill. Illustrations were given of how context clues often proved the key to unlocking new words. In connection with context clues, care was taken to show shades of meaning, as well as changes in meaning of certain multiple-meaning words, according to their use in a sentence. It was recalled that Witty compared words to money, stating that they had little value in themselves, that their importance stems from the fact that they stand for real things — "objects, actions, sounds, thoughts, and feelings."

Members of the class who had attended the elementary division of this school had had instruction in phonetic construction of words. The teacher who had provided that instruction in the fifth and sixth grades now led the class in discussions of phonics. She showed the pupils how dividing words into their component syllables sometimes provides a key for understanding word meaning. Patterns commonly used in dividing poly-syllabic words were demonstrated and exercises were provided for developing skill in their use. Further use of phonics for word identification involving digraphs, diphthongs, blends, long and short vowel sounds, were discussed and exemplified.

The lists of common prefixes and suffixes found in any standard text or manual for reading were presented to the class.

Each child was asked to study the meaning of the prefixes and suffixes and subsequent class time was devoted to exemplifying the use of such knowledge in complex or compound words. The chart shown on pages 147-48, Appendix B, illustrates how this class organized its study of common prefixes and suffixes. Again pupils were cautioned to consider the context in which the word was used. It was pointed out that, like word usage elsewhere, exceptions to the general rule occur in the use of prefixes and suffixes.

The film, We Discover the Dictionary, served as a springboard for introducing the final word identification skill. Discussing and outlining the contents of this film, pupils discovered new approaches to the use of dictionaries. Guide words were exemplified and their use in locating information demonstrated. Dia-critical marks were shown, with illustrations supplied in the dictionaries, to demonstrate their use in charting pronunciation. Words with multiple meanings were found to illustrate the value of context in determining word meanings. Various types of dictionaries were demonstrated, calling attention to the specific functions of the various types found in the school.

Upon completion of the introductory phases of these five simple skills for word identification, a discussion period was held for the purpose of assimilating the information. "What to do when a new word is met" was the title of the class discussion led by the pupil chairman. Subsequent contributions by pupils revealed that
they had learned a systematic approach to discovering the meaning of new words and individual pupils expressed interest in increasing word power. Further discussion brought out the point that the use of identification skills was a voluntary thing and all pupils should try to practice them daily in reading, listening and conversing.

To furnish the practice necessary for developing proficiency in word identification skills, four devices were used to present new words. The first has already been described as the daily vocabulary exercise. It consisted of the introduction of three new words taken from other content material at the seventh or eighth grade level. Each day, following an alphabetized list of class members, each of three pupils introduced a new word according to the following procedure:

1. The word was written on the blackboard and volunteers were asked to pronounce, define and use the word in a sentence.

2. Should no one volunteer to do so, the pupil presenting the word then wrote the word by syllables, indicating with diacritical marks the pronunciation.

3. Again volunteers were asked to pronounce, define, and use the word. Upon failing to get proper response, the pupil sounded the word.

4. If syllabication and phonetic approaches failed to produce a response, then the student used the word in a sentence.

5. Should the context clues fail to bring out a definition, then the pupil presenting the word gave the dictionary definition or definitions and a brief discussion of the word was held.
6. The word and information concerning it were entered in individual pupil vocabulary note-books.

The second device used to learn new words directly and to practice the identification skills learned was the use of vocabulary study exercises found in the study exercise books. Tests and drill exercises taken from the textbook, How to Become a Better Reader, supplied the third device. As a fourth means of learning new words, pupils were encouraged to make entries into vocabulary notebooks from daily routine in content subjects, from listening to others speak, or from independent reading. All of these devices were employed, both as means for practicing word identification skills and as means for meeting new words directly throughout the remainder of the year.

DEVELOPING SKILLS FOR CONTENT READING

Procedures designed to help pupils read content materials employed the skills already described under comprehension and vocabulary development. This section shows how these general reading skills were applied to the development of competencies in study-type reading in content fields. Competencies emphasized through presentation, study, and application may be divided into eight categories: (1) following directions, (2) applying what is read to problem solving, (3) locational skills and translation of special type material, (4) evaluating what is read, (5) reading for implications, (6) organizing and summarizing what is read, (7) reading
for pleasure, and (8) adjusting reading to purpose. Many of these, of course, are overlapping in application. The series of classroom activities described below were designed to develop knowledge and understanding of the skills. The practice exercises provided opportunity for class members to make application of the learnings to meet their own individual needs.

1. Following directions. The teacher introduced this topic very early in the readiness phases of the study. It had become necessary in connection with reading and following directions pertaining to threading and operating the two projection machines. Previewing films and film strips by small committees of pupils, already described, created a need for assistance in interpreting directions given in the manual for operating the projectors. Pupils thus felt a need for learning to read and follow directions independently.

Further discussion was held on the need for developing ability to follow directions. Pupils were asked to cite examples within their own experiences in which ability to follow written directions was needed. Numerous examples were supplied from business and industry; from farming and home making; and from school experiences in laboratory courses such as agriculture, shop, home making and science.

Pupils were asked to listen carefully so that they might repeat simple directions after the teacher read them aloud. Inter-
est was demonstrated when individuals tried to repeat the directions without reading. Most pupils erred either by altering the sequence or by omitting essential detail. The importance of reading for detail and of sequential order was emphasized. Certain pupils pointed out that had the directions been before them in written form a first reading may have been done for general understanding, a second for specific detail, and a third for sequence.

This was done the following day, using the directions for a simple experiment in science. Directions chosen were taken from a fifth grade science book to make sure that all might participate. Reading for general understanding of what was to be done was followed by brief oral statements of that function. Next, details were noted; and third, sequence was discussed. Emphasis was placed again upon the importance of the latter two functions. Attention was called to the outcome of the experiment should a detail be left out or the order of the directions not followed.

Reading ability groups X, Y and Z then alternated, performing and discussing with the teacher the exercises at three levels from the study exercise books.

Whole class discussion followed this procedure. Emphasis was then placed upon applying the skill of "reading to follow directions" in daily usage. Pupils were asked to report one week from that date specific illustrations of the use of this skill in their own daily routine. Every student subsequently reported
having had an opportunity to read written directions at least once during that week.

Independent practice in this skill was encouraged. Periodic checks were made of the progress individuals were making with (1) exercises in the different level exercise books, and (2) reports of reading to follow directions in content fields, in activities at home, or in their play.

2. Applying what is read to problem solving. It was pointed out to the pupils that ability to follow directions constitutes one facet of this skill. In fact, each of the reading skills already discussed, to be meaningful, should contribute to some type of problem solving. The use of reading as an aid to solving problems was emphasized here, through discussion, illustration, and practical application. Stated simply, all reading was viewed as purposeful in one of two ways: (1) for immediate use, or (2) to add to the body of personal experiences and knowledge to be used later.

The teacher led a discussion of the role of reading in problem solving. Pupils agreed upon basic considerations which were listed as steps to be practiced systematically in problem solving: (1) state the problem clearly, (2) recall what is already known about the problem, (3) identify other information needed, (4) list sources for securing the information, (5) decide how the information may be put together to reach a solution to the problem.
An illustration of reading and planning according to this "method" of problem solving is seen in the pupil-planned activity for visiting an oil refinery. This problem grew out of a unit in the science class in which Louisiana's natural resources were being studied. Members of the reading class wished to see first hand the process of extracting various products from raw or crude oil. What had already been learned about the process of refining oil was recalled. Additional information was secured by writing to the director of public relations of the refinery. After studying this literature, individuals were asked to list items about which they were curious to see or about which they desired more information. From these lists, the class prepared a number of questions which were to be asked when visiting the plant. All correspondence was conducted by the executive committee of the class, the teacher having authenticated the project by separate correspondence with officials of the refinery.

After the visit, the original list of questions served as an outline for discussing the outcomes of the trip. Individuals demonstrated interest and understanding of the processes. It was felt that they had grown in their appreciation of oil as an important natural resource of their state.

More immediate application of the skill, "applying what is read," was provided in many activities of the class, such as preparing charts and graphs of individual progress, of class achieve-
ment; study type reading in content subjects, social studies and science; and reading in mathematics.

One example of immediate application of what is read is the procedure followed in reading in mathematics. It was decided to apply the "method" described by the class to solve "word-problems" in mathematics. The first step was read to get the main idea, and understand what it is that requires solution. Pupils were asked to restate the situation in their own words without numerical figures. Known or given information was re-examined and stated. The problem was then read carefully for directions which were given. Implied directions were discussed, recalling the mathematical processes needed for following the directions given or implied. Since the problem had been restated by individual pupils, estimates of the answer were made. The logical reasoning behind each estimate was discussed. As these problems were solved in the mathematics classes, follow-up reports were made in the reading class on the accuracy of the several estimates.

With the cooperation of the mathematics teachers, additional exercises in this direct application of material read were provided by asking pupils to write problems of their own. These problems were exchanged among the members of the reading class and the procedure described in the paragraph above was repeated.

Throughout the year procedures similar to these were followed in activities of the class. It was pointed out that the
"formal steps" listed did not always apply. Emphasis was placed upon the idea of approaching a problem systematically, seeking to reach a solution based upon: (1) identifying clearly the problem, (2) recalling things known about the problem, (3) seeking additional information, (4) deciding upon logical processes involved, (5) anticipating the outcome, and (6) evaluating the outcome.

3. **Locational skills and translation of special type materials.** The ability to locate quickly the main idea of a paragraph, and later of a selection (discussed earlier in this chapter), gave rise to the idea of skimming for that purpose. It was explained that the ability to skim was also important in locating specific information such as in card catalogues, as demonstrated in the film "Know Your Library." This film shows the various departments of a library, the Dewey decimal system, and their use and application in serving students. Skimming was shown to be useful in locating specific information in tables of contents, indices, alphabetized lists, reference books such as encyclopedia and dictionaries, history reference series, and the like. Exercises were conducted with the class as a whole in locating information from the various sources listed.

The game described above and known to the pupils as "Information Scavenger Hunt" provided motivation for practicing this skill. The class was divided into four groups. Each group listed specific information which could be located through use of the
library. Lists were exchanged and each group sought the information asked for by another. As the game was played, the required information was to be supplied and its source cited. This introduced the use of materials to be included in reference footnotes.

Similar exercises were designed with newspapers and other periodicals available to the group. It was pointed out that in surveying these reference materials, different skimming skills were needed. Here less emphasis was placed upon formal lists such as tables of contents or indices. Rather, it was necessary to make extensive use of headlines, titles, sections of the publication, and other "signposts" such as bold type and italics.

Cooperation of other teachers, especially in social studies and sciences, provided additional drill exercises requiring locational skills throughout the year. Class projects, unit assignments and individual reference work assigned by these teachers from time to time required use of locational skills. The reading teacher was appraised of these assignments and the activities were employed as a part of the reading class periodically.

The other part of this skill involves understanding quickly the story told by a chart or graph, an illustration or diagram. Examples were secured in the various textbooks which students used daily. Oral discussions of these were held and similar charts or graphs were constructed by the group. Individuals were required to keep accurate records of their progress not only as represented by numerical figures, but by graphs representing proficiency in read-
ing speed and comprehension from time to time. In addition, many of the drills emphasizing the skill "following directions" in the study exercise books required the pupils to construct diagrams or graphs from the information supplied.

The mathematics teacher demonstrated use of charts and graphs in that field. Additional materials found in textbooks and their supplements in arithmetic, science and social science were used for practice exercises.

Emphasis was placed upon recognizing the value of this locational skill and its application when reading in content fields. Pupils were encouraged to bring to class examples of the use of this skill in their daily experiences. This conscious recognition of skills and their contribution to the total pattern of reading is a unique feature of the procedure followed in this study.

4. Evaluating what is read. Many of the exercises conducted by the class as a whole illustrated differences between truth and fiction. The discussions involving newspapers, journals and other periodicals were not so illustrative of the differences between reality and imagination. Neither did these materials exemplify clearly that written or printed materials often reflect the opinion of those who write them. The ability to judge what is read was pointed out as an important skill in reading. The film strip How To Read furnished one background for developing this skill. Through discussions and illustrations, the class decided upon a
list of questions that readers should ask themselves in evaluating what is read:

1. Is the statement true?
   a. Were sources presented? If so, are they reliable?
   b. Could the date of publication affect the truth of the statement?

2. Do opinions or interpretations comprise bases for statements in the selection?
   a. If so, is the author qualified to make such conclusions?
   b. In the light of facts presented, would I conclude the same as the author?
   c. What was the author's purpose in writing the article?
   d. Are his opinions distinguishable from statements of fact?

3. How does this check with my experiences or with the knowledge I already possess concerning the same subject?

The class as a whole discussed several selections chosen from the reading textbook. Four groups, formed without regard for reading levels, were then asked to locate and study independently four different types of articles illustrating the ability, "evaluating what is read." One group prepared a discussion of a selection from the science text, showing statements of facts. Another group chose a short story from their literature books to illustrate pure fiction. A third group demonstrated interpretations and the importance of publication date by discussing a newspaper article of present and future school needs. The fourth group chose an editorial from a newspaper to show how the author's purpose affects
critical evaluation of written selections that contain opinions.

This skill was emphasized thereafter. Students, while practicing other specific skills, were reminded to be critical of the soundness of statements they read.

5. Reading for implications. This skill was shown to be closely related to the ability to read critically. In fact, all discussions and exercises described above include this skill, which properly can be called "reading between the lines," i.e., reading for implications. To emphasize further the means of doing critical reading, the teacher asked pupils to furnish illustrations of the need for recognizing implications. Pupils cited stories with a "moral:" Bible passages, parables, Aesop's Fables, sayings of Confucius, and the like.

Practice exercises for basic skills (already described) contributed to the development of this skill. For instance, readers readily agree that "reading to get the main idea" in a sentence, paragraph, or entire selection necessarily includes "reading for implications." This interrelatedness of skills enabled practice exercises during the latter half of the year to be done with multiple purposes. An important function of this teaching procedure was to build specific skills sequentially. The simple skills were taught first, followed by related competencies which purport to contribute maturity in reading for different purposes.

6. Organizing and summarizing what is read. It has been
shown elsewhere that the procedure designed to give readiness and motivation for the various activities includes the study and practice of outline building.* The high school English teacher demonstrated use of an outline to organize and summarize information contained in a written selection. After students had done this with several illustrative selections, the reverse procedure was demonstrated. In this instance, and in connection with work in the two English grammar classes, developing and using an outline for theme writing was discussed. By working with the English teacher, it was possible to show the relationship between these two uses of the outline, and to demonstrate further comprehension skills such as "getting the main idea", "noting supporting detail", "reading for implications", and "evaluating what is read."

Practice in the ability to organize and summarize what is read was readily provided in the many exercises designed to improve comprehension. The importance of its presentation to the students lies in the value of their understanding the function of this skill in the total reading pattern. Practice in this, a composite skill, was provided almost daily. Extensive use was made of this and its component skills in study-type reading as an aid to independent study in the different areas of school work. Examples of class work in reading which illustrate practice in organizing and summa-

*See pages 71-72.
rizing are found in Appendix B.

7. **Reading for pleasure.** Procedures for developing this "skill" consist of activities concerned with motivation. Reading for fun, however, was one of the topics which produced a very spirited discussion among the pupils. Reading interests of the pupils covered a large variety of subjects. The school librarian gave the class a report of the number and type of books available. She presented displays including book jackets and other attractive material from time to time on the bulletin board in the reading classroom.

The class talked about the value of reading for fun. It was emphasized that an individual's interests in reading should develop from a variety of subjects. These informal talks brought out that in reading for fun, general skills are practiced, experiences are enlarged, language skills are emphasized, vocabulary is broadened, and leisure time is profitably spent. Moreover, pupils pointed out that as proficiency increases in these abilities, the individual gets more enjoyment from reading.

To supplement the list of books available from the school library, many of the students exchanged privately owned books. Also available were two dozen books which had been selected for their interest to teen agers, but written at fourth, fifth and sixth grade levels.

More time was devoted to free reading during the second semester than had been during the first. To encourage all members of
the class to participate in free reading exercises, two things were done: (1) time was provided for free reading at least once per week; (2) book reports were made both orally and written. The purpose of all book reports was to recommend the book to the class. Either favorable or unfavorable recommendation could be given, but supporting data must be given for the evaluation. As it developed, several book reports were challenged by listeners who also had read the book. In these cases a debate was arranged between the two parties and ten minutes of the next day's class was devoted to presentation of the conflicting views. As a result, such books usually proved most popular. The written report, too, was informal and brief. It was presented on a three-by-five card and included essentials of the book, along with summary comments by the pupil.

Whenever eighty book reports had been made, and among those at least one had come from each pupil, the class executive committee prepared for a class outing or party. By the end of the year, a total of 187 book reports had been made. This represents an average of 5+ books per pupil read and reported.

Two types of oral reading were discussed and presented by the pupils. The first was individual interpretative reading of some chosen selection wherein it is the reader’s job to interpret for the listeners the author’s thought, mood and feeling. (This has been an important extra-curricular activity at St. Francisville High School. Members of the speech teams have competed inter-
scholastically on district and state wide bases.) This was done twice, the first time as a requirement of the class, and the second time on a voluntary basis. Both times all members of the class participated. Each student chose a short selection of either prose or poetry, and with the help of the English teacher and/or the reading teacher, prepared to make the presentation before the class. One boy and one girl were chosen by class vote to present their readings to other classes of the school. Much interest was demonstrated in this activity.

The second type of oral reading presented by the class was choral reading. Choral reading had been explained in connection with the discussions concerning varsity speech competition. The class decided to do choral reading as a part of a local talent program sponsored by the Parish Fair Association. Material read was prepared by the class. It consisted of telling the story of home, school, church and community working together to build men and women who made and kept America strong. Vocal parts were arranged by the school music teacher, who supervised the choral effect and directed the reading. This project proved successful in many ways: (1) the students found pride in work well done, (2) participation in a community project was applauded by parents and citizens, (3) originality, creativity and speaking talent may have been self-realized by some pupils, (4) appreciation of choral reading was introduced.
In reading for pleasure, pupils were encouraged to choose their own books from a variety of subjects; individuals were encouraged to evaluate critically what was read; appreciation of the author's full meaning of the mood and of the feeling expressed was emphasized through oral reading; and community service was combined with writing, preparing and producing a selection in choral reading.

8. Adjusting reading to purpose. The nature of the exercises described in the foregoing sections of this chapter indicate that throughout the year procedures followed a certain pattern. As each skill was introduced, procedure was designed to acquaint the student with its role in developing total reading ability. Initial discussions were preceded by readiness activities designed to do two things: (1) motivate interest and (2) enrich experiences. Discussions of the skill as such always included some demonstration of the application of that competence in situations practical to the pupils. Pupils therefore were well "readied" for this final cumulative skill. The learning situation here was one of organizing and summing the application of the other skills. This was done through pupil discussions led by their elected chairman and employing procedure for outlining. The class secretary made the notations on the board. The outline below suggests the framework of the discussions held. As each skill was recorded, the oral discussion presented its purpose, its importance, how it could be
developed, and examples of its application by members of the class. These included:

I. Skills related to general comprehension
   A. To get the main idea
   B. To understand and remember specific detail
   C. To find specific information

II. Additional skills needed in content reading
   A. To follow directions
   B. To locate information and translate graphic presentations
   C. To solve problems
   D. To discover implications
   E. To organize and summarize
   F. To evaluate
   G. To read for pleasure

During the formulation of this outline and its accompanying discussion, reading rate was mentioned as one of the important variables in adjusting reading to the purpose at hand. The next section deals with that topic.

INCREASING READING RATE

Throughout the first semester of this study, little or no emphasis was placed upon speed in reading. Rather, attention was centered upon learning about the various comprehension skills and upon effective reading for different purposes. Research shows that understanding and controlling the behavior of the eye while reading does contribute to total reading effectiveness. Consequently, procedures were followed which were designed to (1) provide a background of knowledge concerning the function of the eye in reading,
(2) give motivation to develop effective habits of reading thought units, and (3) assist students adjust speed to purpose.

Learning how the eye functions while reading. Lesson five, in the reading textbook, How to Become a Better Reader, was studied by the pupils for the purpose of learning about how the eye behaves while reading. The teacher asked the pupils to skim the chapter very hurriedly to determine the main object of the lesson. Various responses by the pupils were written on the board and discussed. Skimming for a second purpose was then done. This time pupils were to note new terms encountered and try, through use of identification skills already studied, to determine independently useful meanings. Such terms as "fixation pause," "fixation point," "recognition-span," and "regressive movements" were noted. Each was discussed to make sure that all pupils had developed useful understandings of each term. This discussion referred pupils to the sections of the textbook which presented values of short fixation pause, long recognition-span, and the negative effect of regressions. As these values and effects were pointed out, pupils became curious about how they might develop such favorable eye habits. All were then asked to read carefully for this purpose the chapter in their textbook. In addition, assignments from the ready-reference books were recommended for those who wished them.

12Witty, Ibid., pp. 28-37.
In each case, opportunity was given for students to discuss the materials. After discussing materials from the textbook, those who had the maximum assignments were asked to discuss with the rest of the class what had been read from other sources. This included an interesting presentation of the main parts of the eye and how each functions as the eye responds to stimuli such as printed words or symbols.

Together, members of the class listed the means by which individuals might improve eye movements so as to read faster and more effectively by: (1) eliminating lip movements and vocalizing, (2) reducing the number of fixations per line, (3) increasing recognition span, (4) reducing fixation pause, and (5) reducing regressions.

Developing effective habits of reading thought units. Observation determined that several pupils moved their lips when reading. Many of the pupils reported throat irritations after long periods of silent reading. The teacher explained that this may be due to involuntary pronunciation of words inwardly by the vocal chords. Conscious effort was therefore made by individual pupils to eliminate these two habits which had the effect of reducing speed in reading and minimizing effective reading of thought units.

To help train the eye do its job more effectively, practice exercises designed to increase recognition span and reduce the length of fixation pauses were built around reading thought units:
1. Pupils were asked to try to read the first three words at the left of each line of printed material by making fixation pauses only on the second word. Pairs of students worked together, one watching the other's eye movement as this type of reading was attempted. This provided motivation and also gave the pupils a simple device which they could apply independently later.

2. A committee of pupils was appointed to write a series of phrases which contained practical thought units which might be used as practice exercises to be read with one fixation. An illustration of this list is found on page 149, Appendix B. It may be noted how the phrases progress in complexity.

3. The next series of exercises were conducted with the aid of a film strip projector. Drills with this device were of ten minutes duration four days per week for a period of ten weeks. (1) They began with simple two digit numbers printed with ordinary pencil lead on frosted glass slides cut to fit into the film strip projector. These numbers were flashed upon the screen at the speed of 1/25 second with the aid of the Tach-Adapter.* More digits were added as time went on, the length of the number being limited to four digits until about 90 per cent of the class were able to note the full number in one fixation. Care was then given to increasing the recognition span by spacing the four digits progressively

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*See pages 58-59.
further apart until the distance between the first and last digits was approximately that of a ten digit number. Thereafter, six, seven, and eight digit numbers were similarly read. (2) To strengthen the use of this increased recognition span and decreased fixation pause, similar drills were executed with words and then phrases. Here the emphasis was placed upon practical application of increased eye efficiency to read thought units. Pupils were unanimous in finding it easier and more pleasant to read "something sensible" — thought units — instead of meaningless number digits. This provided added motivation for emphasizing the habit of reading thought units rather than words. (3) Following these home-made phrases, the children were asked whether they would like to test their recognition span and fixation time with graded word phrases which had been standardized on large numbers of children in other schools. Additional practice exercises were then conducted, using graded word phrases prepared on film strips.\(^{13}\) In these instances, the pupils were asked to view the film in the flashed time exposure, and then they were given time to think about its full meaning before writing it down. Sixteen groups of twenty-five phrases each were used at two levels of difficulty, each group representing a progressively more difficult series of phrases. This procedure

\(^{13}\)These film strips are distributed by the Society for Visual Education, Inc., of Chicago, Illinois, and were prepared by Dr. Selma Herr.
again emphasized reading thought units.

4. Another device used in connection with practice exercises for quick recognition of thought units was the reading pacer. In this study, two *Reading-Rate Accelerators* were used. They are designed to "force" a reader to speed up by helping to eliminate regressions, improve the return eye sweep, and decrease fixation pause. After basic instruction in the use of the device, students were allowed to practice on their own time each day. During each hour of the day, content teachers permitted pupils to spend ten minutes of their own independent study time practicing with the reading pacers. This enabled members of the reading class to average approximately four ten-minute practice periods per week for the last fifteen weeks of the school year.

Assisting pupils adjust reading speed to purpose. The nature of the procedure followed and described in the paragraphs above constantly emphasized adjusting the type of reading to the purpose to be served. In each case, reading at appropriate speed was discussed. When speed reading was introduced, renewed emphasis was placed upon the fact that all reading should not be done at maximum speed. Rather, it was pointed out that the purpose here was to increase the speed with which the several types of reading

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*A description of this device is presented on page 59. It was developed by Elizabeth Simpson and is distributed by Science Research Associates, Inc., of Chicago, Illinois.*
were done. Put simply, effort was directed toward increasing an individual’s speed in skimming which was already relatively fast. So too, was there conscious effort made to increase the speed with which one reads for problem solving, or for noting detail, or for other specific purposes. Pupils' knowledge of the different skills and the function of each in reading for specific purposes was recalled in class discussions of reading rate. This enabled the pupils to show how the good reader varies his speed in reading for different purposes.

Graphic presentation of individual and class growth in speed and comprehension as illustrated in Appendix B, pages 150-52, also served to assist pupils adjust reading rate to purpose. These graphs showed progress in the two factors, and presented forceful evidence whenever proper adjustment between speed and purpose was not made. For example, lack of balance was immediately discernable in the graph of a performance where rate was too rapid for noting important detail. Conversely, persistent high comprehension scores with poor rate indicated need for adjustment. Many times reading at a faster rate did not materially affect comprehension efficiency. In fact, the students observed that when increased speed was the result of corrected eye movements and of better assimilation of thought units, faster rate resulted in increased comprehension.

Consistent with the procedure in other phases of instruction, the activities concerning reading rate were presented so as
to accomplish certain basic aims: (1) to develop an understanding of factors which affect the speed with which one reads, (2) to provide motivation for developing habits conducive to more efficient reading of thought units, (3) provide exercises for practice of effective eye habits in reading, (4) to assist students adjust reading rate to the purpose to be served, and (5) to provide opportunity to evaluate outcomes.
CHAPTER V

PRESENTATION AND ANALYSIS OF THE DATA

During the ninth month of the school term, after approximately eight months of systematic reading instruction, the groups were tested again for (1) achievement in reading, and (2) general achievement in content areas — arithmetic, language, and social and related sciences. This time alternate forms, BB, of the California Tests of Achievement were used. Members of the two groups were intermingled so as to eliminate possible differentiating factors in administering the tests.

The factor of pupil growth, or gain, (represented by the difference between scores in September and those in May) constitutes the major basis for making comparisons. Comparisons were made between the mean gains of the two groups in order to test the effectiveness of systematic reading instruction at the seventh and eighth grade levels (1) in terms of gain in reading achievement, and (2) in terms of whether such instruction contributed significantly to achievement in other academic fields. To test the effect of this program of specific reading instruction upon different reading-ability groups, the mean gains were computed for the upper, middle and lower thirds of one group and compared with the mean gains made by the corresponding thirds of the other group.

The significance of the difference between the mean gains
made by the respective groups was used as a basis for the comparisons. The measure of significance level applied to the critical ratios was taken with 36 degrees of freedom, since the number in each group was 37. The critical ratio required for significance at the .01 level with 36 degrees of freedom is 2.72. Formulas used for statistical computation are given on pages 40 and 41.

GROUP COMPARISONS

Grade placement scores, obtained from administering the tests at the beginning of the study and used as factors for equating the group, also marked the point from which growth in reading and in general achievement were computed.

Growth in reading achievement for each group is shown in Table VIII. Since there was no difference between the mean reading ability of the groups in September, the difference in the mean gains shown here cannot be explained by chance, since the critical ratio of 5.03 is well above the 2.72 required to indicate significance at the .01 level.

Both groups had a measured reading ability of 7.1 years in September. The mean of the control group in May was 8.2; that of the experimental group was 9.0. The means of the gains, 1.1 for the control group and 1.9 for the experimental group, which was provided with a program of definite reading instruction, differ significantly. The critical ratio of 5.03 is considerably larger
TABLE VIII

COMPARISON OF THE MEAN GAINS MADE BY THE CONTROL AND EXPERIMENTAL GROUPS ON THE CALIFORNIA ACHIEVEMENT TEST IN READING*

<table>
<thead>
<tr>
<th>Group</th>
<th>Mean score Sept.***</th>
<th>Mean score May</th>
<th>Mean gain</th>
<th>Diff. Mean gain</th>
<th>Standard deviation SD</th>
<th>Standard error of mean or SE_M</th>
<th>Critical ratio</th>
</tr>
</thead>
<tbody>
<tr>
<td>Control</td>
<td>7.1</td>
<td>8.2</td>
<td>1.1</td>
<td>0.8</td>
<td>0.81</td>
<td>0.13</td>
<td>5.03</td>
</tr>
<tr>
<td>Exp.</td>
<td>7.1</td>
<td>9.0</td>
<td>1.9</td>
<td>0.8</td>
<td>0.83</td>
<td>0.14</td>
<td></td>
</tr>
</tbody>
</table>

*Based on data contained in Table XVII, Appendix A.

***In terms of grade placement to the one-tenth year.

than the 2.72 which is required for significance at the .01 level when 37 cases are involved.

Further analyses of the data contained in Table XVIII, Appendix A, reveals certain other information. All members of the experimental group made positive gains. Three of the 37 members of the control group, which received no instruction, actually dropped in reading achievement during the year. Of these three pupils, one was slightly retarded, the initial test placing her five months below the class average. Another's initial reading grade placement was at the class norm, and the third was one year and four months above the norm. Intelligence quotients for these three were 93, 103 and 107 respectively. Two were in the seventh grade and therefore were spending their first year without formal reading instruc-
tion. The third was in the eighth grade. This was her second year without formal reading instruction.

Twenty-one pupils in the control group made gains in reading achievement of one year or more. Thirteen gained from one to nine months in reading ability and three scored lower on the second test than on the first. In the experimental group thirty-three pupils registered gains of one year or more and the four others were distributed as follows: two gained .7 years, one gained .4 years, and one gained .2 years.

Largest gain, 2.3 years, among those not taught in the formal reading class, was shared by two people. One was a seventh grade boy (I.Q. 118), whose reading level in September was 7.0. The other was a girl (grade eight, I.Q. 96), reading initially at 7.2.

In the experimental group nine pupils registered gains from 2.3 years to 4.9 years. The largest gain was made by a boy (I.Q. 98) who had been retained in the seventh grade. He had transferred to this school two months before the end of the preceding year. The initial test, which marked him at 4.2 level in reading achievement, was the first standardized test he had taken. During the year of this study, he made satisfactory progress in all areas.

Growth in arithmetic. Specific reading instruction had favorable effect in the field of mathematics. The group which was given reading instruction made a mean gain in arithmetic achieve-
ment of 1.7 years, while the group which did not receive reading instruction gained 1.4 years, a difference in the mean gains of the two groups of .3 years. From Table IX, it may be observed that the critical ratio of this difference is 2.81, indicating that this is a true difference, since significance at the .01 level is established for a group of 37 when the critical ratio reaches 2.72. Put simply, there is less than one chance in a hundred that such a difference occurs by chance.

It will be recalled that the aid of the mathematics teacher was enlisted in providing practice exercises dealing with problem solving in arithmetic. Many such problem-solving assignments were carried on in connection with the work in arithmetic classes. The added stimulation, interest, and practice thus provided may account in part for the larger than average gains made by both groups in arithmetic.

From Table XVIII, Appendix A, it may be seen that one member of the control group dropped in arithmetic achievement from 6.6 years on the initial test to 6.3 on the alternate form in May. He is a boy (I.Q. 84) who otherwise made normal progress. None of the pupils in the experimental group failed to gain in this field.

Of those in the control group, and thus who did not receive formal instruction in reading, eleven had a net growth in arithme-

*See page 85.
TABLE IX

COMPARISON OF THE MEAN GAINS MADE BY THE CONTROL AND EXPERIMENTAL GROUPS ON THE CALIFORNIA ACHIEVEMENT TEST IN ARITHMETIC*

<table>
<thead>
<tr>
<th>Group</th>
<th>Mean score Sept.</th>
<th>Mean score May</th>
<th>Mean gain</th>
<th>Diff. mean</th>
<th>Standard deviation SD</th>
<th>Standard error of mean SE</th>
<th>Critical ratio SE or $\text{SEM}$</th>
</tr>
</thead>
<tbody>
<tr>
<td>Control</td>
<td>7.3</td>
<td>8.7</td>
<td>1.4</td>
<td>0.3</td>
<td>0.77</td>
<td>0.13</td>
<td>2.81</td>
</tr>
<tr>
<td>Exp.</td>
<td>7.6</td>
<td>9.3</td>
<td>1.7</td>
<td>0.3</td>
<td>0.77</td>
<td>0.13</td>
<td></td>
</tr>
</tbody>
</table>

*Based on data contained in Table XVIII, Appendix A.

tic achievement of less than one year. Ten in the experimental group gained less than a year.

The two groups were equally variable in the gains made, as indicated by standard deviations of their scores and that of their respective means, shown in Table IX. The range of these gains was somewhat different, however. Those who were not taught reading made gains in arithmetic ranging from a net loss of 0.3 years to a gain of 3.2 years. Among those taught reading, growth in arithmetic ranged from 0.4 years to 3.1 years, the greatest concentration being between 1.0 years and 3.0 years of gain.

Growth in language achievement. Growth in language achievement was high for both groups. In Table X it may be seen that the mean gain of the control group was 1.4 years, while that
TABLE X

COMPARISON OF THE MEAN GAINS MADE BY THE CONTROL AND EXPERIMENTAL GROUPS ON THE CALIFORNIA ACHIEVEMENT TEST IN LANGUAGE*

<table>
<thead>
<tr>
<th>Group</th>
<th>Mean score Sept.</th>
<th>Mean score May</th>
<th>Mean gain</th>
<th>Diff.</th>
<th>Standard deviation gain</th>
<th>Standard error of mean</th>
<th>Critical ratio</th>
</tr>
</thead>
<tbody>
<tr>
<td>Control</td>
<td>7.8</td>
<td>9.2</td>
<td>1.4</td>
<td>.1</td>
<td>.94</td>
<td>.15</td>
<td>.43</td>
</tr>
<tr>
<td>Exp.</td>
<td>7.8</td>
<td>9.3</td>
<td>1.5</td>
<td>.1</td>
<td>1.07</td>
<td>.17</td>
<td>.43</td>
</tr>
</tbody>
</table>

*Based on data contained in Table XIX, Appendix A.

of the experimental group was 1.5 years. The difference in these mean gains has a critical ratio of .43, indicating that no significance may be attached to it. This would seem to indicate that the specific reading instruction given to the experimental pupils had no effect upon performance in language as measured by the California Achievement Test.

Gains made by the group which was taught reading were slightly more variable (standard deviation of 1.07) than were those made by the control group. Growth in language achievement of the control group ranged from .1 years loss to 4.1 years gained; that of the experimental group was from .1 years loss to 3.4 gain.

In explaining the procedure employed in this study, it was pointed out that the school's English teacher took an active part in helping with the program of reading instruction. In fact, she
was present daily while the experimental group was having its reading lesson. Her interest in, and enthusiasm for, the procedure used in teaching reading may have carried over into the English classes, consisting of members of both the experimental and control groups. This is offered as a possible partial explanation for:
(1) above normal gains in language achievement for both groups; and
(2) no significant difference between the mean language gains of those who were taught reading and those who were not.

**Growth in social and related sciences.** In the field of social and related sciences, growth of the experimental group was greater than that of the control group. The record of growth in this area is presented in Table XI. While the mean scores of the two groups differed by .2 years on the tests in September, this difference was not statistically significant. From Table XI it may be observed that the mean score of the control group in social and related sciences was 6.8 in September and 7.9 in May, representing a gain of 1.1 years. The experimental group, which participated in the reading instruction program, progressed from a mean score of 7.0 on the first test to 8.5 on the second, an average gain of 1.5 years for the group as a whole.

When these mean gains are compared, it is seen that the experimental group gained an average of .4 years more than did the control group. The critical ratio of 3.43 for this difference in gain is larger than the 2.72 required for significance at the .01
Table XI

Comparison of the Mean Gains Made by the Control and Experimental Groups on the California Achievement Tests in Social and Related Sciences*

<table>
<thead>
<tr>
<th>Group</th>
<th>Mean score Sept.</th>
<th>Mean score May</th>
<th>Mean gain</th>
<th>Standard deviation mean gain</th>
<th>Standard error of mean gain</th>
<th>Critical ratio</th>
</tr>
</thead>
<tbody>
<tr>
<td>Control</td>
<td>6.8</td>
<td>7.9</td>
<td>1.1</td>
<td>.4</td>
<td>.87</td>
<td>.14</td>
</tr>
<tr>
<td>Exp.</td>
<td>7.0</td>
<td>8.5</td>
<td>1.5</td>
<td>.62</td>
<td>.10</td>
<td>3.43</td>
</tr>
</tbody>
</table>

*Based on data contained in Table XX, Appendix A.

level when 36 degrees of freedom are considered. It may be assumed with confidence, therefore, that a true difference exists between the mean gains of these groups.

Data (Table XX, Appendix A) show further differences between the performance of the two groups in social and related sciences:

1. Four members of the group that did not receive instruction in reading scored less on the second test than they did on the first. Two of the four placed within their grade range in performance on the initial test. Each had an I.Q. of 98. One eighth grader scored 10.3 on the initial test and 10.1 on the second. Her I.Q. was 112. The fourth pupil whose performance dropped in this area was initially retarded one and one-half years. His I.Q. was 101. In contrast, all members of the experimental group made posi-
tive gains in social and related sciences.

2. The gains made by the control group were more varied than were those of the experimental group. Gains of the former ranged from a net loss of .4 years to 3.6 years of progress. The latter group's growth ranged from .3 years to 2.8 years.

3. Seventeen of the pupils who had no reading instruction failed to gain as much as one year in social and related sciences. Sixteen showed progress of one to two years, and four made more than two years' progress.

Among those who received the daily instruction in reading, only seven gained less than one year in the social and related sciences. Of these seven, two gained nine months and two eight months. Twenty-two showed growth of one to two years, and eight progressed more than two years.

Growth in general achievement. There is general assumption that improved reading ability contributes to improved achievement in other academic fields. This study proposes to test the hypothesis that reading instruction results in better academic achievement. By applying the one-tailed test of significance to the critical ratio of 2.51 shown in Table XII, it was determined that a true difference of .3 years exists between the mean of the gains made by the control group and that made by the experimental group. When a critical ratio of 2.44 is reached, it can be determined that the .02 level of significance is reached. This indicates that in a
TABLE XII

COMPARISON OF THE MEAN GAINS MADE BY THE CONTROL AND EXPERIMENTAL GROUPS ON THE CALIFORNIA TESTS OF ACHIEVEMENT*

<table>
<thead>
<tr>
<th>Group</th>
<th>Mean score Sept.</th>
<th>Mean score May</th>
<th>Diff. Mean gain</th>
<th>Standard deviation SD</th>
<th>Standard error of mean or SEm</th>
<th>Critical ratio</th>
</tr>
</thead>
<tbody>
<tr>
<td>Control</td>
<td>7.3</td>
<td>8.6</td>
<td>1.3</td>
<td>.51</td>
<td>.08</td>
<td>2.51</td>
</tr>
<tr>
<td>Exp.</td>
<td>7.5</td>
<td>9.1</td>
<td>1.6</td>
<td>.52</td>
<td>.09</td>
<td></td>
</tr>
</tbody>
</table>

*Based on data contained in Tables XVII to XX, Appendix A.

normal distribution two per cent of the cases lie to the left and right of 2.44. The difference shown here is significant at the .01 level, since only one per cent of the cases in a normal distribution lie to the right of the critical ratio found here. The other one per cent lie to the left and are inconsequential in testing the hypothesis.

Gains in general achievement of the control group ranged from .4 years to 2.5 years, with a standard deviation of .51 years. Pupils in the experimental group made gains ranging from .6 years to 2.7 years with a standard deviation of .52 years. It can be seen from Table XII, above, that, after the first tests in September, those who were not taught reading had a mean grade placement in the composite of achievement tests of 7.3, while the experimental group had a mean of 7.5. This difference was found to be
statistically non-significant and the two groups were considered equal in this respect.*

Seven of the students who were not taught reading formally, and three of those who were, made gains of less than one year in general academic achievement. Both groups had twenty-six members who registered gains of one to two years. Four members of the control group, and eight members of the experimental group showed more than two years of progress in general academic achievement.

Summary of comparisons between the groups. It can be seen from Table XIII that the experimental group made larger gains in each of the four academic fields than the control group made. In reading, arithmetic, and social and related sciences the differences were found to be statistically significant at the .01 level. When compared on the bases of two factors, i.e., reading and general academic achievement (the latter was a composite grade placement representing the numerical average of all tests administered other than reading), statistically significant differences are again seen between the mean gains of the two groups.

*See equating the groups, page 42.
TABLE XIII
SUMMARY OF THE COMPARISONS OF THE MEAN GAINS MADE
BY THE CONTROL AND EXPERIMENTAL GROUPS ON
THE CALIFORNIA TESTS OF ACHIEVEMENT*

<table>
<thead>
<tr>
<th>Subject</th>
<th>Mean gain of control group</th>
<th>Mean gain experimental group</th>
<th>Diff. of mean gains</th>
<th>Critical ratio</th>
<th>Level of significance</th>
</tr>
</thead>
<tbody>
<tr>
<td>Reading</td>
<td>1.1</td>
<td>1.9</td>
<td>.8</td>
<td>5.03</td>
<td>.01</td>
</tr>
<tr>
<td>Arithmetic</td>
<td>1.4</td>
<td>1.7</td>
<td>.3</td>
<td>2.81</td>
<td>.01</td>
</tr>
<tr>
<td>Language</td>
<td>1.4</td>
<td>1.5</td>
<td>.1</td>
<td>.43</td>
<td>none</td>
</tr>
<tr>
<td>Social and Related Sciences</td>
<td>1.1</td>
<td>1.5</td>
<td>.4</td>
<td>3.43</td>
<td>.01</td>
</tr>
<tr>
<td>General Academic Achievement</td>
<td>1.3</td>
<td>1.6</td>
<td>.3</td>
<td>2.51</td>
<td>.01***</td>
</tr>
</tbody>
</table>

*Based on data contained in Tables XVII to XX, Appendix A.
***When the one-tailed test of significance is used.

COMPARISONS OF THE UPPER,
MIDDLE AND LOWER THIRDS OF THE GROUPS

In order to determine the effect of instruction upon different reading ability groups, comparisons were made of the mean gain of the upper third of the control group with the mean gain of the upper third of the experimental group. Similar comparisons were also made between the middle thirds and the lower thirds of
the two groups. It will be recalled that respective sections of
the two groups were formed on the basis of initial reading ability.
Data on the significance of the difference of the means of these
sections of the groups are found in Table V, page 47.

Reading progress of upper, middle and lower thirds accord­
ing to initial reading ability. Comparison of the mean gain of the
upper third of the control group in reading with that of the upper
third of the experimental group shows a difference of .9 years.
Table XIV indicates that this difference is significant at the .01
level since the determined critical ratio, 3.94, is greater than
the critical ratio of 3.11 required for significance when 11 de­
grees of freedom are considered. Mean growth in reading for the
twelve who were initially the best readers in the control group was
.6 years. The twelve best among those who were taught reading
earned an average gain of 1.5 years.

The difference was not so marked between the mean gains of
the middle thirds of the two groups. This section of the control
group gained a mean of 1.4 years while that of the experimental
group gained 1.8 years. The critical ratio of this difference is
1.08, which is statistically not significant.

Among the initially poor readers, i.e., the lower thirds of
the two groups, there was a difference in the mean gains of 1.0
years in favor of the experimental group. Those in the control
group gained 1.3 years while those in the group which was taught
### Table XIV

Comparisons of the Mean Gains of the Upper, Middle and Lower Thirds of the Two Groups on the California Achievement Test in Reading*

<table>
<thead>
<tr>
<th>Group</th>
<th>Mean gain of control group</th>
<th>Mean gain of experimental group</th>
<th>Diff. of mean gains</th>
<th>Critical ratio</th>
<th>Level of significance</th>
</tr>
</thead>
<tbody>
<tr>
<td>Upper third</td>
<td>.6</td>
<td>1.5</td>
<td>.9</td>
<td>3.94</td>
<td>.01</td>
</tr>
<tr>
<td>Middle third</td>
<td>1.4</td>
<td>1.8</td>
<td>.4</td>
<td>1.08</td>
<td>none</td>
</tr>
<tr>
<td>Lower third</td>
<td>1.3</td>
<td>2.3</td>
<td>1.0</td>
<td>3.12</td>
<td>.01</td>
</tr>
</tbody>
</table>

*Based on data contained in Table XVII, Appendix A.

Reading made an average gain of 2.3 years. It can be seen in Table XIV above that this difference is significant at the .01 level.

Growth in general achievement of the upper, middle and lower thirds of the groups according to initial reading ability.

To test whether reading instruction benefited uniformly pupils in three different reading ability levels, comparisons were made of the mean gains of the upper, middle and lower thirds of the two groups in general achievement. Table XV indicates that significant difference exists between the mean of the gains made by the upper thirds of the groups. The twelve pupils who constitute the upper
TABLE XV

COMPARISONS OF THE MEAN GAINS OF THE UPPER, MIDDLE AND LOWER THIRDS OF THE TWO GROUPS IN GENERAL ACHIEVEMENT AS MEASURED BY CALIFORNIA ACHIEVEMENT TESTS*

<table>
<thead>
<tr>
<th>Group</th>
<th>Mean gain of control group</th>
<th>Mean gain of experimental group</th>
<th>Diff. of mean gains</th>
<th>Critical ratio</th>
<th>Level of significance</th>
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<td>Lower third</td>
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<td>3.03</td>
<td>.01**</td>
</tr>
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</table>

*Based on data contained in Table XXI, Appendix A.
**When a one-tailed test of significance is used.

Third of the control group made gains ranging from .5 years to 1.6 years. The average gain was 1.0 years. Among those in the experimental group, gains in general achievement ranged from 1.1 to 2.0 years. The mean for this section of the experimental group is 1.6. This indicates that the upper third of the experimental group made average gains of .6 years more in general achievement than did the upper third of the control group. The critical ratio of the difference of these means is 4.71, which is considerably higher than the 3.11 required for significance at the .01 level when 11 degrees of freedom are considered.
General achievement gains of the middle thirds of the two groups did not differ significantly. Table XV shows a difference of .3 years between the mean of the gains (1.4 years) made by the middle third of the control group and that of the gains (1.7 years) made by the same segment in the experimental group. Although this difference favors the experimental group, the critical ratio is not large enough to merit significance.

The mean of the gains made in general achievement among those who ranked in the lower thirds of the control group on the initial test in reading is 1.3 years. The corresponding section of the experimental group made a mean gain of 1.8 years in general achievement. This difference of .5 years was determined to be significant at the .01 level when the one-tailed test of significance was applied to the critical ratio of 3.01. The assumption had been made that direct instruction in reading should produce only positive differences between mean gains of the groups.

Summary of the comparisons of the upper, middle and lower thirds of the groups. Data presented in Tables XIV and XV, above, indicate that those who were taught reading made larger gains than those who were not in both reading and general achievement. Each group was divided into three groups on the basis of initial reading ability. Since there were 37 members in one group, the twelve who scored highest were called the upper third, the next thirteen were called the middle third, and the lowest scoring twelve were called
the lower third. Gains made by these sections of the two groups were then compared.

1. The upper and lower thirds of the experimental group made significantly greater gains in reading achievement than did corresponding sections of the control group. Mean gain of the middle third of the experimental group is also greater than that of the control group, but this difference is not statistically significant.

2. The same sections of the groups were compared on the basis of gains made in general achievement. This was a numerical average of grade placements earned on the achievement tests administered.

The upper third of the group which was given reading instruction gained .6 years more in general achievement than did the corresponding section of the control group. The lower third of the experimental group scored .5 years more average gain than did the lower third of the group which was not taught reading. Both of these differences are significant. The difference of mean gains in the case of the middle thirds is .3 years favorable to the experimental group. This difference is statistically not significant.
Ordinarily in the school program, classes in formal reading instruction are discontinued after the sixth grade. This study is an attempt to determine whether at the seventh and eighth grade level, a regular class in reading, using generally accepted procedures and taught by one not necessarily a reading specialist, would produce significant gains in reading achievement and in achievement in other academic areas.

SUMMARY

In September of the school year 1954-55, two groups of seventh and eighth grade pupils of the St. Francisville High School were equated on the basis of five factors: (1) mental ability, (2) reading ability, (3) chronological age, (4) academic achievement, and (5) number. The two groups followed the same program of studies with one exception. The experimental group was taught reading in a systematic, formal class which met daily for sixty minutes. This class was in addition to the schedule of classes and activities followed traditionally by junior high school students of this school. The other group, which was used as a control measure for the study, did not receive formal systematic instruction in reading. Instead, those pupils went to the library for a conventional period
of supervised study or free reading, as is usually provided at this level.

The program followed in teaching the experimental group included various materials and procedures generally accepted in developmental reading instruction. These have been described in the main body of this thesis.

After approximately eight months of instruction, the two groups were tested again. This time, alternate forms of the same achievement tests were used.

The effects of the reading instruction were tested by comparing mean gains in reading made by those who were taught reading systematically, with the mean gains of those who were not. Whether reading instruction affected academic achievement was tested by comparing the mean gains of the two groups in separate academic fields and in general achievement.

To test whether formal reading instruction affected achievement differently at the different ability levels, additional comparisons were made. The two groups were divided into three sections each. The upper third of the experimental group (in initial reading ability) was then compared with the upper third of the control group in both reading achievement and general achievement. Similar comparisons were made between the groups' middle thirds and between their lower thirds, respectively.

Comparisons show that the group which was given the system-
atic program of developmental reading made significantly larger gains than the control group. This was true in both reading achievement and in general academic achievement. Differences significant at the .01 level favored the experimental group in gains made in reading, arithmetic, social and related sciences, and in general academic achievement. In the field of language also (the tests used measured spelling and mechanics of English and grammar), growth was greater among those who were taught reading; but the difference was statistically not significant.

The upper third, the middle third, and the lower third of the experimental group each made greater progress in reading than its comparable section in the control group. Differences were significant at the one percent level in the case of the upper and lower thirds. No significance can be attached to the slightly greater gains made by the middle third of the experimental group.

In the matter of general achievement, comparisons reveal that the upper and the lower third of the experimental group made significantly greater gains than comparable sections of the control group. Again, there was no significant difference between the growth of the middle thirds of the groups in general achievement.

CONCLUSIONS

Specifically, the findings of this study appear to warrant the following conclusions:
1. A systematic developmental reading program at the junior high school level, using methods and materials readily available to the staff of any school, and taught by teachers not necessarily reading specialists, produces significant growth in reading achievement.

The implications of this are important. It indicates that such instruction results in continued growth in reading ability after pupils have reached the junior high school level. The added maturity of the students, coupled with the new demands made upon them for reading specialized materials in the high school curriculum, indicate that this level is an appropriate time to teach reading directly and intensively, instead of by the incidental method usually used in these grades, where any direct attention to reading is usually limited to remedial teaching for the poorer students. In this study, the better students also profited significantly from systematic teaching.

2. Reading taught systematically reduces the possibility of some students actually losing reading proficiency while in junior high school. This indicates a need for developmental programs so that skills already gained might be maintained, refined and strengthened. It will be recalled that some students in the control group, which received no reading instruction, actually regressed in reading ability during the year, as shown by the tests.

3. Within the limits set in this study, formal reading in-
struction at the junior high school level produces concomitant gains in ability to achieve in (1) arithmetic, (2) social and related sciences, and (3) general achievement.

These areas demand specific reading skills. This study shows that specific reading skills can be taught and emphasized by the effective reading teacher who secures the cooperation and counsel of content subject teachers.

The junior high school, where pupils usually are faced with departmentalized instruction for the first time, is well suited for emphasizing the specific skills necessary in content reading. Systematic developmental reading instruction, formally placed in the school program, should make the learner aware of the nature of reading skills, as well as their use. Such awareness sharpens purposeful use of reading as a basic learning tool, and fosters continued development toward maturity in reading.

4. Formal and systematic instruction, following accepted practices in developmental reading, can be adjusted to serve the needs of pupils in different ability levels. A reading instruction program at this level should not be regarded merely as a remedial service.

The findings in this study reveal that instruction had its most favorable effect in increasing reading proficiency of the initially good readers. Those with poor initial reading ability also benefited significantly from the formal instruction. The middle
group, or average readers, showed the least relative gains.

This indicates that systematic developmental reading instruction at the junior high school level may provide a key for challenging pupils in the upper range of reading ability, while also providing adequately for the needs of those at the lower end.

5. A systematic program of developmental reading at the junior high school level has statistically significant effect upon general achievement among initially good readers, as well as among the poorer readers.

The flexibility of the program can allow for adjustment of instruction to fit individual needs within the group.

6. A formal systematic program of developmental reading in junior high school may constitute a more economical approach for applying the school's resources than remedial work affords.
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APPENDIX A

REFERENCE TABLES

TABLE XVI

QUOTIENT SCORES ON THE SCIENCE RESEARCH ASSOCIATES PRIMARY MENTAL ABILITIES TEST AND CHRONOLOGICAL AGES IN SEPTEMBER

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*According to rank on the California Reading Test in September.
TABLE XVII
GRADE PLACEMENTS OF THE CONTROL AND EXPERIMENTAL GROUPS ON THE CALIFORNIA ACHIEVEMENT TESTS IN READING

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*According to rank on the California Reading Test in September.
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*According to rank on California Reading Test in September.
TABLE XIX

GRADE PLACEMENTS OF THE CONTROL AND EXPERIMENTAL GROUPS ON THE CALIFORNIA ACHIEVEMENT TESTS IN LANGUAGE

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*According to rank on the California Reading Test in September.
TABLE XX
GRADE PLACEMENTS OF THE CONTROL AND EXPERIMENTAL GROUPS ON THE CALIFORNIA ACHIEVEMENT TESTS IN SOCIAL AND RELATED SCIENCES

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*According to rank on the California Reading Test in September.
TABLE XXI

GRADE PLACEMENTS OF THE CONTROL AND EXPERIMENTAL GROUPS IN GENERAL ACHIEVEMENT AS MEASURED BY CALIFORNIA ACHIEVEMENT TESTS

| Rank | Control group | | | | | Experimental group | | | |
|------|---------------|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
|      | Sept. | May | Gain | Rank | Sept. | May | Gain |
| 1    | 10.8  | 11.5 | .7  | 1    | 10.7  | 11.8 | 1.1 |
| 2    | 10.4  | 10.9 | .5  | 2    | 8.6   | 10.4 | 1.8 |
| 3    | 9.7   | 10.9 | 1.2 | 3    | 8.7   | 10.4 | 1.7 |
| 4    | 8.7   | 10.3 | 1.6 | 4    | 9.0   | 10.2 | 1.2 |
| 5    | 8.5   | 9.1  | .6  | 5    | 9.1   | 10.9 | 1.8 |
| 6    | 7.9   | 9.5  | 1.6 | 6    | 8.1   | 10.1 | 2.0 |
| 7    | 8.5   | 9.6  | 1.1 | 7    | 8.0   | 9.4  | 1.4 |
| 8    | 8.6   | 9.8  | 1.2 | 8    | 8.0   | 9.8  | 1.8 |
| 9    | 7.0   | 7.9  | .9  | 9    | 8.3   | 10.1 | 1.8 |
| 10   | 8.5   | 9.8  | 1.3 | 10.5 | 7.6   | 8.7  | 1.1 |
| 11   | 7.6   | 8.4  | 1.8 | 10.5 | 7.5   | 9.1  | 1.6 |
| 12.5 | 7.2   | 8.4  | 1.2 | 12   | 7.1   | 8.9  | 1.8 |
| 12.5 | 6.9   | 7.7  | .8  | 13   | 7.3   | 8.6  | 1.3 |
| 14   | 7.6   | 9.0  | 1.4 | 15   | 7.5   | 9.9  | 2.4 |
| 15.5 | 8.3   | 9.4  | 1.1 | 15   | 8.0   | 9.9  | 1.9 |
| 15.5 | 7.0   | 9.2  | 2.2 | 15   | 7.7   | 9.2  | 1.5 |
| 17.5 | 7.9   | 9.9  | 2.0 | 17   | 7.8   | 8.9  | 1.1 |
| 17.5 | 7.3   | 8.9  | 1.6 | 18   | 6.3   | 7.3  | 1.0 |
| 19   | 6.2   | 6.5  | .3  | 19.5 | 7.9   | 9.1  | 1.2 |
| 20.5 | 6.8   | 9.2  | 2.4 | 19.5 | 6.2   | 7.2  | 1.0 |
| 20.5 | 6.2   | 7.4  | 1.2 | 21.5 | 7.7   | 10.0 | 2.3 |
| 22   | 7.2   | 8.5  | 1.3 | 21.5 | 7.1   | 9.3  | 2.2 |
| 23.5 | 7.0   | 8.6  | 1.6 | 23.5 | 7.5   | 9.4  | 1.9 |
| 23.5 | 6.5   | 7.3  | .8  | 23.5 | 6.7   | 8.6  | 1.9 |
| 25   | 7.1   | 8.4  | 1.3 | 25   | 7.3   | 8.8  | 1.5 |
| 26   | 6.3   | 7.9  | 1.6 | 26.5 | 7.1   | 8.9  | 1.8 |
| 27   | 6.2   | 7.1  | .9  | 26.5 | 6.6   | 7.8  | 1.2 |
| 28   | 5.8   | 7.3  | 1.5 | 28.5 | 7.6   | 9.0  | 1.4 |
| 30   | 6.7   | 8.7  | 2.0 | 28.5 | 7.5   | 8.7  | 1.2 |
| 30   | 6.6   | 8.6  | 2.0 | 30   | 7.1   | 8.5  | 1.4 |
| 30   | 6.3   | 7.4  | 1.1 | 31.5 | 6.6   | 8.7  | 2.1 |
| 32   | 6.0   | 7.0  | 1.0 | 31.5 | 6.6   | 8.6  | 2.0 |
| 34.5 | 6.9   | 8.2  | 1.3 | 33   | 6.3   | 8.2  | 1.9 |
| 34.5 | 5.8   | 7.2  | 1.4 | 34   | 5.2   | 7.1  | 1.9 |
| 34.5 | 5.8   | 7.0  | 1.2 | 35   | 5.9   | 7.7  | 1.8 |
| 34.5 | 5.3   | 5.7  | .4  | 36   | 5.6   | 7.9  | 2.3 |
| 37   | 5.6   | 7.0  | 1.4 | 37   | 6.1   | 8.1  | 2.0 |

*According to rank on the California Reading Test in September.
APPENDIX B

EXAMPLES OF MATERIALS USED

HOW TO READ

This is a summary of the film presentation, How To Read. Its preparation included class discussion of the film and formulation of this outline by the class as a whole. After it was prepared, mimeographed copies were distributed to all members of the class.

I. How to read
   A. For pleasure
   B. Information

II. How to understand
   A. Skim for general picture
   B. Read carefully
   C. Re-read all or parts
   D. Fish for facts
   E. Summarize
      1. By the idea
      2. By the subject matter
      3. By the effect of the language

III. How to evaluate — Be sure you understand and can sum up before you judge

IV. How to use what is read
   A. Immediate use
   B. Future use

V. Statements of summary by students
   A. How to read, understand, evaluate, use what is read
   B. How to systematize one's reading

141
A TYPICAL TEST OF PUPILS' UNDERSTANDING OF READINESS FOR STUDYING READING

Student's Name ______________________

Note to the students: This test is intended to measure your comprehension of the contents of the first four chapters in your reading textbook. It is important that you understand fully all of this material, because these four chapters are known as "readiness" chapters for the real reading we will begin Monday. If you miss any of the questions on this test, please, for your own benefit, find the correct answer in your book and make the necessary correction.

Part I. If the statement is true place a + in the space provided. If it is false place an O in the space provided.

____1. No person can be made to read better unless he wants to.

____2. Practice is the keyword in a reading improvement program.

____3. A person does not need to keep a record of his reading progress.

____4. It is possible that you may work for a week or more with little or no progress at all.

____5. To devote ten or fifteen minutes per day to reading is better than to spend a whole hour one day a week.

____6. Every person in this room can improve his or her reading ability.

____7. If you wish to read better, you should have a purpose for reading.

____8. The number of ideas you will get from reading depends largely upon your reading rate and comprehension.

____9. Chapter two of our book shows conclusively that all types of students can improve their school marks by learning to read better.
10. Our aim is to get all students to read at 1200 words per minute with every one's comprehension 85% or better.

11. As a general rule, good readers enjoy reading more than poor readers.

12. If you read faster you will probably get fewer correct ideas from your reading.

13. The well-read man is usually successful and popular.

14. Reading is required in only about half of the things you do in high school and college subjects.

15. Junior high school students of standard intelligence should read at least 275 words per minute with comprehension about 80% or better.

16. Chapter three of our book shows how several people improved their reading, and especially the progress of Mr. Jones, a businessman.

17. Reading whole thought units instead of individual words is important.

18. One can learn the definition of a new word only by looking it up in the dictionary.

19. Good readers read a variety of subjects.

20. Each person in a reading improvement course should determine his or her reading needs, summarize them, and indicate how they can be met.

Part II. Select one of the following areas of reading and list as many factors as you can which affect good reading:

- comprehension
- speed
- vocabulary
- practice
- locational skills

Part III. Copy this statement in your notebook and complete this part of the test by class time Monday: List your own reading weaknesses, or bad habits, and tell how you plan to improve each. (You may use any book or other reference you wish, but please do not work with any other student in completing this part of the test.)
A SELF EVALUATION SHEET

At the end of twelve weeks of instruction, and again every six weeks thereafter, each student rated himself according to this rating scale. It was prepared by the class group after outlining had been discussed. Items are taken from texts and reference materials in reading.

FACTORS EFFECTING GOOD READING

I. Factors of Comprehension

A. First Steps of Understanding

|--------|--------|-----------|------------------|------------|---------|

B. Aids Toward Better Understanding

|--------------------------|----------------------|-------------------|-----------------------|-----------------------|-------------------|-------------------------|

II. Factors in Developing Speed

A. Concentrate

<table>
<thead>
<tr>
<th>1. Using correct eye movements</th>
<th>2. Eyes at work</th>
<th>3. Place free from distraction</th>
</tr>
</thead>
</table>

B. Practice

<table>
<thead>
<tr>
<th>1. Comprehension</th>
<th>2. Vocabulary</th>
</tr>
</thead>
</table>
### C. Adjust Your Speed to Your Purpose

1. Read slowly for information
2. Read fast for pleasure

### D. Read Suitable Materials

1. Materials at correct level
2. Materials that give enjoyment

### III. Factors Used in Vocabulary Improvement

#### A. Helps Toward a Better Vocabulary

1. Learning new words
2. Using locational skills
3. Varying subject matter
4. Using word games
5. Using context clues
6. Using footnotes
7. Use prefixes and suffixes
8. Finding the root word
9. Using syllabication
10. Using words once you have learned them

### IV. Factors Effecting Practice

#### A. Helps in Physical Conditions

1. Practicing daily
2. Reading in a quiet place
3. Reading at a special time
4. Reading with good light
5. Sitting without slouching
6. Having ears and eyes in good condition
7. Letting eyes do all the work

#### B. Helps in Oral Reading

1. Reading silently before orally
2. Reading clearly with expression

#### C. Helps Toward a Pattern in Reading

1. Keeping mind from straying
2. Using a systematized way to get information
3. Skimming before reading
4. Varying reading material
V. Factors Effecting Locational Skills

A. Helps in Location

1. Breaking words into syllables
2. Using context clues
3. Using key words
4. Using diacritical marks
5. Using footnotes
6. Using card catalogue
7. Reading graphs, charts, and maps

B. Helps in Skimming

1. Using guideposts
2. Using headlines
3. Using table of contents
4. Using index
5. Using glossary

TOTAL
Preparation of this material resulted from a committee report.

<table>
<thead>
<tr>
<th>PREFIX</th>
<th>WHAT THE PREFIX MEANS</th>
<th>THE WORD</th>
<th>WHAT THE WORD MEANS</th>
</tr>
</thead>
<tbody>
<tr>
<td>ab-</td>
<td>signifies separation</td>
<td>abuse</td>
<td>improper use</td>
</tr>
<tr>
<td>bi-</td>
<td>means by twos</td>
<td>bicycle</td>
<td>two wheels</td>
</tr>
<tr>
<td>co-</td>
<td>means together</td>
<td>coexist</td>
<td>exist at same time</td>
</tr>
<tr>
<td>con-</td>
<td>with, together</td>
<td>concourse</td>
<td>running together,</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>going with</td>
</tr>
<tr>
<td>de-</td>
<td>down</td>
<td>depose</td>
<td>to put down</td>
</tr>
<tr>
<td>dis-</td>
<td>away or apart</td>
<td>disarm</td>
<td>to take away weapon</td>
</tr>
<tr>
<td>in-</td>
<td>not</td>
<td>injustice</td>
<td>lack of fairness</td>
</tr>
<tr>
<td>non-</td>
<td>opposite of</td>
<td>nonsense</td>
<td>without sense</td>
</tr>
<tr>
<td>pre-</td>
<td>before</td>
<td>prewar</td>
<td>before war</td>
</tr>
<tr>
<td>post-</td>
<td>after</td>
<td>post-mortem</td>
<td>after death</td>
</tr>
<tr>
<td>re-</td>
<td>again</td>
<td>react</td>
<td>to repeat act</td>
</tr>
<tr>
<td>un-</td>
<td>opposite of</td>
<td>unaided,</td>
<td>without aid,</td>
</tr>
<tr>
<td></td>
<td></td>
<td>undress</td>
<td>to remove dress</td>
</tr>
</tbody>
</table>
This material was prepared as a pupil committee report.

<table>
<thead>
<tr>
<th>SUFFIX</th>
<th>WHAT THE SUFFIX MEANS</th>
<th>THE WORD</th>
<th>WHAT THE WORD MEANS</th>
</tr>
</thead>
<tbody>
<tr>
<td>-able</td>
<td>implication of fitness</td>
<td>eatable</td>
<td>fit to eat</td>
</tr>
<tr>
<td>-al</td>
<td>denotes belonging to,</td>
<td>arrival</td>
<td>act of arrival</td>
</tr>
<tr>
<td></td>
<td>of, or act of</td>
<td></td>
<td></td>
</tr>
<tr>
<td>-ent</td>
<td>used in forming</td>
<td>evident</td>
<td>certain</td>
</tr>
<tr>
<td></td>
<td>adjectives</td>
<td></td>
<td></td>
</tr>
<tr>
<td>-est</td>
<td>superlative degree</td>
<td>greatest</td>
<td>great to a higher</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>degree than any</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>other</td>
</tr>
<tr>
<td>-ful</td>
<td>a quantity that</td>
<td>cupful</td>
<td>the cup is full</td>
</tr>
<tr>
<td></td>
<td>would fill</td>
<td></td>
<td></td>
</tr>
<tr>
<td>-ible</td>
<td>implication of</td>
<td>reducible</td>
<td>that which can be</td>
</tr>
<tr>
<td></td>
<td>capacity</td>
<td></td>
<td>reduced</td>
</tr>
<tr>
<td>-ing</td>
<td>act of doing</td>
<td>speaking</td>
<td>to speak</td>
</tr>
<tr>
<td>-ish</td>
<td>referring to</td>
<td>foolish</td>
<td>acting like a fool</td>
</tr>
<tr>
<td>-ive</td>
<td>having the quality of</td>
<td>active</td>
<td>the nature of acting</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>-ize</td>
<td>to practice or carry on</td>
<td>temporize</td>
<td>to go along with the time of the occasion</td>
</tr>
<tr>
<td>-less</td>
<td>not having or without</td>
<td>fatherless</td>
<td>without a father</td>
</tr>
<tr>
<td>-ment</td>
<td>a result or arising</td>
<td>attachment</td>
<td>things attached</td>
</tr>
<tr>
<td></td>
<td>from</td>
<td></td>
<td></td>
</tr>
<tr>
<td>-ous</td>
<td>abounding in</td>
<td>gracious</td>
<td>abounding in grace</td>
</tr>
</tbody>
</table>
This list was compiled by a committee of students who studied reports made to the class by three other committees on this subject.

we must skim  we must read  read more books
a good book  you can read  read a lot
use new words  do your part  you must try
do you read?  how to read  fish for facts
you can judge  play word games  do keep going
the main idea  speak right up  use the index
read good books  read for facts  a good reader
effect on you  read every day  time for practice
practice for speed  have a purpose  read for pleasure
reading is fun  we like reading  goals in reading
choose quiet places  think about reading  share your thoughts
improve your speed  adjust your rate  improve your skills
table of contents  practice makes perfect  study your reading
the general idea  the subject matter  practice every day
good readers learn  read to understand  choose suitable books
use your guideposts  how to evaluate  organize your work
some get discouraged  learn to sum-up  don't expect miracles
to read and learn  go to high school  many kinds of books
you'll be very proud  to enjoy one's reading  find your reading needs
EXAMPLE OF GRAPHS REPRESENTING ONE INDIVIDUAL PUPIL'S PROGRESS* IN READING COMPREHENSION AND RATE**

Comprehension expressed in per cent

Test 1 ------------ Book 1 ------------ 80%
Test 7 ---------------------------------- 90%
Test 8 ------------------------------- 85%
Test 9 ---------------------------------- 100%
Test 10 ------------- Book 2 ----------- 80%
Test 11 ---------------------------------- 90%
Test 12 ---------------------------------- 100%

Rate expressed in words per minute

Test 1 ---- Book 1 ---- 264
Test 7 ---------------------------------- 328
Test 8 ---------------------------------- 349
Test 9 ---------------------------------- 373
Test 10 ------------- Book 2 ----------- 373
Test 11 ---------------------------------- 373
Test 12 ---------------------------------- 373

*Actual scores made by one pupil.
**Based on tests taken from Elizabeth Simpson, Better Reading Books, 1, 2 and 3 (Chicago: Science Research Associates, 1951), 88 pp.
EXAMPLE OF ONE PUPIL'S GRAPH SHOWING
CLASS GROWTH IN READING RATE*

<table>
<thead>
<tr>
<th>Words per min.</th>
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<tr>
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<td>220</td>
</tr>
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<td>200</td>
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<td>180</td>
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<td>160</td>
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<td>120</td>
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<tr>
<td>100</td>
</tr>
<tr>
<td>80</td>
</tr>
<tr>
<td>60</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Test 1</th>
<th>Test 2</th>
<th>Test 3</th>
<th>Test 4</th>
<th>Test 5</th>
<th>Test 6</th>
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</thead>
<tbody>
<tr>
<td></td>
<td>237</td>
<td></td>
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<tr>
<td></td>
<td>254</td>
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*Tests were taken from Elizabeth Simpson, Better Reading Books, 1, 2 and 2 (Chicago: Science Research Associates, 1951), 88 pp.
EXAMPLE OF GRAPHS SHOWING CLASS GROWTH IN READING COMPREHENSION*

*Tests were taken from Elizabeth Simpson, Better Reading Books, 1, 2 and 3 (Chicago: Science Research Associates, 1951), 88 pp.
Gaston Louis Coussan was born September 7, 1922, on a farm near Carencro, Lafayette Parish, Louisiana.

He attended Mount Carmel Academy there and was graduated from Carencro High School in 1938. He received the Bachelor of Science degree from Southwestern Louisiana Institute in 1942, and the Master of Arts degree in Education from Louisiana State University in 1946. His advanced graduate work includes summer sessions at Tulane University and George Peabody College for Teachers, and residence at Louisiana State University from February, 1955, to the present writing.

His eleven and one-half years of experience include private as well as public school teaching. He taught mathematics and science in the Breaux Bridge and Cecilia High Schools of St. Martin Parish from January, 1944, to June, 1945, and for five years was instructor in mathematics, physics, and speech at New Orleans Academy, a private military school for boys. In 1951, he became principal of the St. Francisville High School (West Feliciana Parish), a position which he occupies at this writing.

During World War II, the writer served as a Naval Officer with combat forces in the Southwest Pacific.

He is married to the former Mary B. Fleming and they have two children, Paula Therese and George Philip.
EXAMINATION AND THESIS REPORT

Candidate: Gaston Louis Coussan

Major Field: Education

Title of Thesis: The Effect of Systematic Developmental Reading Instruction at the Junior High School Level Upon Reading Ability and General Achievement

Approved:

[Signatures]

Major Professor and Chairman

Dean of the Graduate School

EXAMINING COMMITTEE:

[Signatures]

Date of Examination:

May 9, 1956