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ABSTRACT

Because of concern about the harmful effects of placing children in low reading groups, this study tested the following "sacred cows" in reading: (1) the use of informal reading inventories for grouping children in reading instruction, (2) the homogeneous grouping practices currently utilized in most classrooms in the United States, (3) the use of readability formulas to identify "appropriate" reading materials for children to read, (4) the idea that children can be taught to read effectively only via basal readers, and (5) the analytical phonics strategies used to teach children phonics skills. The five experimental programs involved in the study were assigned to second grade classrooms in four Utah school districts. Students in both experimental and control classrooms were administered pre- and posttests in reading, vocabulary, reading comprehension, phonics, self image, and interest in reading. Reading vocabulary and reading comprehension were tested using the Gates-MacGinitie Reading Test, Level B, Form 1. The findings suggest that by involving students in a lot of noninstructional reading and by using: (1) an analytical/synthetic decoding approach; (2) phonics to identify words not recognizable on sight; (3) heterogenous grouping; and (4) children's literature rather than basal readers, student reading achievement is significantly greater than it is for those taught by traditional methods. (Numerous tables of findings and seven appendixes contain material relevant to the study.) (EL)

SACRED COWS MAKE GOOD HAMBURGER

A Report on A Reading Research Project titled "Testing the Sacred Cows in Reading"

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TABLE OF CONTENTS

INTRODUCTION

This research effort was begun because of a concern about children who are placed in low reading groups to receive their instruction in reading. The research studies revealing the harmful effects of this practice are legion (Hiebert, 1983). The members of the research team were convinced that there are social implications for learning as well as the psychological ones implied by homogeneous grouping. Could children be taught to read in the primary grades without establishing "a social class system" one usually establishes when "high", "middle", and "low" reading groups are formed in classrooms?

If all of the children in a classroom could be taught to read in heterogenous groups as well as they are currently being taught in homogeneous groups that would be important information to know. Maybe educators would eliminate the labeling and isolating of children that presently occurs in the system if this were true.

When children are placed in different reading groups within classrooms it is because educators believe that is the best way to help them all learn to read. That belief seems to be based on the assumption that there is a reading level for each child that must be acknowledged when teaching him how to read. This level has been called the "instructional level" by developers of informal reading inventories.

Users of informal reading inventories believe that children should be taught to read using materials that are written at their "instructional levels". Materials that are written at a child's "frustrational level" must never be used advocates of this theory warn. What if this were not true? What if children could be taught to read just as well using materials that were more difficult?

A review of the literature on reading levels did not support the "instructional reading level" theory. There was no data to substantiate the notion that students receiving instruction in materials at their "instructional levels" benefit more than they would if easier or harder materials were used (Shanahan, 1983).

Research on informal reading inventories revealed that the use of these inventories to group children for reading instruction has "no basis in research" (Ahrendt, 1983). Teachers and administrators find it convenient and popular to use informal reading inventories for grouping children but the practice can't be justified by existing research!

Could educators be hurting the poorer readers by existing reading practices rather than helping them? Do they skill them to death with skills they can't apply in recreational and functional reading? Do they isolate them so they feel they are incompetent and/or inadequate? Do they give them less to read or put them in situations where they move very slowly through reading materials? Do they help students develop the "reading is work" attitude?

Additional questions about the best ways to get children "hooked on books", and the different kinds of decoding instruction students receive in classrooms led to the development and implementation of the "Sacred Cows" research project.

RESEARCH DESIGN

Sacred Cows

This study was an attempt to test either directly or indirectly the following "sacred cows" in reading: (1) the use of informal reading inventories for grouping children for reading instruction; (2) the homogeneous grouping practices currently utilized in most classrooms in the United States; (3) the use of readability formulas to identify "appropriate" reading materials for children to read; (4) the idea that children can only be taught to read effectively via basal readers; and (5) the analytical phonics strategies used to teach children phonics skills.

Research Questions

Answers to the following questions were sought:

1. Can reading achievement and interest in reading be developed as effectively through the use of selected children's literature books as with traditional basal readers?

2. Can reading achievement and interest in reading be developed as effectively through the use of heterogeneous grouping as with the traditional homogeneous grouping approach of placing students in "high", "average", or "low" reading groups?

3. Can reading achievement and interest in reading be developed as effectively through the use of a daily ten to fifteen minutes intensive analytical/synthetic phonics approach as with the traditional analytic approach to phonics instruction utilized by the majority of basal readers?

4. Is it necessary to group students for instruction at their "instructional reading levels" as defined and measured by informal reading inventories?

5. How accurate are readability formulas currently used to determine grade levels of children's literature books?

6. Is determination of grade levels for children's literature books necessary for student understanding and reading enjoyment?

7. Will the use of a modified neurological impress method of reading instruction for students identified as poor readers have a positive effect on their reading achievement?

Experimental Programs

In order to test the sacred cows the following procedures were followed:

A. Four school districts were selected from school districts throughout the State of Utah.

B. The five experimental programs to be involved in the study were randomly assigned to these four school districts. Because of the large size and school population of the Davis County School District two experimental cells were assigned to that district.

C. Second grade classrooms from each district were randomly selected to serve as experimental classrooms for the five separate experimental programs.

D. The five experimental programs were designed.

I. The first experimental program was the traditional homogeneous grouped program supplanted with the special decoding treatment (Ho+).

This experimental research cell consisted of five classrooms randomly selected from one school district located in Utah. The students in this group were provided reading instruction through the regular basal materials, but the phonics component in the basal programs used was supplanted by ten to fifteen minutes of intensive analytical/synthetic phonics instruction each day. The phonics lessons used were structured and outlined in a book developed by one of the researchers.

II. The second experimental program was the heterogeneous grouping experiment without the special decoding treatment (He). See Appendix A for a complete description of this program.

This experimental research cell consisted of five classrooms randomly selected from one school district located in Utah. The students in this group were also provided reading instruction through the regular basal materials. However, all students were placed in the same second grade basal reader, and students were assigned to flexible heterogeneous groups rather than the traditional homogeneous groups for their reading instruction.

In order to accommodate the poorer readers in this experimental program, and all other experimental programs with the exception of the homogeneous grouped experiment with the special phonics component, a strategy called the Modified Neurological Impress Method was developed and employed. See Appendix B for a complete description of this strategy.

III. The third experimental program was the heterogeneous grouping experiment with the special decoding treatment (He+). See Appendix C for a complete description of this program.

This experimental research cell consisted of five classrooms randomly selected from a school district in

Utah. This experimental program was identical to the heterogeneous experimental program (He), except the students in this program received the intensive analytical/synthetic phonics instruction each day. This instruction supplanted, in part, the phonics instruction provided in the basal program.

The children in each experimental cell spent the same amount of time in reading instruction. Reading instruction was worked in with other language arts activities. This integrated period amounted to about an hour and twenty minutes each day.

IV. The fourth experimental program was the literature program without the special decoding treatment (L). See Appendix D for a complete description of this program.

This experimental research cell consisted of six classrooms randomly selected from one school district located in Utah. The students in this program were provided their reading instruction through 104 children's paperback literature books rather the basal materials. See Appendix F for a list of the books used in the study. The average readability score obtained from fourteen readability sources are also listed.

V. The fifth experimental program was the literature program with the special decoding treatment (L+). See Appendix E for a complete description of this program.

This experimental research cell consisted of six classrooms randomly selected from one school district in Utah. The program was identical to the literature program, except the students in this program received the intensive analytical/synthetic decoding treatment on a daily basis.

E. A control classroom was established in every school where there was an experimental classroom. The teachers in these classrooms taught reading using the basal readers adopted by their school districts.

Research Hypotheses

The following research hypotheses were developed for the study:

1. There will be no significant achievement, interest and self-image gains among students in each of the five experimental research groups and students in their control group counterparts;

2. There will no significant achievement, interest and self-image gains among students in any one of the five experimental research groups when compared to each of the other four groups; and

3. There will be no significant effects upon achievement, interest and self-image as a result of heterogeneous grouping, the use of special decoding materials or the use of literature books to teach children how to read.

Research Design

The pretest-posttest Control Group research design was selected as an appropriate design for meeting internal and external validity. This particular design was selected because of its ability to control all eight sources of internal validity (history, maturation, pretesting, instrumentation, regression, selection, mortality and interaction).

The design further controlled all sources of external validity with the exception of interaction of pretest and treatment. For the purposes of this study, however, those external sources not controlled by the design were determined to be irrelevant.

Finally, the design insured that the outcomes of the study would be at accepted levels of confidence and could be unquestioned and generalizable to similar populations.

The design for the research was outlined as:

$$R\ O_1\ X\ O_2$$
$$R\ O_3\ \ O_4$$

R indicates groups that were randomly formed

O indicates observation or test (pre or post)

X indicates treatment

Tests Used in the Study

Students in both the experimental and control classrooms were administered pre and posttests in the areas of: (1) reading vocabulary, (2) reading comprehension, (3) phonics, (4) self image, and (5) interest in reading.

Reading vocabulary and reading comprehension were tested using the Gates-MacGinitie Reading Test, Level B, Form 1. This test has been used in many reading research studies. The vocabulary words used in the test were selected from a special study of words in 16 commonly used reading series for grades 1, 2, and 3.

The content of the comprehension passages was chosen according to a plan that specified the proportion of natural science, social science, humanities, and narrative material for the test. Passages were written to suit the knowledge and interests of children beginning to read. Both literal and inferential questions were written to test understanding of the passages.

Alternate-forms and Kuder-Richardson Formula 20 reliability coefficients were computed for the test. Reliability Coefficients of .92 are reported for each of the vocabulary and comprehension subtests.

Phonics skills were tested using an 84 item multiple-choice group administered test developed by one of the members of the research team. Students were required to identify which nonsense word read by the teacher matched one of the four possible nonsense words on the answer form. The four nonsense words were similar to each other differing usually by only one grapheme. Validity and reliability data for the test are presented in the section titled, "Phonics" in the "FINDINGS AND CONCLUSIONS" portion of this report.

Self image scores were obtained using A Pictorial Self-Concept Scale For Children in K-4 developed by Donald W. Felker, Angelo S. Bolea, and Margaret D. Barnes. It did not require any reading by the student and was group administered. The test is comprised of 50 cartoon-like picture

cards that the student sorted into three piles according whether the figure designated by a star on his shirt was like him, sometimes like him, or not like him. There were separate cards for girls and for boys.

The cards were developed to reflect A. T. Jersild's categories of the the self-concept. The split-half reliability coefficient obtained by Felker with 1813 subjects was .85.

Interest in reading was measured by an interest test developed by one of the members of the research team. It consisted of eighteen questions designed to measure interests in a variety of things including TV watching and reading. The teacher read the questions to the students and they responded to the questions by circling numbers under smiling or frowning faces.

The test was determined to have face or content validity. It was further validated by asking the teachers in the experimental classrooms to identify the five students in their classrooms they felt were the most interested in reading and the five students they felt were least interested in reading and then comparing the results obtained with those generated by the students themselves via the paper and pencil test. The students' responses verified the teachers' perceptions.

Testing Schedule

Students were tested during the first week of September, 1983, and again in the second week of May, 1984.

FINDINGS AND CONCLUSIONS

Introduction

The Findings and conclusions of this study are presented under nine major headings: (1) Modified Neurological Impress Method, (2) Readability, (3) Phonics, (4) Comparisons of Five Experimental Programs with Control Counterparts, (5) Comparisons of Five Experimental Programs with Each Other, (6) Effects of Materials, Structured Decoding Activities, and Grouping upon Achievement, (7) Teacher Reactions, (8) Findings Summarized, and (9) Conclusions.

Modified Neurological Impress Method

A technique known as the Neurological Impress Method was modified for use in the study as a means to assist poor readers. Since there were students who could not read the basal reader all students were assigned to read in the heterogeneous grouping experiment, some strategy had to be devised to make it possible for those students to function without being isolated from the group. The Modified Neurological Impress Method was the strategy selected. The strategy was also used with poor readers involved in the instructional experiment utilizing literature books as the major vehicle to teach children how to read.

In late February 1984 the researchers were shown the results of Slosson Oral Reading Test Scores administered by two teachers involved in the heterogeneous grouping experiment. One teacher (see table 1) was using the special decoding materials, and the other (see table 2) was not. In both instances the teachers were using the test results as a means to communicate student progress in reading to parents.

When the researchers saw the results they were particularly impressed with the achievement gains made by the poorer readers in both classrooms. Questions began to fly about the reasons for the gains. Could the gains be caused by the use of the modified neurological impress method?

To test the impact of the modified neurological impress method upon poor readers a graduate student was hired to obtain data on poor readers in five of the literature classrooms and their control counterparts. The poor readers tested were

Table 1

SLOSSON ORAL READING TEST SCORES
CLASSROOM USING HETEROGENEOUS GROUPING AND THE SPECIAL DECODING MATERIALS

Student	September	October	January
1	3.2	3.6	5.5
2	3.0	3.4	4.8
3	3.1	3.4	5.0
4	4.8	4.9	5.9
5	4.0	4.5	4.4
6	4.9	5.8	6.4
7	2.8	3.1	3.4
8	4.5	4.7	5.2
9	2.7	3.0	3.7
10	3.0	3.5	3.7
11	2.4	2.9	3.7
12	2.5	3.4	4.3
13	3.0	3.6	4.5
14	3.9	4.3	5.0
15	1.5	2.2	3.2
16	1.5	2.4	2.9
17	1.1	2.0	2.4
18	1.2	1.7	2.0
19	1.2	1.8	3.2
20	1.0	2.5	4.0
21	1.0	1.8	2.8
22	1.0	1.4	1.8
23	.7	2.0	3.1
24	.4	.6	1.9
25	.2	.5	1.4
Averages	2.3	2.9	3.8

Table 2

SLOSSON ORAL READING TEST SCORES
CLASSROOM USING HETEROGENEOUS GROUPING

Student	September	February
1	5.0	6.1
2	4.1	6.0
3	3.6	5.4
4	3.8	5.3
5	1.6	5.1
6	3.5	5.0
7	3.3	5.0
8	3.4	5.0
9	3.2	4.6
10	2.4	4.6
11	3.6	4.5
12	3.1	4.4
13	2.5	4.2
14	3.0	4.1
15	2.2	4.1
16	2.8	3.8
17	2.4	3.8
18	1.5	3.3
19	2.1	3.2
20	1.1	3.1
21	1.7	3.1
22	.8	2.9
23	1.3	2.8
24	1.5	2.6
25	1.6	2.6
26	.8	2.6
27	1.1	2.5
Averages	2.5	4.3

identified by a cutoff score of 1.4 on the posttests administered in September 1983.

Nineteen students were identified in the experimental classrooms and thirty-three students were identified in the control classrooms. The average pretest score in the experimental classrooms was 9 (GE .4) and the average pretest score in the control classrooms was 22 (GE 1.1).

Slosson Oral Reading Tests were administered to the poor readers in March 1984--approximately six months from the pretesting date. The average gain of the students in the experimental classrooms using the modified neurological impress method was 46 (GE 2.3), while the average gain of the students in the control classrooms was 34 (GE 1.7). Comparing the differences of the gain scores (12 raw scores) a t value of 2.28 was obtained. With 50 degrees of freedom the value was considered statistically significant beyond the .05 level of confidence.

Teachers using the modified neurological impress method with poor readers during the 1984 school year documented its positive impact upon those readers. Although the formal testing of the method was crude and almost an afterthought, the effects of the method with poor readers was obvious to teachers in the experimental classrooms.

One special education teacher in a school where one of the heterogeneous experimental groups was located was so impressed with effects of the strategy that he told the experimental classroom teacher in January, 1984 that the students from her classroom no longer required his services. He returned the students to her classroom where they were "mainstreamed" for the remainder of the school year.

The authors of this document have several theories regarding the use of the modified neurological impress method and its effect upon students. The method is currently being tested in a second study utilizing a more rigorous research design.

Readability

The 104 literature books used in the study are listed in Appendix F. The average readability score obtained from fourteen (14) readability formulas are also listed.

The researchers obtained two Apple Computer software programs on readability in order to determine the readability level of each book used in the study. The Delta Software computer program produced readability scores for the Fog, Flesch, Fry, and Bormuth formulas. The Micro Power and Light program produced readability scores for the Dale-Chall, Fry, Flesch, Flesch-Kincaid, Fog, ARI, Coleman, Powers, and Holmquist formulas. Spache Readability Formula scores were also obtained for each book used in the study by hand calculations.

In order to obtain the readability scores three one-hundred word samples were taken from each book, unless the book did not contain enough words to get three samples. One sample was taken from the front of the book, the second from the middle, and the last from the end of the book. The scores were then averaged to get one readability score for each book.

Two concerns immediately surfaced from the readability data generated on the literature books used in the study. First, the average readability scores indicated that second grade children would probably not be able to read the books provided for them to use. The majority of the books (99.9%) had readability scores beyond the second grade level. Ninety-one percent (91%) of the books were identified as having readability scores in excess of 3.0 and sixty-two percent (62%) had readability scores in excess of 4.0. When this information surfaced the research effort was already three months old. The only pracatical solution to the dilemma was to withhold the readability information from the teachers and proceed with the study as though the children would have no difficulty reading the books supplied for them.

The second concern that surfaced from the readability data generated was the readability score differences obtained from formula to formula. One hundred percent (100%) of the books containing words (one book had no words) revealed two or more grade level differences among the formulas used. Ninety-two

percent (92%) revealed three or more grade level differences; fifty percent (50%) revealed four or more grade level differences; sixteen percent (16%) five or more grade level differences; six percent (6%) six or more grade level differences; and two percent (2%) seven or more grade level differences. One book used in the program was designated by one formula to be grade 1.0 and by another formula to be grade 16.0.

These findings raised serious questions regarding the utility of readability formulas for classroom teachers. If one formula indicates the book is a first grade book and another formula indicates the book is a fifth grade book, you will have a very confused teacher. More importantly, perhaps, is the possible misuse of readability information generated for the teacher. In most instances teachers seeking readability data use only one formula. Depending on the formula used the readability score could be high or low. If the score obtained is high will the teacher discourage some students from selecting the book to read?

A final note should be made regarding readability findings. The second grade children who were given these books to read, read them and enjoyed them. The teachers using the books were surprised when the readability data was revealed to them at the end of the school year. They reported no difficulty in using the books in the place of basals to teach children how to read.

Perhaps the use of the Modified Neurological Impress Method offers one explanation for this finding. Maybe another explanation is that children can read difficult books if their interest is high enough. A third explanation might be found within the formulas themselves. Maybe readability formulas have concentrated too much on factors within the text to determine readability. Aren't the factors within the reader more important determiners of readability? These and other questions are worthy to pursue. The fact remains, however, that the second grade children who used the literature books not only read them but enjoyed and understood them, regardless of the readability score assigned to each book.

Among the findings reported in table 49, one also notices that children who were taught to read using literature books rather than basals not only made significantly higher achievement gains than children using basals, but their interests in reading also increased significantly.

Phonics

The decoding materials used in the study were unique in that the approach to phonics instruction was neither analytic, as used in 14 of the major basals published in this country, nor synthetic as used in 2 major basals. Because the approach to phonics was best described as a combination of the two approaches, it was called an analytic/synthetic approach. Each experimental teacher using the special decoding strategies was provided with a 220 page book containing the decoding lessons used in the study. This basic approach to phonics instruction was written by one of the researchers and entitled, Reading: A Structured Decoding Book.

Students using the decoding materials were taught to recognize twenty vowel team sounds, and to apply three basic phonics principles to determine the vowel sound in each word before attempting the synthesizing or blending process required to sound out the word. Rather than beginning the blending process by sounding out the first letter of the word, as is done in most blending strategies, students were taught to begin the process by first identifying the vowel sound. After the vowel sound was identified, students were taught to blend everything in front of the vowel with the vowel sound, and then to synthesize that sound with the ending sound of the word in an attempt to identify it.

For example, if a child did not recognize the word back in a sentence he was reading, and if he was unable to use context clues to identify the word, his first task was to determine the vowel sound in the word. A quick analysis of the word would reveal that the vowel was in the "protected" position (i.e. a vowel followed by, or "protected" by consonant letters). Since vowels in this position represent their short sounds the student would say, /ă/. The student would then synthesize the first two letters in the word and say, /bă/. Finally, the student would synthesize the /bă/ sound with the /k/ sound at the end of the word and identify the word as /băk/ (back).

The causal relationship between phonics, reading comprehension, and vocabulary achievement was examined by Bill Quinn, Assistant Professor of Education, Brigham Young University who used cross-lagged panel analysis to identify whether change in one variable tended to precede change in the other two. The results of his analysis revealed that the

acquisition of phonics competencies caused changes in reading comprehension and vocabulary achievement.

Phonics achievement was measured using an 81 item multiple-choice group administered test developed by one of the members of the research team. The items in this measure required students to identify which nonsense word read by the teacher matched one of four possible nonsense words on an answer form. Each nonsense word presented on the answer form was identical to the word read by the teacher with the exception of usually only one grapheme. Students indicated their choice by circling one of the words presented. The test was scored by summing correct answers.

Reading comprehension and vocabulary were measured using the Gates-MacGinitie Reading Test, Level B, Form 1. The number of correct answers on the vocabulary and comprehension subtests were computed for each student.

Students were given the phonics achievement test and the Gates-MacGinitie achievement test during the first week of September, 1983, and again in the second week of May, 1984.

Student scores increased for all three measures (phonics, vocabulary, and comprehension) between the pretest and the posttest. The scores for the three measures from both test occasions were found to be normally distributed. The measures were also found to be acceptably reliable using the test-retest correlations as reliability indexes. The reliability correlation for phonics was .729, for reading comprehension .589, and for vocabulary .703.

Cross-lagged panel analysis techniques as discussed by Cook and Campbell (1979) were used by Bill Quinn to analyze the data. He met the five conditions Kenny and Harackiewicz (1979) suggested researchers using this technique should meet. His findings indicated that phonics achievement was a significant cause <p < .001 > of both reading comprehension and vocabulary gains made by the children in this study.

It should be noted that the phonics test was validated twice--once at the beginning of the study, and a second time after the study was completed. At the beginning of the 1983/84 school year second grade students in one of the elementary schools of the Provo School District were given an individually

administered phonics test designed to measure 134 phonics competencies. They were also given the group administered phonics test designed to measure the same competencies. The group administered scores were compared to the individually administered scores and a correlation of .814 was obtained and found to be significant at the .005 level.

Pretest correlations of nearly 1100 students' phonics scores with their Gates-MacGinitie Achievement test scores produced the following coefficients which were used to validate the phonics test a second time: r = .71 with Gates Vocabulary; r = .63 with Gates Comprehension; r = .71 with Gates Total Reading Score. Posttest correlations of the same students were a little higher: r = .77 with Vocabulary; r = .69 with Comprehension; and r = .77 with Total Score.

Comparisons of Five Experimental Programs with Control Counterparts

The average pretest, posttest, and gain scores in vocabulary, comprehension, total achievement, and interest for each of the five experimental instructional groups are reported in table 3. The data for the five control groups are also reported. The results are expressed in raw scores.

The total number of raw score points possible for each of the tests identified in table 3 are: vocabulary--45; comprehension--40; total achievement--85. The maximun interest score possible was 100.

Children in the five experimental groups achieved as well or better than children in the control groups in vocabulary, comprehension, total achievement, and interest in reading. The gains that were statistically significantly are marked with asterisks.

The data on the phonics subtests and the total phonics test are reported in table 4. The self image test data are reported in table 5. The total points possible for each of the tests identified in table 4 are: phonics test #1--22; phonics test #2--31; phonics test #3--28; total phonics--81. Average self image test scores range from 64 through 68. Again, the children in the five experimental groups achieved as well or better than the children in the control groups in phonics achievement and self image assessment.

Table 3

EXPERIMENTAL AND CONTROL GROUP COMPARISONS

	Vocabulary Test Scores			Comprehension Test Scores		
	Pre	Post	Gain	Pre	Post	Gain
Ho+	21.4	31.8	10.4	19.0	29.9	10.9
C	21.4	30.6	9.2	19.8	29.6	9.8
He+	18.2	30.9	12.7	17.8	28.4	10.6
C	18.2	30.4	12.2	17.3	29.4	12.1
L+	21.2	33.2	12.0	19.1	31.4	12.3
C	20.4	31.6	11.2	19.0	30.3	11.3
L	23.1	34.3	11.2	20.7	31.4	10.7
C	21.7	32.0	10.3	18.8	30.4	11.7
He	23.2	34.5	11.3	21.1	32.1	11.0
C	23.1	34.1	11.0	21.5	31.7	10.2

	Total Achievement Scores			Interest Scores		
	Pre	Post	Gain	Pre	Post	Gain
Ho+	40.4	62.3	21.9*	67.7	69.6	1.9**
C	42.5	61.0	18.5	72.6	67.7	-4.9
He+	35.8	59.2	23.4	72.0	74.4	2.4
C	35.2	59.6	24.4	73.3	73.26	-.04
L+	40.1	64.5	24.4	75.6	79.6	4.0
C	39.3	61.7	22.4	72.6	73.4	.8
L	43.8	65.7	21.9	71.2	72.8	1.6***
C	40.5	62.3	21.8	72.1	68.6	-3.5
He	44.3	66.6	22.3	73.0	73.2	.2
C	44.4	65.3	20.9	68.3	73.6	5.3

*Significant @ .038 level (see table 6)
**Significant @ .013 level (see table 7)
***Significant @ .049 level (see table 8)

KEY: Ho = Homogeneous Grouping (Basals) L = Literature Program
He = Heterogeneous Grouping (Basals) C = Control Group
+ = Special Decoding Treatment

Table 4

EXPERIMENTAL AND CONTROL GROUP COMPARISONS

Phonics #1 Test Scores

	Pre	Post	Gain
Ho+	17.7	20.2	2.5
C	17.9	19.9	2.0
He+	16.1	19.4	3.3
C	16.3	19.5	3.2
L+	17.5	20.3	2.8
C	16.9	19.7	2.8
L	18.3	20.3	2.0
C	17.5	19.7	2.2
He	18.7	20.6	1.9
C	18.2	20.8	2.6

Phonics #2 Test Scores

	Pre	Post	Gain
Ho+	20.1	26.1	6.0
C	19.4	24.5	5.1
He+	16.8	22.5	5.7
C	17.3	23.8	6.5
L+	18.0	25.5	7.5*
C	18.4	23.7	5.3
L	19.7	25.8	6.1
C	18.9	24.7	5.8
He	20.3	26.5	6.2
C	21.1	26.9	5.8

Phonics #3 Test Scores

	Pre	Post	Gain
Ho+	17.2	23.0	5.8**
C	17.6	21.6	4.0
He+	14.5	20.2	5.7
C	15.0	21.0	6.0
L+	16.5	22.6	6.1
C	16.3	21.5	5.2
L	18.3	23.0	4.7
C	17.2	22.2	5.0
He	19.2	24.2	5.0
C	19.1	24.2	5.1

Total Phonics Scores

	Pre	Post	Gain
Ho+	54.8	69.4	14.6***
C	54.9	65.7	10.8
He+	47.4	62.4	15.0
C	48.7	64.4	15.7
L+	52.0	68.4	16.4****
C	52.0	64.7	12.7
L	56.3	69.1	12.8
C	53.5	66.5	13.0
He	58.1	71.5	13.4
C	58.3	71.8	13.5

*Significant @ .001 level (see table 9)
**Significant @ .003 level (see table 10)
***Significant @ .002 level (see table 11)
****Significant @ .002 level (see table 12)

KEY: Ho = Homogeneous Grouping (Basals) L = Literature Program
He = Heterogeneous Grouping (Basals) C = Control Group
+ = Special Decoding Treatment

Table 5

EXPERIMENTAL AND CONTROL GROUP COMPARISONS

Self Image Scores

	Pre	Post	Gain
Ho+	65.9	67.6	1.7
C	65.3	65.1	-.2
He+	67.0	67.1	.1
C	65.7	66.7	1.0
L+	66.1	67.7	1.6
C	64.4	66.6	2.2
L	66.5	67.1	.6
C	66.6	66.5	-.1
He	68.0	66.8	-1.2
C	66.9	67.9	1.0

KEY: Ho = Homogeneous Grouping (Basals)
He = Heterogeneous Grouping (Basals)
L = Literature Program
C = Control
+ = Special Decoding Treatment

Table 6

VARIABLE		NUMBER OF CASES	MEAN	STANDARD DEVIATION	STANDARD ERROR
ACHIEVEMENT GAINS	Ho+	125	21.9040	11.142	0.997
	C	114	18.4649	14.254	1.335

POOLED VARIANCE ESTIMATE

T value	degrees of freedom	2-tail prob.
2.09	237	0.038

Table 7

VARIABLE		NUMBER OF CASES	MEAN	STANDARD DEVIATION	STANDARD ERROR
INTEREST GAINS	Ho+	124	1.9355	20.056	1.801
	C	115	-4.8957	22.065	2.058

POOLED VARIANCE ESTIMATE

T value	degrees of freedom	2-tail prob.
2.51	237	0.013

Table 8

VARIABLE	NUMBER OF CASES	MEAN	STANDARD DEVIATION	STANDARD ERROR
INTEREST GAINS L	119	1.6303	20.150	1.847
C	121	-3.5124	20.142	1.831

POOLED VARIANCE ESTIMATE

T value	degrees of freedom	2-tail prob.
1.98	238	0.049

Table 9

VARIABLE	NUMBER OF CASES	MEAN	STANDARD DEVIATION	STANDARD ERROR
PHONICS TEST #2				
GAINS L+	136	7.5294	5.058	0.434
C	112	5.2857	4.737	0.448

POOLED VARIANCE ESTIMATE

T value	degrees of freedom	2-tail prob.
3.58	246	0.001

Table 10

VARIABLE	NUMBER OF CASES	MEAN	STANDARD DEVIATION	STANDARD ERROR
PHONICS TEST #3				
GAINS Ho+	120	5.7667	3.707	0.338
C	108	3.9907	5.087	0.490

POOLED VARIANCE ESTIMATE

T value	degrees of freedom	2-tail prob.
3.03	226	0.003

Table 11

VARIABLE	NUMBER OF CASES	MEAN	STANDARD DEVIATION	STANDARD ERROR
TOTAL PHONICS				
GAINS Ho+	120	14.5667	8.222	0.751
C	108	10.7500	10.557	1.016

POOLED VARIANCE ESTIMATE

T value	degrees of freedom	2-tail prob.
3.06	226	0.002

Table 12

VARIABLE		NUMBER OF CASES	MEAN	STANDARD DEVIATION	STANDARD ERROR
TOTAL PHONICS GAINS	L+	136	16.4044	10.448	0.896
	C	109	12.6789	7.844	0.751

POOLED VARIANCE ESTIMATE

T value	degrees of freedom	2-tail prob.
3.09	243	0.002

Comparisons of Five Experimental Programs with Each Other

A comparison of each of the five experimental programs with each other revealed statistically significant differences in all of the areas tested except interest in reading. Those differences are reported in tables 13 through 32.

The top three programs in terms of significant gains in achievement and self image were (1) the experimental program that used literature hooks to teach children to read supplemented with the special decoding treatment, (2) the heterogeneous grouping experiment supplemented with the special decoding treatment, and (3) the homogeneous grouping program supplemented with the special decoding treatment. Of the twenty (20) statistically significant differences reported in tables 13 through 32, fourteen (14) of them are in favor of the literature program supplemented with the special decoding treatment; four (4) in favor of the heterogeneous grouping program supplemented with the special decoding treatment; and two (2) in favor of the homogeneous grouping program supplemented with the special decoding treatment.

Table 13

VARIABLE		NUMBER OF CASES	MEAN	STANDARD DEVIATION	STANDARD ERROR
VOCABULARY GAINS	Ho+	127	10.4488	6.031	0.535
	He+	92	12.7391	7.360	0.767

POOLED VARIANCE ESTIMATE

T value	degrees of freedom	2-tail prob.
-2.53	217	0.012

Table 14

VARIABLE		NUMBER OF CASES	MEAN	STANDARD DEVIATION	STANDARD ERROR
VOCABULARY GAINS	Ho+	127	10.4488	6.031	0.535
	L+	139	11.9568	6.884	0.584

POOLED VARIANCE ESTIMATE

T value	degrees of freedom	2-tail prob.
-1.89	264	0.060

Table 15

VARIABLE	NUMBER OF CASES	MEAN	STANDARD DEVIATION	STANDARD ERROR
COMPREHENSION				
GAINS L+	139	12.2806	7.219	0.612
L	124	10.6532	7.132	0.640

POOLED VARIANCE ESTIMATE

T value	degrees of freedom	2-tail prob.
1.84	261	0.068

Table 16

VARIABLE	NUMBER OF CASES	MEAN	STANDARD DEVIATION	STANDARD ERROR
TOTAL ACHIEVEMENT				
GAINS Ho+	125	21.9040	11.142	0.997
L+	140	24.4143	12.538	1.060

POOLED VARIANCE ESTIMATE

T value	degrees of freedom	2-tail prob.
-1.71	263	0.088

Table 17

VARIABLE		NUMBER OF CASES	MEAN	STANDARD DEVIATION	STANDARD ERROR
PHONICS TEST #1					
GAINS	He+	89	3.3483	3.458	0.367
	L	120	1.9750	2.549	0.233

POOLED VARIANCE ESTIMATE

T value	degrees of freedom	2-tail prob.
3.31	207	0.001

Table 18

VARIABLE		NUMBER OF CASES	MEAN	STANDARD DEVIATION	STANDARD ERROR
PHONICS TEST #1					
GAINS	He+	89	3.3483	3.458	0.367
	He	122	1.9262	2.526	0.229

POOLED VARIANCE ESTIMATE

T value	degrees of freedom	2-tail prob.
3.45	209	0.001

Table 19

VARIABLE	NUMBER OF CASES	MEAN	STANDARD DEVIATION	STANDARD ERROR
PHONICS TEST #1				
GAINS Ho+	120	2.5417	3.133	0.286
He+	89	3.3483	3.458	0.357

POOLED VARIANCE ESTIMATE

T value	degrees of freedom	2-tail prob.
-1.76	207	0.080

Table 20

VARIABLE	NUMBER OF CASES	MEAN	STANDARD DEVIATION	STANDARD ERROR
PHONICS TEST #1				
GAINS L+	136	2.8235	2.885	0.247
L	120	1.9750	2.549	0.233

POOLED VARIANCE ESTIMATE

T value	degrees of freedom	2-tail prob.
2.48	254	0.014

Table 21

VARIABLE	NUMBER OF CASES	MEAN	STANDARD DEVIATION	STANDARD ERROR
PHONICS TEST #1				
GAINS L+	136	2.8235	2.885	0.247
He+	122	1.9262	2.526	0.229

POOLED VARIANCE ESTIMATE

T value	degrees of freedom	2-tail prob.
2.64	256	0.009

Table 22

VARIABLE	NUMBER OF CASES	MEAN	STANDARD DEVIATION	STANDARD ERROR
PHONICS TEST #2				
GAINS He+	89	5.6742	5.067	0.537
L+	136	7.5294	5.058	0.434

POOLED VARIANCE ESTIMATE

T value	degrees of freedom	2-tail prob.
-2.69	223	0.008

Table 23

VARIABLE	NUMBER OF CASES	MEAN	STANDARD DEVIATION	STANDARD ERROR
PHONICS TEST #2				
GAINS Ho+	120	6.0417	4.652	0.425
L+	136	7.5294	5.058	0.434

POOLED VARIANCE ESTIMATE

T value	degrees of freedom	2-tail prob.
-2.44	254	0.015

Table 24

VARIABLE	NUMBER OF CASES	MEAN	STANDARD DEVIATION	STANDARD ERROR
PHONICS TEST #2				
GAINS L+	136	7.5294	5.058	0.434
L	121	6.1322	5.218	0.474

POOLED VARIANCE ESTIMATE

T value	degrees of freedom	2-tail prob.
2.18	255	0.030

Table 25

VARIABLE	NUMBER OF CASES	MEAN	STANDARD DEVIATION	STANDARD ERROR
PHONICS TEST #2				
GAINS L+	136	7.5294	5.058	0.434
He+	123	6.2439	6.093	0.549

POOLED VARIANCE ESTIMATE

T value	degrees of freedom	2-tail prob.
1.85	257	0.065

Table 26

VARIABLE	NUMBER OF CASES	MEAN	STANDARD DEVIATION	STANDARD ERROR
PHONICS TEST #3				
GAINS L+	136	6.1397	4.869	0.418
L	121	4.6612	4.110	0.374

POOLED VARIANCE ESTIMATE

T value	degrees of freedom	2-tail prob.
2.61	255	0.010

Table 27

VARIABLE	NUMBER OF CASES	MEAN	STANDARD DEVIATION	STANDARD ERROR
PHONICS TEST #3				
GAINS L+	136	6.1397	4.869	0.418
He	121	4.9587	4.089	0.372

POOLED VARIANCE ESTIMATE

T value	degrees of freedom	2-tail prob.
2.09	255	0.037

Table 28

VARIABLE	NUMBER OF CASES	MEAN	STANDARD DEVIATION	STANDARD ERROR
PHONICS TEST #3				
GAINS Ho+	120	5.7667	3.707	0.338
L	121	4.6612	4.110	0.374

POOLED VARIANCE ESTIMATE

T value	degrees of freedom	2-tail prob.
2.19	239	0.029

Table 29

VARIABLE		NUMBER OF CASES	MEAN	STANDARD DEVIATION	STANDARD ERROR
TOTAL PHONICS GAINS	L+	136	16.4044	10.448	0.896
	L	120	12.8083	9.414	0.859

POOLED VARIANCE ESTIMATE

T value	degrees of freedom	2-tail prob.
2.88	254	0.004

Table 30

VARIABLE		NUMBER OF CASES	MEAN	STANDARD DEVIATION	STANDARD ERROR
TOTAL PHONICS GAINS	L+	136	16.4044	10.448	0.896
	He+	122	13.3525	11.192	1.013

POOLED VARIANCE ESTIMATE

T value	degrees of freedom	2-tail prob.
2.26	256	0.024

Table 31

VARIABLE	NUMBER OF CASES	MEAN	STANDARD DEVIATION	STANDARD ERROR
SELF IMAGE GAINS Ho+	122	1.6885	9.053	0.820
He	119	-1.1513	8.576	0.786

POOLED VARIANCE ESTIMATE

T value	degrees of freedom	2-tail prob.
2.50	239	0.013

Table 32

VARIABLE	NUMBER OF CASES	MEAN	STANDARD DEVIATION	STANDARD ERROR
SELF IMAGE GAINS L+	131	1.6489	6.098	0.533
He	119	-1.1513	8.576	0.786

POOLED VARIANCE ESTIMATE

T value	degrees of freedom	2-tail prob.
3.00	248	0.003

Effects of Materials, Structured Decoding Activities, and Grouping Upon Achievement

To get a clear picture of the effects materials , grouping , and analytical/synthetic phonics had upon student achievement and interest in reading, statistical concerns needed to be addressed. Practical limitations did not allow for a complete three by three factorial model. However, it was possible to control for variance due to each of the variables of interest by organizing the data as though two separate studies had been conducted. This controlled for any confounding "noise" that would have been introduced into the research model.

In the first "study", all students who were grouped heterogeneously were compared with all students who were grouped homogeneously. The effects of grouping strategies interacting with and without the special decoding treatment were analyzed. This set of data is reported under the heading of "Grouping Study".

In the second "study", all students who were taught to read using children's literature books were compared with all students who were taught to read using basals. The effects of the materials used and the interaction of materials with and without the special decoding treatment were studied. This set of data is reported under the heading of "Materials Study".

In both analyses main and interaction effects were studied. The effects of gender, materials, grouping, and phonics were analyzed. The effects of gender interacting with materials, gender interacting with grouping, gender interacting with phonics, materials interacting with phonics, and grouping interacting with phonics were also studied. Differences in pretest scores, and other nuisance variables were controlled for statistically.

The findings of the "Grouping Study" are reported in tables 33 through 47. The findings of the "Materials Study" are reported in tables 48 through 62.

Table 33
GROUPING STUDY
GENDER COMPARISONS

Vocabulary Test Scores	Pre	Post	Gain
Boys	20.5	31.9	11.4
Girls	22.0	32.7	10.7

Comprehension Test Scores	Pre	Post	Gain
Boys	18.0	29.4	11.4*
Girls	20.6	31.3	10.7

Total Achievement Scores	Pre	Post	Gain
Boys	38.5	61.3	22.8
Girls	42.7	64.0	21.3

Self Image Scores	Pre	Post	Gain
Boys	65.3	66.1	.8
Girls	67.0	67.4	.4

Phonics #1 Test Scores	Pre	Post	Gain
Boys	17.6	20.0	2.4
Girls	17.6	20.0	2.4

Phonics #2 Test Scores	Pre	Post	Gain
Boys	18.9	24.7	5.8
Girls	19.2	25.0	5.8

Phonics #3 Test Scores	Pre	Post	Gain
Boys	16.9	22.4	5.5
Girls	17.4	22.3	4.9

Total Phonics Scores	Pre	Post	Gain
Boys	53.3	67.1	13.8
Girls	54.1	67.2	13.1

Interest Scores	Pre	Post	Gain
Boys	67.8	67.5	-.3
Girls	74.8	75.1	.3**

*Significant @ .04 level (see table 40)
**Significant @ .001 level (see table 47)

Table 34
GROUPING STUDY
GROUPING COMPARISONS

Vocabulary Test Scores	Pre	Post	Gain
He	21.3	33.1	11.8*
Ho	21.3	32.0	10.7

Comprehension Test Scores	Pre	Post	Gain
He	19.7	30.6	10.9
Ho	19.3	30.4	11.1

Total Achievement Scores	Pre	Post	Gain
He	40.9	63.6	22.7
Ho	40.6	62.4	21.8

Self Image Scores	Pre	Post	Gain
He	67.7	66.9	-.8
Ho	65.7	66.8	1.1

Phonics #1 Test Scores	Pre	Post	Gain
He	17.7	20.1	2.4
Ho	17.5	19.9	2.4

Phonics #2 Test Scores	Pre	Post	Gain
He	19.0	25.0	6.0
Ho	19.1	24.8	5.7

Phonics #3 Test Scores	Pre	Post	Gain
He	17.4	22.6	5.2
Ho	17.0	22.2	5.2

Total Phonics Scores	Pre	Post	Gain
He	54.0	67.8	13.8
Ho	53.6	66.9	13.3

Interest Scores	Pre	Post	Gain
He	72.4	73.3	.9
Ho	71.1	70.8	-.3

*Significant @ .08 level (see table 39)

KEY: He = Heterogeneous Grouping (Basals)
Ho = Homogeneous Grouping (Basals)

Table 35
GROUPING STUDY
PHONICS COMPARISONS

Vocabulary Test Scores

	Pre	Post	Gain
Phonics	20.1	31.6	11.5
No	21.7	32.5	10.8

Comprehension Test Scores

	Pre	Post	Gain
Phonics	18.5	29.6	11.1
No	19.6	30.7	11.0

Total Achievement Scores

	Pre	Post	Gain
Phonics	38.5	61.2	22.7
No	41.4	63.2	21.8

Self Image Scores

	Pre	Post	Gain
Phonics	66.5	67.4	.9
No	66.1	66.6	.5

Phonics #1 Test Scores

	Pre	Post	Gain
Phonics	17.2	19.9	2.7
No	17.7	20.0	2.3

Phonics #2 Test Scores

	Pre	Post	Gain
Phonics	18.7	24.6	5.9
No	19.2	25.0	5.8

Phonics #3 Test Scores

	Pre	Post	Gain
Phonics	16.0	21.8	5.8
No	17.5	22.5	5.0

Total Phonics Scores

	Pre	Post	Gain
Phonics	51.6	66.2	14.6
No	54.4	67.4	13.0

Interest Scores

	Pre	Post	Gain
Phonics	70.0	72.0	2.0
No	71.9	71.2	-.7

KEY: Phonics = Students receiving the special decoding treatment

No = Students not receiving the special decoding treatment

Table 36
GROUPING STUDY
GENDER INTERACTING WITH GROUPING

Vocabulary Test Scores

	Pre	Post	Gain
He Boys	20.5	32.5	12.0
He Girls	22.1	33.7	11.6
Ho Boys	20.5	31.6	11.1
Ho Girls	22.0	32.4	10.4

Comprehension Test Scores

	Pre	Post	Gain
He Boys	18.3	29.1	10.8
He Girls	21.2	32.2	11.0
Ho Boys	17.9	29.6	11.7
Ho Girls	20.5	31.2	10.7

Total Achievement Scores

	Pre	Post	Gain
He Boys	38.7	61.5	22.8
He Girls	43.3	66.0	22.7
Ho Boys	38.4	61.2	22.8
Ho Girls	42.5	63.4	20.9

Self Image Scores

	Pre	Post	Gain
He Boys	67.4	66.9	-.5
He Girls	68.1	67.0	-1.1
Ho Boys	64.6	65.9	1.3
Ho Girls	66.7	67.6	.9

Phonics #1 Test Scores

	Pre	Post	Gain
He Boys	17.4	20.0	2.6
He Girls	18.1	20.3	2.2
Ho Boys	17.6	19.9	2.3
Ho Girls	17.4	19.9	2.5

Phonics #2 Test Scores

	Pre	Post	Gain
He Boys	18.6	24.8	6.2
He Girls	19.4	25.1	5.7
Ho Boys	19.1	24.8	5.7
Ho Girls	19.1	24.9	5.8

Phonics #3 Test Scores

	Pre	Post	Gain
He Boys	17.2	22.4	5.2
He Girls	17.6	22.8	5.2
Ho Boys	16.8	22.4	5.6
Ho Girls	17.3	22.1	4.8

Total Phonics Scores

	Pre	Post	Gain
He Boys	53.0	67.2	14.2
He Girls	55.0	68.2	13.2
Ho Boys	53.4	67.0	13.6
Ho Girls	53.9	66.9	13.0

Interest Scores

	Pre	Post	Gain
He Boys	68.5	70.2	1.7
He Girls	76.8	76.8	-o-
Ho Boys	67.6	66.5	-1.1
Ho Girls	74.1	74.5	.4

KEY: He Boys = Boys in heterogeneous groups
He Girls = Girls in heterogeneous groups
Ho Boys = Boys in homogeneous groups
Ho Girls = Girls in homogeneous groups

Table 37
GROUPING STUDY
GENDER INTERACTING WITH PHONICS

Vocabulary Test Scores	Pre	Post	Gain
Boys +	19.5	30.5	11.0
Girls +	20.6	32.6	12.0
Boys -	20.8	32.3	11.5
Girls -	22.4	32.7	10.3

Comprehension Test Scores	Pre	Post	Gain
Boys +	17.1	28.2	11.1
Girls +	20.1	31.3	11.2
Boys -	18.4	29.9	11.5
Girls -	20.8	31.4	10.6

Total Achievement Scores	Pre	Post	Gain
Boys +	36.5	58.7	22.2
Girls +	40.7	63.9	23.2
Boys -	39.2	62.2	23.0
Girls -	43.3	64.1	20.8

Self Image Scores	Pre	Post	Gain
Boys +	65.4	67.1	1.7
Girls +	67.6	67.8	.2
Boys -	65.3	65.8	.5
Girls -	66.9	67.4	.5

Phonics #1 Test Scores	Pre	Post	Gain
Boys +	17.0	19.8	2.8
Girls +	17.4	20.0	2.6
Boys -	17.8	20.1	2.3
Girls -	17.7	20.1	2.4

Phonics #2 Test Scores	Pre	Post	Gain
Boys +	18.5	24.5	6.0
Girls +	18.8	24.6	5.8
Boys -	19.1	24.8	5.7
Girls -	19.4	25.2	5.8

Phonics #3 Test Scores	Pre	Post	Gain
Boys +	15.8	21.6	5.8
Girls +	16.2	22.0	5.8
Boys -	17.3	22.6	5.3
Girls -	17.7	22.4	4.7

Total Phonics Scores	Pre	Post	Gain
Boys +	51.2	66.0	14.8
Girls +	52.2	66.6	14.4
Boys -	54.0	67.4	13.4
Girls -	54.7	67.4	12.7

Interest Scores	Pre	Post	Gain
Boys +	65.1	67.2	2.1
Girls +	75.4	77.4	2.0
Boys -	68.8	67.6	-1.2
Girls -	74.6	74.4	-.2

KEY: Boys + = Boys receiving the special decoding treatment
Girls + = Girls receiving the special decoding treatment
Boys - = Boys not receiving the special decoding treatment
Girls - = Girls not receiving the special decoding treatment

Table 38
GROUPING STUDY
GROUPING INTERACTING WITH PHONICS

Vocabulary Test Scores

	Pre	Post	Gain
He+	18.3	30.8	12.5
Ho+	21.5	32.2	10.7
He	23.5	34.7	11.2
Ho	21.3	32.0	10.7

Comprehension Test Scores

	Pre	Post	Gain
He+	17.7	28.4	10.7
Ho+	19.2	30.7	11.5*
He	21.1	32.1	11.0
Ho	19.3	30.3	11.1

Total Achievement Scores

	Pre	Post	Gain
He+	35.9	59.1	23.2
Ho+	40.7	62.9	22.3
He	44.7	67.1	22.4
Ho	40.6	62.3	21.7

Self Image Scores

	Pre	Post	Gain
He+	67.5	67.2	- .3
Ho+	65.6	67.6	2.0
He	67.8	66.7	-1.1
Ho	65.7	66.6	.9

Phonics #1 Test Scores

	Pre	Post	Gain
He+	16.2	19.5	3.3
Ho+	17.9	20.2	2.3
He	18.9	20.7	1.8
Ho	17.4	19.9	2.5

Phonics #2 Test Scores

	Pre	Post	Gain
He+	17.0	22.7	5.7
Ho+	20.0	26.1	6.1
He	20.5	26.8	6.3**
Ho	18.9	24.5	5.6

Phonics #3 Test Scores

	Pre	Post	Gain
He+	14.7	20.4	5.7
Ho+	17.1	22.9	5.8***
He	19.5	24.3	4.8
Ho	17.0	22.0	5.0

Total Phonics Scores

	Pre	Post	Gain
He+	47.8	62.5	14.7****
Ho+	54.7	69.2	14.5****
He	58.6	71.7	13.1
Ho	53.4	66.4	13.0

Interest Scores

	Pre	Post	Gain
He+	72.0	74.2	2.2
Ho+	68.4	70.3	1.9
He	72.8	72.7	-.1
Ho	71.6	70.8	-.8

KEY: He+ = Heterogeneous grouping with phonics
Ho+ = Homogeneous grouping with phonics
He = Heterogeneous grouping without phonics
Ho = Homogeneous grouping without phonics

*Significant ● .03 level (see table 40)
**Significant ● .001 level (see table 44)
***Significant ● .002 level (see table 45)
***Significant ● .001 level (see table 46)

Table 39
ANALYSIS OF VARIANCE
TESTS OF SIGNIFICANCE FOR VOCABULARY GAINS USING UNIQUE SUMS OF SQUARES

Source of Variation	Sum of Squares	DF	F	Sig. of F
WITHIN CELLS	30000.78035	762		
Regression	6647.61337	1	168.84499	0.0
CONSTANT	35798.76919	1	909.26509	0.0
GENDER	20.10897	1	.51075	.475
GROUPING	118.92115	1	3.02052	.083
PHONICS	6.04724	1	.15360	.695
GENDER BY GROUPING	7.35420	1	.18679	.666
GENDER BY PHONICS	100.59968	1	2.55517	.110
GROUPING BY PHONICS	6.55901	1	.16659	.683

Table 40
ANALYSIS OF VARIANCE
TESTS OF SIGNIFICANCE FOR COMPREHENSION GAINS USING UNIQUE SUMS OF SQUARES

Source of Variation	Sum of Squares	DF	F	Sig. of F
WITHIN CELLS	27268.44136	762		
Regression	14525.17531	1	405.89718	0.0
CONSTANT	50292.92754	1	1405.40525	0.0
GENDER	151.51148	1	4.23390	.040
GROUPING	10.74178	1	.30017	.584
PHONICS	77.67762	1	2.17065	.141
GENDER BY GROUPING	60.74975	1	1.69761	.193
GENDER BY PHONICS	46.75377	1	1.30651	.253
GROUPING BY PHONICS	169.52495	1	4.73727	.030

Table 41
ANALYSIS OF VARIANCE
TESTS OF SIGNIFICANCE FOR ACHIEVEMENT GAINS USING UNIQUE SUMS OF SQUARES

Source of Variation	Sum of Squares	DF	F	Sig. of F
WITHIN CELLS	91138.37526	726		
Regression	28295.75839	1	236.57837	0.0
CONSTANT	141595.88760	1	1183.87086	0.0
GENDER	171.91160	1	1.43734	.231
GROUPING	58.35691	1	.48792	.485
PHONICS	95.66457	1	.79984	.371
GENDER BY GROUPING	27.12864	1	.22682	.634
GENDER BY PHONICS	238.07499	1	1.99052	.159
GROUPING BY PHONICS	275.67619	1	2.30490	.129

Table 42
ANALYSIS OF VARIANCE
TESTS OF SIGNIFICANCE FOR SELF IMAGE GAINS USING UNIQUE SUMS OF SQUARES

Source of Variation	Sum of Squares	DF	F	Sig. of F
WITHIN CELLS	34790.45145	762		
Regression	26167.86423	1	573.14325	0.0
CONSTANT	26053.26788	1	570.63330	0.0
GENDER	43.72338	1	.95765	.328
GROUPING	23.05024	1	.50486	.478
PHONICS	84.48595	1	1.85046	.174
GENDER BY GROUPING	48.95304	1	1.07220	.301
GENDER BY PHONICS	12.13229	1	.26573	.606
GROUPING BY PHONICS	9.75930	1	.21375	.644

Table 43
ANALYSIS OF VARIANCE
TESTS OF SIGNIFICANCE FOR PHONICS #1 GAINS USING UNIQUE SUMS OF SQUARES

Source of Variation	Sum of Squares	DF	F	Sig. of F
WITHIN CELL	3038.84075	762		
Regression	3835.13454	1	961.67347	0.0
CONSTANT	5412.18428	1	1357.12423	0.0
GENDER	.00507	1	.00127	.972
GROUPING	1.07827	1	.27038	.603
PHONICS	.07388	1	.01852	.892
GENDER BY GROUPING	.01778	1	.00446	.947
GENDER BY PHONICS	.18047	1	.04525	.832
GROUPING BY PHONICS	2.11298	1	.52984	.467

Table 44
ANALYSIS OF VARIANCE
TESTS OF SIGNIFICANCE FOR PHONICS #2 GAINS USING UNIQUE SUMS OF SQUARES

Source of Variation	Sum of Squares	DF	F	Sig. of F
WITHIN CELLS	12538.72865	762		
Regression	7297.05890	1	443.45476	0.0
CONSTANT	17005.62584	1	1033.46099	0.0
GENDER	.03304	1	.00201	.964
GROUPING	9.43122	1	.57315	.449
PHONICS	46.40788	1	2.82029	.093
GENDER BY GROUPING	3.29510	1	.20025	.655
GENDER BY PHONICS	1.86497	1	.11334	.736
GROUPING BY PHONICS	324.60210	1	19.72663	.000

Table 45
ANALYSIS OF VARIANCE
TESTS OF SIGNIFICANCE FOR PHONICS #3 GAINS USING UNIQUE SUMS OF SQUARES

Source of Variation	Sum of Squares	DF	F	Sig. of F
WITHIN CELLS	9655.40615	762		
Regression	5004.52381	1	394.95461	0.0
CONSTANT	12163.84326	1	959.96465	0.0
GENDER	.40013	1	.03158	.859
GROUPING	4.03852	1	.31872	.573
PHONICS	5.08613	1	.40139	.527
GENDER BY GROUPING	9.69409	1	.76505	.382
GENDER BY PHONICS	6.31020	1	.49800	.481
GROUPING BY PHONICS	126.79991	1	10.00699	.002

Table 46
ANALYSIS OF VARIANCE
TESTS OF SIGNIFICANCE FOR TOTAL PHONICS GAINS USING UNIQUE SUMS OF SQUARES

Source of Variation	Sum of Squares	DF	F	Sig. of F
WITHIN CELLS	47942.90048	762		
Regression	28746.04334	1	456.88694	0.0
CONSTANT	67039.27295	1	1065.51597	0.0
GENDER	3.84796	1	.06116	.805
GROUPING	7.96130	1	.12654	.722
PHONICS	24.99752	1	.39731	.529
GENDER BY GROUPING	.16047	1	.00255	.960
GENDER BY PHONICS	7.11754	1	.11313	.737
GROUPING BY PHONICS	754.94482	1	11.99902	.001

Table 47
ANALYSIS OF VARIANCE
TESTS OF SIGNIFICANCE FOR INTEREST GAINS USING UNIQUE SUMS OF SQUARES

Source of Variation	Sum of Squares	DF	F	Sig. of F
WITHIN CELLS	200890.64508	762		
Regression	107319.08304	1	407.07292	0.0
CONSTANT	100555.30784	1	381.41719	0.0
GENDER	3052.92632	1	11.58008	.001
GROUPING	578.22967	1	2.19329	.139
PHONICS	257.27148	1	.97586	.324
GENDER BY GROUPING	152.61336	1	.57888	.447
GENDER BY PHONICS	251.15819	1	.95267	.329
GROUPING BY PHONICS	26.20943	1	.09942	.753

Table 48
MATERIALS STUDY
GENDER COMPARISONS

Vocabulary Test Scores

	Pre	Post	Gain
Boys	20.9	32.1	11.2
Girls	22.3	33.1	10.8

Comprehension Test Scores

	Pre	Post	Gain
Boys	18.2	28.7	11.5
Girls	20.7	31.6	10.9*

Total Achievement Scores

	Pre	Post	Gain
Boys	39.1	61.8	22.7
Girls	43.0	65.5	22.5

Self Image Scores

	Pre	Post	Gain
Boys	64.8	66.3	1.5
Girls	66.8	67.6	.8

Phonics #1 Test Scores

	Pre	Post	Gain
Boys	17.6	20.1	2.5
Girls	17.7	20.1	2.4

Phonics #2 Test Scores

	Pre	Post	Gain
Boys	18.8	24.9	6.1
Girls	19.3	25.2	6.0

Phonics #3 Test Scores

	Pre	Post	Gain
Boys	16.9	22.5	5.6
Girls	17.4	22.3	4.9

Total Phonics Scores

	Pre	Post	Gain
Boys	53.2	67.4	14.2
Girls	54.3	67.4	13.1

Interest Scores

	Pre	Post	Gain
Boys	68.0	69.0	1.0**
Girls	75.6	75.9	.3

*Significant @ .035 level (see table 55)
**Significant @ .013 level (see table 62)

Table 49
MATERIALS STUDY
MATERIALS COMPARISONS

Vocabulary Test Scores	Pre	Post	Gain
L	22.4	34.0	11.6*
B	21.3	32.0	10.7

Comprehension Test Scores	Pre	Post	Gain
L	20.2	31.6	11.4
B	19.3	30.4	11.1

Total Achievement Scores	Pre	Post	Gain
L	42.6	65.7	23.1**
B	40.6	62.4	21.8

Self Image Scores	Pre	Post	Gain
L	66.2	67.5	1.3
B	65.7	66.8	1.1

Phonics #1 Test Scores	Pre	Post	Gain
L	17.9	20.3	2.4
B	17.5	19.9	2.4

Phonics #2 Test Scores	Pre	Post	Gain
L	18.9	25.7	6.8****
B	19.1	24.8	5.7

Phonics #3 Test Scores	Pre	Post	Gain
L	17.5	22.9	5.4
B	17.0	22.2	5.2

Total Phonics Scores	Pre	Post	Gain
L	54.2	68.7	14.5
B	53.6	66.9	13.3

Interest Scores	Pre	Post	Gain
L	74.2	77.0	2.8*****
B	71.1	70.8	-.3

*Significant @ .015 level (see table 54)
**Significant @ .038 level (see table 56)
***Significant @ .05 level (see table 59)
****Significant @ .001 level (see table 62)

KEY: L = Children using literature for reading instruction
B = Children using basals for reading instruction

Table 50
MATERIALS STUDY
PHONICS COMPARISONS

Vocabulary Test Scores

	Pre	Post	Gain
Phonics	21.2	32.8	11.6
No	21.8	32.6	10.8

Comprehension Test Scores

	Pre	Post	Gain
Phonics	19.2	31.0	11.8
No	19.7	30.7	11.0

Total Achievement Scores

	Pre	Post	Gain
Phonics	40.4	63.8	23.5
No	41.5	63.2	21.7

Self Image Scores

	Pre	Post	Gain
Phonics	65.9	67.7	1.8
No	65.9	66.7	.8

Phonics #1 Test Scores

	Pre	Post	Gain
Phonics	17.7	20.3	2.6
No	17.6	20.0	2.4

Phonics #2 Test Scores

	Pre	Post	Gain
Phonics	18.9	25.7	6.8*
No	19.1	24.8	5.7

Phonics #3 Test Scores

	Pre	Post	Gain
Phonics	16.8	22.8	6.0**
No	17.3	22.2	4.9

Total Phonics Scores

	Pre	Post	Gain
Phonics	53.2	68.6	15.4***
No	54.0	66.9	12.9

Interest Scores

	Pre	Post	Gain
Phonics	72.4	75.4	3.0*****
No	71.8	71.4	-.4

*Significant @ .045 level (see table 59)
**Significant @ .014 level (see table 60)
***Significant @ .006 level (see table 61)
*****Significant @ .037 level (see table 62)

KEY: Phonics - Students receiving the special decoding treatment

No - Students not receiving the special decoding treatment

Table 51
MATERIALS STUDY
GENDER INTERACTING WITH MATERIALS

Vocabulary Test Scores

	Pre	Post	Gain
L Boys	21.9	33.2	11.3
L Girls	22.8	34.8	12.0
B Boys	20.5	31.6	11.1
B Girls	22.0	32.4	10.4

Comprehension Test Scores

	Pre	Post	Gain
L Boys	19.0	30.3	11.3
L Girls	21.4	33.0	11.6
B Boys	17.9	29.6	11.7
B Girls	20.5	31.1	10.6

Total Achievement Scores

	Pre	Post	Gain
L Boys	40.8	63.5	22.7
L Girls	44.3	67.8	23.5
B Boys	38.4	61.2	22.8
B Girls	42.5	63.4	20.9

Self Image Scores

	Pre	Post	Gain
L Boys	65.4	67.3	1.9
L Girls	67.0	67.7	.7
B Boys	64.6	65.9	1.3
B Girls	66.7	67.6	.9

Phonics #1 Test Scores

	Pre	Post	Gain
L Boys	17.6	20.4	2.8
L Girls	18.3	20.3	2.0
B Boys	17.6	19.9	2.3
B Girls	17.4	19.9	2.5

Phonics #2 Test Scores

	Pre	Post	Gain
L Boys	18.2	25.4	7.2
L Girls	19.5	26.0	6.5
B Boys	19.0	24.7	5.7
B Girls	19.2	24.9	5.7

Phonics #3 Test Scores

	Pre	Post	Gain
L Boys	17.0	22.8	5.8
L Girls	17.9	22.9	5.0
B Boys	16.8	22.3	5.5
B Girls	17.3	22.1	4.8

Total Phonics Scores

	Pre	Post	Gain
L Boys	52.8	68.5	15.7
L Girls	55.6	69.0	13.4
B Boys	53.4	66.9	13.5
B Girls	53.9	66.9	13.0

Interest Scores

	Pre	Post	Gain
L Boys	69.1	74.7	5.6*
L Girls	79.2	79.3	.1
B Boys	67.6	66.5	-1.1
B Girls	74.1	74.4	.3

*Significant ● .077 level (see table 62)

KEY: L Boys = Boys using literature books for reading instruction
L Girls = Girls using literature books for instruction
B Boys = Boys using basals for reading instruction
B Girls = Girls using basals for reading instruction

Table 52
MATERIALS STUDY
GENDER INTERACTING WITH PHONICS

Vocabulary Test Scores

	Pre	Post	Gain
Boys +	21.1	31.9	10.8
Girls +	21.4	33.8	12.4
Boys -	20.8	32.1	11.3
Girls -	22.6	32.8	10.2

Comprehension Test Scores

	Pre	Post	Gain
Boys +	18.3	29.9	11.6
Girls +	20.2	32.2	12.0
Boys -	18.2	29.7	11.5
Girls -	20.9	31.4	10.5

Total Achievement Scores

	Pre	Post	Gain
Boys +	39.3	61.8	22.5
Girls +	41.6	66.1	24.5
Boys -	39.1	61.9	22.8
Girls -	43.5	64.2	20.7

Self Image Scores

	Pre	Post	Gain
Boys +	64.8	67.4	2.6
Girls +	67.0	67.9	.9
Boys -	64.8	65.8	1.0
Girls -	66.7	67.5	.8

Phonics #1 Test Scores

	Pre	Post	Gain
Boys +	17.5	20.3	2.8
Girls +	17.9	20.2	2.3
Boys -	17.6	19.9	2.3
Girls -	17.6	20.0	2.4

Phonics #2 Test Scores

	Pre	Post	Gain
Boys +	18.7	25.8	7.1
Girls +	19.2	25.8	6.6
Boys -	18.9	24.6	5.7
Girls -	19.3	25.1	5.8

Phonics #3 Test Scores

	Pre	Post	Gain
Boys +	16.3	22.8	6.5
Girls +	17.2	22.7	5.5
Boys -	17.1	22.3	5.2
Girls -	17.5	22.2	4.7

Total Phonics Scores

	Pre	Post	Gain
Boys +	52.4	68.9	16.5
Girls +	54.1	68.5	14.4
Boys -	53.6	66.8	13.2
Girls -	54.4	67.1	12.7

Interest Scores

	Pre	Post	Gain
Boys +	65.9	71.4	5.5
Girls +	79.4	79.8	.4
Boys -	69.0	67.9	-1.1
Girls -	74.2	74.0	-.2

KEY: Boys + = Boys receiving the special decoding treatment
Girls + = Girls receiving the special decoding treatment
Boys - = Boys not receiving the special decoding treatment
Girls - = Girls not receiving the special decoding treatment

Table 53
MATERIALS STUDY
MATERIALS INTERACTING WITH PHONICS

Vocabulary Test Scores

	Pre	Post	Gain
L+	21.0	33.3	12.3
B+	21.5	32.2	10.7
L	23.9	34.8	10.9
B	21.3	32.0	10.7

Comprehension Test Scores

	Pre	Post	Gain
L+	19.2	31.3	12.1
B+	19.2	30.7	11.5
L	21.4	32.0	10.6
B	19.3	30.3	11.0

Total Achievement Scores

	Pre	Post	Gain
L+	40.1	64.6	24.5
B+	40.7	62.9	22.3
L	45.3	66.8	21.6
B	40.6	62.2	21.6

Self Image Scores

	Pre	Post	Gain
L+	66.1	67.7	1.6
B+	65.6	67.6	2.0
L	66.4	67.4	1.0
B	65.7	66.6	.9

Phonics #1 Test Scores

	Pre	Post	Gain
L+	17.6	20.4	2.8
B+	17.9	20.2	2.3
L	18.4	20.3	1.9
B	17.4	19.9	2.5

Phonics #2 Test Scores

	Pre	Post	Gain
L+	18.0	25.4	7.4
B+	20.0	26.1	6.2
L	19.9	26.1	6.2
B	18.9	24.5	5.6

Phonics #3 Test Scores

	Pre	Post	Gain
L+	16.5	22.6	6.1
B+	17.1	23.0	5.9
L	18.5	23.0	4.5
B	17.0	22.0	5.0

Total Phonics Scores

	Pre	Post	Gain
L+	52.0	68.2	16.2
B+	54.7	69.2	14.5
L	56.7	69.4	12.7
B	53.4	66.4	13.0

Interest Scores

	Pre	Post	Gain
L+	75.8	79.8	4.0
B+	68.4	70.3	1.9
L	72.4	73.9	1.5
B	71.6	70.8	-.8

KEY: L+ = Literature materials supplemented with phonics
B+ = Basal materials supplemented with phonics
L = Literature materials without special phonics
B = Basal materials without special phonics

Table 54
ANALYSIS OF VARIANCE
TESTS OF SIGNIFICANCE FOR VOCABULARY GAINS USING UNIQUE SUMS OF SQUARES

Source of Variation	Sum of Squares	DF	F	Sig. of F
WITHIN CELLS	29180.71512	805		
Regression	8987.83520	1	247.94483	0.0
CONSTANT	42146.17204	1	1162.67433	0.0
GENDER	101.04800	1	2.78758	.095
MATERIALS	217.23914	1	5.99291	.015
PHONICS	7.16961	1	.19779	.657
GENDER BY MATERIALS	3.67418	1	.10136	.750
GENDER BY PHONICS	100.65402	1	2.77671	.096
MATERIALS BY PHONICS	6.05688	1	.16709	.683

Table 55
ANALYSIS OF VARIANCE
TESTS OF SIGNIFICANCE FOR COMPREHENSION GAINS USING UNIQUE SUMS OF SQUARES

Source of Variation	Sum of Squares	DF	F	Sig. of F
WITHIN CELLS	27356.57922	805		
Regression	18230.68914	1	536.45979	0.0
CONSTANT	60455.85097	1	1778.98558	0.0
GENDER	151.03248	1	4.44431	.035
MATERIALS	63.81950	1	1.87796	.171
PHONICS	17.16827	1	.50520	.477
GENDER BY MATERIALS	40.37741	1	1.18815	.276
GENDER BY PHONICS	19.59707	1	.57667	.448
MATERIALS BY PHONICS	.14376	1	.00423	.948

Table 56
ANALYSIS OF VARIANCE
TESTS OF SIGNIFICANCE FOR ACHIEVEMENT GAINS USING UNIQUE SUMS OF SQUARES

Source of Variation	Sum of Squares	DF	F	Sig. of F
WITHIN CELLS	89813.94425	805		
Regression	38923.81892	1	348.87316	0.0
CONSTANT	171997.75434	1	1541.61131	0.0
GENDER	338.33897	1	3.03252	.082
MATERIALS	484.34479	1	4.34117	.038
PHONICS	85.24313	1	.76403	.382
GENDER BY MATERIALS	66.09410	1	.59240	.442
GENDER BY PHONICS	235.73275	1	2.11287	.146
MATERIALS BY PHONICS	3.08555	1	.02766	.868

Table 57
ANALYSIS OF VARIANCE
TESTS OF SIGNIFICANCE FOR SELF IMAGE GAINS USING UNIQUE SUMS OF SQUARES

Source of Variation	Sum of Squares	DF	F	Sig. of F
WITHIN CELLS	34159.29424	805		
Regression	25246.75179	1	594.96648	0.0
CONSTANT	26119.96375	1	615.54465	0.0
GENDER	50.16807	1	1.18226	.277
MATERIALS	10.86184	1	.25597	.613
PHONICS	77.62687	1	1.82936	.177
GENDER BY MATERIALS	35.38950	1	.83399	.361
GENDER BY PHONICS	45.94627	1	1.08277	.298
MATERIALS BY PHONICS	18.68526	1	.44034	.507

Table 58
ANALYSIS OF VARIANCE
TESTS OF SIGNIFICANCE FOR PHONICS #1 GAINS USING UNIQUE SUMS OF SQUARES

Source of Variation	Sum of Squares	DF	F	Sig. of F
WITHIN CELLS	2977.21605	805		
Regression	4038.17513	1	1091.86936	0.0
CONSTANT	5600.40230	1	1514.27500	0.0
GENDER	3.79734	1	1.02675	.311
MATERIALS	3.92443	1	1.06111	.303
PHONICS	8.33154	1	2.25274	.134
GENDER BY MATERIALS	4.64137	1	1.25496	.263
GENDER BY PHONICS	.83315	1	.22527	.635
MATERIALS BY PHONICS	2.28087	1	.61672	.433

Table 59
ANALYSIS OF VARIANCE
TESTS OF SIGNIFICANCE FOR PHONICS #2 GAINS USING UNIQUE SUMS OF SQUARES

Source of Variation	Sum of Squares	DF	F	Sig. of F
WITHIN CELLS	12451.59012	805		
Regression	7748.39047	1	500.93633	0.0
CONSTANT	19151.78790	1	1238.17023	0.0
GENDER	.37156	1	.02402	.877
MATERIALS	59.10977	1	3.82147	.051
PHONICS	62.53073	1	4.04263	.045
GENDER BY MATERIALS	1.33443	1	.08627	.769
GENDER BY PHONICS	14.08306	1	.91048	.340
MATERIALS BY PHONICS	18.51275	1	1.19686	.274

Table 60
ANALYSIS OF VARIANCE
TESTS OF SIGNIFICANCE FOR PHONICS #3 GAINS USING UNIQUE SUMS OF SQUARES

Source of Variation	Sum of Squares	DF	F	Sig. of F
WITHIN CELLS	9419.63602	805		
Regression	6053.98874	1	517.37253	0.0
CONSTANT	14077.54097	1	1203.06352	0.0
GENDER	11.06501	1	.94561	.331
MATERIALS	1.07712	1	.09205	.762
PHONICS	71.06165	1	6.07291	.014
GENDER BY MATERIALS	.21320	1	.01822	.893
GENDER BY PHONICS	8.12928	1	.69473	.405
MATERIALS BY PHONICS	1.78554	1	.15259	.696

Table 61
ANALYSIS OF VARIANCE
TESTS OF SIGNIFICANCE FOR TOTAL PHONICS GAINS USING UNIQUE SUMS OF SQUARES

Source of Variation	Sum of Squares	DF	F	Sig. of F
WITHIN CELLS	46680.82109	805		
Regression	31104.90827	1	536.39697	0.0
CONSTANT	72468.72137	1	1249.70640	0.0
GENDER	48.95411	1	.84420	.358
MATERIALS	86.20517	1	1.48659	.223
PHONICS	438.45827	1	7.56111	.006
GENDER BY MATERIALS	21.15949	1	.36489	.546
GENDER BY PHONICS	65.75028	1	1.13385	.287
MATERIALS BY PHONICS	12.90965	1	.22262	.637

Table 62
ANALYSIS OF VARIANCE
TESTS OF SIGNIFICANCE FOR INTEREST GAINS USING UNIQUE SUMS OF SQUARES

Source of Variation	Sum of Squares	DF	F	Sig. of F
WITHIN CELLS	215185.03409	805		
Regression	100479.21964	1	375.88939	0.0
CONSTANT	98907.78319	1	370.01070	0.0
GENDER	1645.63409	1	6.15626	.013
MATERIALS	3130.07673	1	11.70951	.001
PHONICS	1161.75434	1	4.34608	.037
GENDER BY MATERIALS	839.26320	1	3.13966	.077
GENDER BY PHONICS	.73449	1	.00275	.958
MATERIALS BY PHONICS	461.98069	1	1.72825	.189

Teacher Reactions

At the end of the school year, questionnaires were distributed to the project teachers. A copy of that questionnaire is included in Appendix G.

In response to the statement, "Compared to previous years of teaching, the students' reading achievement in my classroom this year was:", the experimental teachers involved in the study said "A lot better" (6.0)*. The teachers using literature books supplemented with the special decoding treatment were the most optimistic (6.2), the teachers utilizing heterogenous grouping strategies supplemented with the special decoding treatment were next (6.0), the teachers utilizing heterogenous grouping strategies without the special decoding treatment were third (5.8), and the teachers using literature books without the special decoding treatment were fourth (5.7).

In response to the statement, "Compared to previous years of teaching, the students' interests toward reading this year were:", the teachers responded with "A lot better" (6.0). The teachers using the literature books supplemented with phonics were again the most optimistic (6.6), the teachers using the literature books without the special phonics were second (5.8), the teachers utilizing heterogeneous grouping supplemented with the phonics were third (5.75), and the teachers using heterogeneous grouping without the phonics were fourth (5.4).

In response to the statement, "Compared to previous years, the students' feelings about themselves (self concepts) this year were:", the teachers responded half way between "A little better" and "A lot better" (5.5). The teachers using the literature books supplemented with phonics were the most optimistic (5.8), the teachers using heterogeneous grouping without the special decoding program were second (5.6), the teachers using the heterogeneous grouping with the special decoding program were third (5.3), and the teachers using the literature materials without the special decoding program were fourth (5.2).

*The numbers throughout this section refer to the numbers typed above the response options in the teacher questionnaire. A 5.5 means that the average response fell half way between 5 and 6.

In response to the statement, "Compared to previous years of teaching, the amount of work associated with the teaching of reading this year was:", the teachers responded with "A little less"(5.2). The teachers utilizing heterogeneous grouping without the special decoding program said "A lot less" (6.2), the teachers using heterogeneous grouping with the special decoding program responded half way between "A lot less" and "A little less." (5.5), the teachers using literature books without the special decoding program responded with "A little less" (5.2), and the teachers using literature books with the special decoding program responded with "About the same" (3.8).

In response to the statement, "Compared to previous years of teaching, the enjoyment associated with the teaching or reading this year was:", the teachers responded with "A lot greater" (6.0). The teachers using the literature books supplemented with the special decoding program enjoyed their experience most (6.4), the teachers using the literature books without the special decoding program were next (6.0), the teachers using heterogeneous grouping strategies supplemented with the special decoding program were third (5.8), and the teachers using heterogeneous grouping strategies without the special decoding program were fourth (5.6).

All of the experimental teachers felt the experience was worthwhile for them, worthwhile for their students, and expressed a desire to be involved in the experiment again.

Summary of Findings

Modified Neurological Impress Method

(1) The technique called a "Modified Neurological Impress Method" proved to be a sucessful strategy for getting poor readers involved in reading materials that were much too difficult for them to read independently.

(2) Poor readers using the Modified Neurological Impress Method made significantly higher reading achievement gains than poor readers not using the method (significant at the .05 level).

Readability

(3) Readability data derived from 14 readability tests on 104 books used to teach second grade children how to read revealed that 99.9% of the books were above the second grade level; 91% were above the third grade level; and 62% were above the fourth grade level.

(4) Although readability data indicated that the books used with second grade children to teach them to read were much too difficult for them to read, the children read them and enjoyed them.

(5) Children using the literature books that were designated as being too difficult for them by readability formulas made significantly greater achievement gains than children using basals (significant at the .015 level for vocabulary, .038 level for total achievement, .05 for phonics #2) and demonstrated greater gains in interest in reading (significant at the .001 level).

(6) The readability data generated from 14 readability tests on 104 children's paperback literature books provided different readability scores from formula to formula. The differences were 2 or more grade levels on 100% of the books evaluated; 3 or more grade levels on 92% of the books; four or more grade levels on 59% of the books; five or more grade levels on 16% of the books, and six or more grade levels on 6% of the books.

Phonics

(7) Competencies in phonics were successfully assessed using group administered strategies just as vocabulary and comprehension competencies were assessed.

(8) There was a significantly high relationship between the phonics scores obtained from all of the students in the study on the group administered phonics test and the total reading achievement test scores on the Gates-MacGinitie Reading Test, Level B, Form 1 ($r = .77$).

(9) The acquisition of decoding skills as reflected in increases in phonics scores was a cause of corresponding increases in vocabulary, comprehension, and total reading achievement scores on the Gates-MacGinitie Reading Test, Level B, Form 1 according to cross lagged correlation analyses of pre and posttest phonics and achievement data (significant at the .001 level).

Comparisons of Five Experimental Programs with Controls

Research Hypothesis #1 stated that there would be no significant achievement, interest, and self image gains among students in each of the five experimental research groups and students in their control counterparts. This hypothesis was rejected.

(10) There were no statistically significant achievement, self image, or interest gains in favor of any of the control groups. However,

(11) Three of the experimental groups (the literature group using the special decoding materials, the literature group not using the special decoding materials, and the basal group using the special decoding materials) made significant gains over their control counterparts.

Comparisons of Five Experimental Programs with Each Other

Research Hypothesis #2 stated that there would be no significant achievement, interest, and self image gains among students in any one of the five experimental research groups when compared to each of the other four groups. This hypothesis was rejected.

(12) Of the twenty statistically significant differences identified, fourteen of them were in favor of the literature program supplemented with the special decoding treatment; four were in favor of the heterogeneous grouping program supplemented with the special decoding materials; and two were in favor of the homogeneous grouping program supplemented with the special decoding treatment.

Effects of Materials, Structured Decoding Activities, and Grouping upon Achievement

Research Hypothesis #3 stated that there would be no significant effects upon achievement, interest, and self image as a result of heterogeneous grouping, the use of special decoding materials, or the use of literature books to teach children how to read. This hypothesis was rejected.

GROUPING STUDY

(13) Children in heterogeneous groups made greater vocabulary gains than children in homogeneous groups: 11.8 compared to 10.7 (significant at the .08 level).

(14) Boys in both the heterogeneous and homogeneous groups made greater comprehension gains than girls in both groups: 11.4 compared to 10.7 (significant at the .04 level).

(15) Children in homogeneous groups receiving the special decoding treatment made greater comprehension gains than children in heterogeneous groups receiving the special decoding treatment: 11.5 compared to 10.7 (significant at the .03 level).

(16) Children in heterogeneous groups not receiving the special decoding treatment made greater gains on phonics test #2 than children in homogeneous groups not receiving the special decoding treatment: 6.3 compared to 5.6 (significant at the .001 level).

(17) Children in homogeneous groups receiving the special decoding treatment made greater gains on phonics test #3 than children in heterogeneous groups without the special decoding treatment: 5.9 compared to 4.8 (significant at the .002 level).

(18) Children in heterogeneous groups receiving the special decoding treatment and children in homogeneous groups receiving the special decoding treatment made greater total phonics gains than children in homogeneous groups without the special decoding treatment: He+ 14.7; Ho+ 14.5; Ho 13.0 (significant at the .001 level).

(19) Girls in both the heterogeneous and homogeneous groups made greater gains in reading interest scores than boys in both groups: .3 compared to -.3 (significant at the .001 level).

MATERIALS STUDY

(20) Children using literature books made greater vocabulary gains than children using basals: 11.6 compared to 10.7 (significant at the .015 level).

(21) Boys in both the literature program and basal program made greater comprehension gains than girls in both programs: 11.5 compared to 10.9 (significant the the .035 level).

(22) Children using literature books made greater total reading achievement gains than children using basals: 23.1 compared to 21.8 (significant at the .038 level).

(23) Children using literature books made greater gains on Phonics test #2 than children using basals: 6.8 compared to 5.7 (significant at the .05 level).

(24) Children receiving the special decoding treatment made greater gains on Phonics test #2 than children not receiving the treatment: 6.8 compared to 5.75 (significant at the .045 level).

(25) Children receiving the special decoding treatment made greater gains on Phonics test #3 than children not receiving the treatment: 6.0 compared to 4.9 (significant at the .014 level).

(26) Children receiving the special decoding treatment made greater total phonics gains than children not receiving the treatment: 15.4 compared to 12.9 (significant at the .006 level).

(27) Children using literature books made greater gains in reading interest scores than children using basals: 2.81 compared to -.32 (significant at the .001 level).

(28) Children receiving the special decoding treatment made greater gains in reading interest scores than children not receiving the treatment: 3.04 compared to -.37 (significant at the .037 level).

(29) Boys in both the literature program and the basal program made greater gains in reading interest scores than girls in both programs: .95 compared to .28 (significant at the .013 level).

(30) Boys using literature books made greater gains in reading interest scores than boys using basals: 5.58 compared to -1.07 (significant at the .077).

Teacher Reactions

(31) When the experimental teachers were asked to compare their experiences during the study with that of other years they said their students achieved "a lot better"-- their students' interests towards reading was "a lot better"--the students' feelings about themselves was somewhere between "a little better" and "a lot better"--and the work involved in the teaching of reading was "a little less". Those teachers involved in heterogeneous grouping program said that the work involved in the teaching of reading was "a lot less".

(32) All of the experimental teachers stated that the experience was worthwhile for them, and worthwhile for their students. All of them wanted to be involved in the experiment another year.

Conclusions

(1) The "instructional reading level" notion derived from informal reading inventories and used for grouping students for reading instruction is a popular and convenient concept. However, teachers can use other criteria for grouping and obtain equally, if not greater, achievement results.

(2) The findings of this study suggest that educators generally do the wrong things with the poor readers in schools. They over-emphasize the teaching of skills that these students aren't able to apply in recreational and functional reading. They teach them that reading is work. They put them in situations where they read little. They give them materials to read that are different than the materials "normal" children read, and they isolate them so these students feel they are incompetent and/or inadequate.

(3) Observations of children using the Modified Neurological Impress Method and the findings of this study related to it suggest that low achieving students might achieve more when placed in materials classified as "frustrational" by informal reading inventories than when placed in materials that are classified as "instructional".

(4) There is evidence to suggest that involving students in a lot of reading (even if this involvement is through "assisted reading" strategies) contributes significantly to growth in reading.

(5) The concept of "readability" has limited utility in regular classroom reading instruction. Even when averaging scores the variability of readability estimates are more confusing than helpful.

(6) Primary grade students taught to read using an analytical/synthetic decoding approach will achieve better than students taught to read using the traditional analytical phonics approach. They will also enjoy reading more.

(7) Increases in a student's ability to use phonics to identify words not recognizable by sight will cause student increases in vocabulary, comprehension, and reading achievement.

(8) Both decoding and reading for meaning should be promoted by instruction for students, but decoding should be given the greater initial emphasis in the primary grades.

(9) Students can learn to read in heterogeneous groups as well as they can in the typical "high", "middle", and "low" homogeneous reading groups. The work involved in teaching children to read in heterogeneous groups is considerably less than that involved in utilizing homogeneous groups.

(10) Students taught to read using children's literature books will achieve better than students taught to read using basal materials. They will like reading more and take a greater interest in books.

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Appendix A

HETEROGENEOUS GROUPING

Special Introductory Comments:

1. All students in the classroom are placed in the same basal book.

2. The teacher moves through the basal materials at a faster pace than is ordinarily followed.

Reading Instruction Format:

1. Teach decoding skills, from the teacher's manual of the basal program. Assign seatwork from the basal program to reinforce the skills taught.

2. Introduce each story in the basal program by first (a) **introducing the new vocabulary** and by (b) **setting the purposes for reading** the story. This is done with the **total class.**

3. Use any combination of "six retention factors" when teaching new vocabulary words (personal need, meaningful association, visual repetitions, context variety, word characteristics, and kinesthetic strategies).

3. Prepare a set of discussion questions related to the basal story in advance. These questions can be taken from the basal reader. They should be mimeographed or written on the chalkboard (if the chalkboard is used, cover up the questions with paper until students have finished reading the story). The questions should be given to the students **after** they finish reading the story so they will not scan through the story to find the answers during the initial reading of the story.

4. After the new vocabulary has been introduced and the purposes have been set for reading the story, the students are given the opportunity to read the story. They do not read the story in parts as most basal programs suggest, but they read the

entire story without any teacher interruptions.

The reading of the story takes place in either **triads** (student teams of three) or **dyads** (teams of two). The teacher identifies those students who are capable of reading the story silently and those who cannot read the story silently. Those students who can read the story silently are assigned to read the story in teams of three. Team members sit near each other while they read the story independently. If any member of the team comes across a word unfamiliar to him in printed form, he may ask a team member to tell him what the word is. The teams are changed regularly, perhaps weekly.

Those students who cannot read the story independently are each assigned to read the story orally with another student. (See the document titled, "The Modified Neurological Impress Method") The student identified to assist a dependent reader should not be an above average reader, but an average or below average reader --just able to get through the material himself.

<u>When students in the dyads finish reading the story they join a triad for the discussion of the story and for the completion of any seatwork assignments.</u>

5. Students who finish reading the story before other team members should begin to work on their basal seatwork assignments if there are any, read a book of their own choosing, help team members who are having difficulty reading the story, or work on any other language art assignments given by the teacher.

When all students in a team have completed reading the story they are given the discussion questions that the teacher prepared earlier. A team leader is assigned. This leader's responsibility is to make sure that all students in a team participate in the discussion of the questions provided. The leader may direct questions to specific students if they do not voluntarily get involved in the discussion. Students may also share their personal feelings and thoughts related to the story.

6. After the team discussion, all members of the team sign their names on the chalkboard in a designated area to show that they are ready to meet with the teacher in a larger group designed to build vocabulary and thinking skills. In the meantime, team members complete their seatwork assignments. The seatwork assignments from the basal program should be done individually; however, team members may ask clarification questions from one another, if necessary.

When all students have completed their basal assignments, they may check the accuracy of their own work with other team members. They should discuss those items where team members differ on answers. Much learning from one another may occur here. Following the discussion they may check the accuracy of their final determinations by referring to a Teacher's Edition of the materials from which the seatwork assignment was given.

7. When there are ten or more signatures on the chalkboard, the teacher calls a group of students to the table where she/he reviews one or two of the discussion questions previously assigned. The teacher then engages the group in a class discussion using the OFICA questioning strategy to develop language and thinking skills. (This strategy employs open ended questions where there are no wrong answers. The teacher begins with an "open" question to get the discussion going and then follows up with a "focus" question which focuses on some aspect of the story that he/she wants to emphasize. Following the "focus" question, the teacher asks students to give their interpretations of the material on which the teacher has focused. We call this an "interpretation" question. Following the interpretation question, the teacher asks students to draw individual conclusions from their interpretations--using a "capstone" question. The teacher ends this questioning strategy using an "application" question to help students apply the information they have learned in their own lives.)

THE MODIFIED NEUROLOGICAL IMPRESS METHOD

The Modified Neurological Impresss Method of reading instruction is a process whereby a poor reader or a non-reader and another more capable student read aloud together at a rate comfortable to both students.

The steps to be followed in using this method are:

1. The teacher identifies the poor readers in the classroom;

2. The teacher identifies students in the classroom who are average or below average readers but still capable of getting through the reading material being used;

3. Each reader needing assistance in reading is matched with a student helper. They form a dyad (a team of two) for a period of time determined by the teacher -usually no longer than four or five days. New dyads are formed when old ones are eliminated. This is done so that students offering assistance are not involved in a steady diet of oral reading;

4. When using the modified neurological impress method in heterogeneous grouping classrooms, the materials to be read are preselected beforehand by the teacher. When using the method with students in literature classrooms, both students select a book to read that is of mutual interest to both parties;

5. Students in a dyad sit side-by-side in separate chairs sharing one book between them. The faster student sets the reading pace. He touches each word as he reads it, and the slower student repeats each word after him. If the slower reader recognizes a word before the faster student says it, he should say it as soon as he recognizes it. An attempt should be made to increase the speed of oral reading gradually, but not to a speed which is uncomfortable or frustrating to the non-reader;

6. If a word appears that both students do not know, they skip it and move on to the next word. If too many words are missed, the matchup is a poor one since the reader giving assistance should be able to read most of the words in the material involved;

7. As the poorer reader gains skills in word recognition the reader assisting him does less oral reading. In this phase, the poorer reader begins to read the story orally while the helper reads along silently, saying, aloud those words that the poorer reader can not read. The better reader supplies the words only when the poorer reader hesitates so the flow of the story is maintained and interest increased;

8. The goal of the neurological impress method is to cover as many pages of reading material as possible in the time available without causing physical discomfort on the part of the students (i.e., dryness of mouth and fatigue of voice).

Appendix C

HETEROGENEOUS GROUPING
ANALYTICAL/SYNTHETIC DECODING

Special Introductory Comments:

1. All students in the classroom are placed in the same basal book.

2. The teacher moves through the basal materials at a faster pace than is ordinarily followed.

3. The decoding activities provided in the basal program will be supplanted, to a large extent, by special materials designed to help students identify words in print that are not immediately recognized.

Reading Instruction Format:

1. Teach decoding skills, from the teacher's manual of the basal program **or** from the analytical/synthetic decoding program, to the **entire class** . Assign seatwork (from the basal program) **or** assign companion study activities (from the special decoding program) to reinforce the skills taught.

2. Introduce each story in the basal program by first (a) **introducing the new vocabulary** and by (b) **setting the purposes for reading** the story. This is done with the **total class.**

Use any combination of "six retention factors" when teaching new vocabulary words (personal need, meaningful association, visual repetitions, context variety, word characteristics, and kinesthetic strategies).

3. Prepare a set of discussion questions related to the basal story in advance. These questions can be taken from the basal reader. They should be mimeographed or written on the chalkboard (if the chalkboard is used, cover up the questions with paper until students have finished reading the story). The questions should be given to the students **after** they finish

reading the story so they will not scan through the story to find the answers during the initial reading of the story.

4. After the new vocabulary has been introduced and the purposes have been set for reading the story, the students are given the opportunity to read the story. They do not read the story in parts as most basal programs suggest, but they read the entire story without any teacher interruptions.

The reading of the story takes place in either **triads** (student teams of three) or **dyads** (teams of two). The teacher identifies those students who are capable of reading the story silently and those who cannot read the story silently. Those students who can read the story silently are assigned to read the story in teams of three. Team members sit near each other while they read the story independently. If any member of the team comes across a word unfamiliar to him in printed form, he may ask a team member to tell him what the word is. The teams are changed regularly, perhaps weekly.

Those students who cannot read the story independently are each assigned to read the story orally with another student. (See the document titled, "The Modified Neurological Impress Method") The student identified to assist a dependent reader should not be an above average reader, but an average or below average reader --just able to get through the material himself.

<u>When students in the dyads finish reading the story they join a triad for the discussion of the story and for the completion of any seatwork assignments.</u>

5. Students who finish reading the story before other team members should begin to work on their basal seatwork assignments if there are any, read a book of their own choosing, help team members who are having difficulty reading the story, or work on any other language art assignments given by the teacher.

When all students in a team have completed reading the story

they are given the discussion questions that the teacher prepared earlier. A team leader is assigned. This leader's responsibility is to make sure that all students in a team participate in the discussion of the questions provided. The leader may direct questions to specific students if they do not voluntarily get involved in the discussion. Students may also share their personal feelings and thoughts related to the story.

6. After the team discussion, all members of the team sign their names on the chalkboard in a designated area to show that they are ready to meet with the teacher in a larger group designed to build vocabulary and thinking skills. In the meantime, team members complete their seatwork assignments or companion study activities. The seatwork assignments from the basal program should be done individually; however, team members may ask clarification questions from one another, if necessary.

When all students have completed their basal assignments, they may check the accuracy of their own work with other team members. They should discuss those items where team members differ on answers. Much learning from one another may occur here. Following the discussion they may check the accuracy of their final determinations by referring to a Teacher's Edition of the materials from which the seatwork assignment was given.

When students are engaged in companion study activities (which will occur more frequently than work in the basals) students who have mastered the material in the activities teach students who have not mastered such materials.

7. When there are ten or more signatures on the chalkboard, the teacher calls a group of students to the table where she/he reviews one or two of the discussion questions previously assigned. The teacher then engages the group in a class discussion using the OFICA questioning strategy to develop language and thinking skills. (This strategy employs open ended questions where there are no wrong answers. The teacher begins with an "open" question to get the discussion going and then follows up with a "focus" question which focuses on some aspect of the story that he/she wants to emphasize. Following the "focus" question, the teacher asks students to give their

interpretations of the material on which the teacher has focused. We call this an "interpretation" question. Following the interpretation question, the teacher asks students to draw individual conclusions from their interpretations--using a "capstone" question. The teacher ends this questioning strategy using an "application" question to help students apply the information they have learned in their own lives.)

Appendix D

READING INSTRUCTION VIA CHILDREN'S LITERATURE BOOKS

Special Introductory Comments:

1. Students will use children's literature books to learn to read instead of basal materials.

2. There should be a short period of decoding skills instruction on a daily basis. This instruction should be provided in homogeneous groups. The materials selected for the decoding instruction should teach phonics by analysis.

3. Comprehension activities to develop vocabulary and thinking skills will be developed through; (a) materials teachers read orally to children, (b) "sharing of books" sessions, and (c) through content area reading.

4. Decoding skills instruction is to be kept separate from the application of the skills (the reading for enjoyment and interest) as much as possible.

5. The bulk of the reading period should be spent in (a) activities to stimulate children's interest in reading books, (b) reading to children, and (c) children reading.

6. The teacher should read one book on a continuous basis to children each day until the book is completed. She should also read a short book or two that can be completed in one sitting each day. From time to time the teacher should read interesting parts of books to stimulate reading interests.

7. After any book has been read to children, it should be made available to them to read by themselves.

8. Parents, older students, and the school principal should be encouraged to visit the classroom to read interesting books to large or small groups of children. The children should be given the choice of being involved in such activities or to read books themselves.

9. **Students in the classroom should be given the opportunity to read books to students in the lower grades on a regular basis.** They should also be given the opportunity to read to their peers and parents as well.

10. In addition to the paperback books the research project provides for the classroom, the teacher should seek to obtain additional books from the school and public libraries and from homes, if possible, to create a rich "reading" environment in the classroom.

11. Children should be encouraged to read as much as possible each day. Parents should be encouraged to create an environment for reading in the home so that students develop the habit of reading there too.

12. Children should not be required to write book reports on the books they read. Opportunities should be provided for them, however, to share some of the experiences they have with books with other members of the class.

Reading Instruction Format:

DECODING SKILLS

1. Teach decoding skills, by analysis, in homogeneous groups. Assign any seatwork activities necessary to reinforce the skills taught. Combine this decoding instruction with instruction in spelling, handwriting, grammar, writing, and other language arts activities. Keep this part of the reading program separate from the recreational reading of books.

RECREATIONAL READING

2. Give students the opportunity to select books to read that interest them. Those children that can read the books they select to read should be encouraged to read them silently. The teacher will assign these students to read in small groups of three, called triads. The groups will be changed on a weekly basis. Team members will sit near each other while they read their own stories independently. If any member of the team comes across a word unfamiliar to him in printed form, he may ask a team member to tell him what the word is.

Those students who cannot read very well will be assigned to read stories of their own choosing **orally** with other students. (See the document titled, "The Modified Neurological Impress Method") The student identified to assist a dependent reader should not be an above average reader, but an average or below average reader -- just able to read the book selected himself.

3. Students will keep a record of the books they have read, and each Friday time wil be provided for them to share a book with other students. Each student will be given a maximum or five minutes for his/her sharing opportunity.

4. Time will be provided, on a daily basis, for the teacher to read a story to children. These stories will serve as a springboard to develop student's language and thinking skills. The teacher will select specific words from the stories to teach to children. She will also ask students literal, interpretive, analytical, and critical reading questions to enhance thinking.

Occasionally the teacher will engage the students in a class discussion using the OFICA questioning strategy. (This strategy employs open ended questions where there are no wrong answers. The teacher begins with an "open" question to get the discussion going and then follows up with a "focus" question which focuses on some aspect of the story that she wants to emphasize. Following the "focus" question, the teacher asks students to give their interpretations of the material on which the teacher has focused. We call this an "interpretation" question. Following the interpretation question, the teacher asks students to draw individual conclusions from their interpretations--using a "capstone" question. The teacher ends this questioning strategy using an "application" question to help students apply the information they have learned in their own lives.)

5. Parents, students, and others who come into the classroom to read to children will be worked into the program at the discretion of the teacher. Opportunities for students to read to peers, and younger students will also be provided on a regular basis at the discretion of the teacher.

Appendix E

READING INSTRUCTION VIA CHILDREN'S LITERATURE BOOKS ANALYTICAL/SYNTHETIC DECODING

Special Introductory Comments:

1. Students will use children's literature books to learn to read instead of basal materials.

2. Special decoding materials designed to help students identify words in print that are not recognized by sight will be used to supplement the literature component.

3. Comprehension activities to develop vocabulary and thinking skills will be developed through; (a) materials teachers read orally to children, (b) "sharing of books" sessions, and (c) through content area reading.

4. Decoding skills instruction is to be kept separate from the application of the skills (the reading for enjoyment and interest) as much as possible.

5. The bulk of the reading period should be spent in (a) activities to stimulate children's interest in reading books, (b) reading to children, and (c) children reading.

6. The teacher should read one book on a continuous basis to children each day until the book is completed. She should also read a short book or two that can be completed in one sitting each day. From time to time the teacher should read interesting parts of books to stimulate reading interests.

7. After any book has been read to children, it should be made available to them to read by themselves.

8. Parents, older students, and the school principal should be encouraged to visit the classroom to read interesting books to large or small groups of children. The children should be given the choice of being involved in such activities or to read books themselves.

9. **Students in the classroom should be given the opportunity to read books to students in the lower grades on a regular basis.** They should also be given the opportunity to read to their peers and parents as well.

10. In addition to the paperback books the research project provides for the classroom, the teacher should seek to obtain additional books from the school and public libraries and from homes, if possible, to create a rich "reading" environment in the classroom.

11. Children should be encouraged to read as much as possible each day. Parents should be encouraged to create an environment for reading in the home so that students develop the habit of reading there too.

12. Children should **not** be required to write book reports on the books they read. Opportunities should be provided for them, however, to share some of the experiences they have with books with other members of the class.

Reading Instruction Format:

1. Teach decoding skills from the analytical/synthetic decoding program to the entire class. Assign companion study activites from that program to reinforce the skills taught. **No more than** fifteen minutes should be spent by the teacher in teaching these skills at any one time, and no more than fifteen minutes should be spent in companion study activities at any one time.

2. Give students the opportunity to select books to read that interest them. Those children that can read the books they select to read should be encouraged to read them silently. The teacher will assign these students to read in small groups of three, called triads. The groups will be changed on a weekly basis. Team members will sit near each other while they read their own stories independently. If any member of the team comes across a word unfamiliar to him in printed form, he may ask a team member to tell him what the word is.

Those students who cannot read very well will be assigned to read stories of their own choosing **orally** with other students. (See the document titled, "The Modified Neurological Impress Method") The student identified to assist a dependent reader should not be an above average reader, but an average or below average reader -- just able to read the book selected himself.

3. Students will keep a record of the books they have read, and each Friday time wil be provided for them to share a book with

other students. Each student will be given a maximum or five minutes for his/her sharing opportunity.

4. Time will be provided, on a daily basis, for the teacher to read a story to children These stories will serve as a springboard to develop student's language and thinking skills. The teacher will select specific words from the stories to teach to children. She will also ask students literal, interpretive, analytical, and critical reading questions to enhance thinking.

Occasionally the teacher will engage the students in a class discussion using the OFICA questioning strategy. (This strategy employs open ended questions where there are no wrong answers. The teacher begins with an "open" question to get the discussion going and then follows up with a "focus" question which focuses on some aspect of the story that she wants to emphasize. Following the "focus" question, the teacher asks students to give their interpretations of the material on which the teacher has focused. We call this an "interpretation" question. Following the interpretation question, the teacher asks students to draw individual conclusions from their interpretations--using a "capstone" question. The teacher ends this questioning strategy using an "application" question to help students apply the information they have learned in their own lives.)

5. Parents, students, and others who come into the classroom to read to children will be worked into the program at the discretion of the teacher. Opportunities for students to read to peers, and younger students will also be provided on a regular basis at the discretion of the teacher.

Appendix F

LITERATURE BOOKS

	Book	Score
1.	FROG, WHERE ARE YOU?	No words
2.	BLACKBOARD BEAR	2.4
3.	NO DUCKS IN OUR BATHTUB	2.5
4.	BINKY BROTHERS, DETECTIVES	2.6
5.	FROG AND TOAD ARE FRIENDS	2.6
6.	PIPPA MOUSE	2.6
7.	THREE FRIENDS	2.7
8.	MONTY	2.8
9.	EACH PEACH PEAR PLUM	2.9
10.	NOBODY ASKED ME IF I WANTED A BABY SISTER	3.0
11.	GUS AND BUSTER WORK THINGS OUT	3.0
12.	MAGIC SECRETS	3.1
13.	NATE THE GREAT AND THE PHONY CLUE	3.1
14.	SIX FOOLISH FISHERMEN	3.2
15.	HOW TO DRAW CARTOONS	3.2
16.	STANELY	3.2
17.	CAN I KEEP HIM?	3.2
18.	THE SURPRISE PARTY	3.2
19.	STONE SOUP	3.3
20.	OWL AT HOME	3.3
21.	THE HAUNTED HOUSE	3.3
22.	BEDTIME FOR FRANCES	3.3
23.	T.J. FOLGER, THIEF	3.3
24.	HOW PUPPIES GROW	3.3
25.	MOLLY AND THE SLOW TEETH	3.3
26.	STANLEY AND RHODA	3.3
27.	HARRY AND THE LADY NEXT DOOR	3.4
28.	LISA AND THE GROMPET	3.4
29.	THE CASE OF THE CAT'S MEOW	3.4
30.	HARRY AND THE TERRIBLE WHATZIT	3.5
31.	PLAY BALL, AMELIA BEDELIA	3.6
32.	THAT'S WHAT FRIENDS ARE FOR	3.6
33.	TACKLE 22	3.6

LITERATURE BOOKS
(cont.)

	Book	Score
34.	THE FROG PRINCE	3.7
35.	MOUSE TALES	3.7
36.	THE MYSTERY OF THE MISSING RED MITTENS	3.7
37.	FRECKLE JUICE	3.8
38.	THERE'S A NIGHTMARE IN MY CLOSET	3.8
39.	ARTHUR'S NEW POWER	3.8
40.	ROBOT COMES TO STAY	3.9
41.	THE ONE IN THE MIDDLE IS THE GREEN KANGAROO	4.0
42.	THE CIRCUS	4.0
43.	IF I HAD . . .	4.0
44.	IT'S YOUR FIRST KISS, CHARLIE BROWN	4.0
45.	DORRIE AND THE BLUE WITCH	4.1
46.	THE EMPEROR'S NEW CLOTHES	4.2
47.	I'M TERRIFIC	4.2
48.	NOISY NORA	4.2
49.	THE SOMETHING	4.2
50.	MEET M AND M	4.2
51.	YOUR SKIN AND MINE	4.2
52.	ROBOT AND THE FLEA MARKET	4.3
53.	HARRY THE DIRTY DOG	4.4
54.	BREAD AND JAM FOR FRANCES	4.4
55.	SOMETHING QUEER IS GOING ON	4.4
56.	FREDERICK'S ALLIGATOR	4.4
57.	I KNOW AN OLD LADY	4.4
58.	NO ROSES FOR HARRY	4.4
59.	GREGORY, THE TERRIBLE EATER	4.5
60.	SNOW WHITE	4.5
61.	CAM JENSEN AND THE MYSTERY OF THE UFO	4.6
62.	MILLICENT THE MAGNIFICENT	4.6
63.	HAROLD AND THE PURPLE CRAYON	4.6
64.	FAT ALBERT--TAKE TWO, THEY'RE SMALL	4.6
65.	THE STRANGE STORY OF THE FROG WHO BECAME A PRINCE	4.6

LITERATURE BOOKS
(cont.)

	Book	Score
66.	WHO'S IN RABBIT'S HOUSE?	4.7
67.	FAT ALBERT--SPARE THE RODS	4.7
68.	FLORENCE NIGHTINGALE	4.7
69.	ROAR AND MORE	4.8
70.	THE SHRINKING OF TREEHORN	4.8
71.	WINNIE-THE-POOH	4.8
72.	AH-CHOO	4.9
73.	CAM JENSEN AND THE MYSTERY OF THE DINOSAUR BONES	4.9
74.	BUSYBODY NORA	4.9
75.	SOMETHING QUEER ON VACATION	4.9
76.	DORRIE AND THE HAUNTED HOUSE	4.9
77.	THE SHERLUCK BONES MYSTERY - DETECTIVE BOOK 2	5.0
78.	MIGHTY BABE RUTH	5.0
79.	SHARKS	5.1
80.	SNAKES	5.1
81.	ABRAHAM LINCOLN	5.2
82.	THE MUFFLETUMPS	5.2
83.	BILLY JO JIVE AND THE WALKIE-TALKIE CAPER	5.2
84.	IT COULD ALWAYS BE WORSE	5.3
85.	CRICTOR	5.3
86.	FIREFLIES IN THE NIGHT	5.3
87.	WHERE'S MY HIPPOPOTAMUS?	5.3
88.	WHAT DO YOU DO WITH A KANGAROO?	5.4
89.	ROBOT VISITS SCHOOL	5.4
90.	ENCYCLOPEDIA BROWN FINDS THE CLUES	5.4
91.	THE MAGIC FOUNTAIN	5.4
92.	CHICKEN SOUP WITH RICE	5.5
93.	STRAIGHT HAIR, CURLY HAIR	5.6
94.	THE SMARTEST BEAR AND HIS BROTHER OLIVER	5.6
95.	MR. KEY'S SONG	5.6

LITERATURE BOOKS
(cont.)

	Book	Score
96.	THE SHERLUCK BONES MYSTERY--DETECTIVE BOOK 1	5.7
97.	WHY MOSQUITOS BUZZ IN PEOPLE'S EARS	5.8
98.	THE CLOUD BOOK	5.9
99.	A BEAR CALLED PADDINGTON	5.9
100.	NOODLES, NITWITS, AND NUMSKULLS	6.0
101.	WARTON AND THE KING OF THE SKIES	6.4
102.	IT'S HALLOWEEN	6.8
103.	MAYBE, A MOLE	7.6
104.	YOBGORGLE	7.7

Name _____ Date _____

Teacher Questionnaire

Please circle the number that best represents your feelings regarding the questions which follow.

1. Compared to previous years of teaching, the students' reading achievement in my classroom this year was:

1	2	3	4	5	6	7
Far worse than I have ever experienced	A lot worse	A little worse	About the same	A little better	A lot better	Far better than I have ever experienced

2. Compared to previous years of teaching, the students' interests toward reading this year were:

1	2	3	4	5	6	7
Far worse than I have ever experienced	A lot worse	A little worse	About the same	A little better	A lot better	Far better than I have ever experienced

3. Compared to previous years, the students' feelings about themselves (self concepts) this year were:

1	2	3	4	5	6	7
Far worse than I have ever experienced	A lot worse	A little worse	About the same	A little better	A lot better	Far better than I have ever experienced

4. Compared to previous years of teaching, the amount of work associated with the teaching of reading this year was:

1	2	3	4	5	6	7
Far greater than I have ever experienced	A lot greater	A little greater	About the same	A little less	A lot less	Far less than I have ever experienced

5. Compared to previous years of teaching, the enjoyment associated with the teaching of reading this year was:

1	2	3	4	5	6	7
Far less than I have ever experienced	A lot less	A little less	About the same	A little greater	A lot greater	Far greater than I have ever experienced

6. Was the experience worthwhile for you as a professional teacher?
(Explain why or why not. Please be specific)

7. Was the experience worthwhile for your students?
(Explain why or why not. Please be specific)

8. In what ways did your students improve?
(Please be specific)

9. Would you be willing to be involved in the experiment again?

10. Would you recommend this program be implemented in other classes?

If so, what grade level(s)?

11. What specific recommendations(s) would you suggest which would improve the program?