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A STUDY OF THE DEVELOPMENT OF CERTAIN LANGUAGE SKILLS OF THIRD-GRADE CHILDREN WHO EXPERIENCED DIFFERENT APPROACHES TO READING INSTRUCTION IN THE PRIMARY GRADES

by
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TABLE OF CONTENTS

CHAPTER PAGE

LIST OF TABLES

A STUDY OF THE DEVELOPMENT OF CERTAIN LANGUAGE SKILLS OF THIRD-GRADE CHILDREN WHO EXPERIENCED DIFFERENT APPROACHES TO READING INSTRUCTION IN THE PRIMARY GRADES

by
Peter A. Lamana

An Abstract

ABSTRACT

The purpose of this study was to investigate the development of certain language skills of four groups of third-grade children who experienced different approaches to reading instruction in the primary grades. Group I was taught to read with the Initial Teaching Alphabet. Group II was taught to read with basal readers supplemented with a list of phonograms. Group III was taught to read with basal readers alone. Group IV was taught to read with a basal reader supplemented with phonics.

Specifically answers to the following questions were sought:

1. Are there differences among the four groups in word recognition?

2. Are there differences among the four groups in word meaning?

3. Are there differences among the four groups in reading comprehension?

4. Are there differences among the four groups in the number of running words used in written composition?

5. Are there differences among the four groups in the number of different words used in written composition?

6. Are there differences among the four groups in the number of different polysyllabic words used in written composition?

7. Are there differences among the four groups in the number of different spelling errors made in written composition?

Although 891 boys and girls were considered in the initial screening which was completed during the spring of 1966, only 554 were used in the final study. These included 134 in Group I, 166 in Group II, 145 in Group III, and 109 in Group IV. The children were selected from 27 classrooms found in three school districts in Eastern Pennsylvania and were representative of middle socio-economic populations.

Ninety-one teachers were responsible for instructing the children in the primary grades: 32 in first grade, 29 in second grade, and 30 in third grade. Although differences were found among teacher groups at each grade level in mean chronological age, mean years of experience, degrees held, and certification, none of the differences seemed to be related to the outcomes.

The California Reading Test (Upper Primary, Form W) was used to measure word recognition, word meaning, and reading comprehension. A sample of each child's writing was used to

measure the number of running words, number of different words, number of different polysyllabic words, and the number of different spelling errors made in such writing. The Henmon-Nelson Test of Mental Ability (Revised Edition for Grades 3-6, Form A) was administered to establish an estimate of intelligence.

An analysis of covariance technique with control of IQ and sex was applied to the raw score data in order to obtain an over-all F test of significance and to adjust the original group means. The adjusted means were compared and tested for significance by Scheffe's method with the following results:

1. There was a significant difference in the skill of word recognition in favor of the children taught to read with the basal approach (Group III).

2. There was a significant difference in the skill of word meaning in favor of the children taught to read with the basal approach (Group III).

3. There was a significant difference in the skill of reading comprehension in favor of the children taught to read with the basal approach (Group III).

4. There was a significant difference in the number of running words used in written composition in favor of the children taught to read with the Initial Teaching Alphabet (Group I).

5. There was a significant difference in the number of different words used in written composition in favor of the children taught to read with the Initial Teaching Alphabet (Group I).

6. There was a significant difference in the number of different polysyllabic words used in written composition in favor of the children taught to read with the Initial Teaching Alphabet (Group I).

7. There were no significant differences among the groups in the number of different spelling errors made in written composition.

In interpreting these conclusions, it should be kept in mind that only the differences in the number of running words, different words, and polysyllabic words were both statistically significant and large enough to be of practical importance. The differences in reading skills, although statistically significant, appeared to be too small to be of practical importance. Thus, it would appear that it makes little practical difference what approach is used in teaching reading in the primary grades provided the approach incorporates a unified language arts program.

CHAPTER I

INTRODUCTION

In recent years much attention has been devoted to the teaching of reading as it relates to other facets of language development of children in the primary grades.[1] Because of this attention, reading instruction is no longer regarded as an end in itself, but as part of an integrated whole which encompasses writing, spelling, listening, and speaking.

The trend toward an integrated language arts program began in the early 1920's with the development of standardized testing.[2] At about the same time, new methods of teaching reading were being introduced. The emphasis was beginning to shift from reading for its own sake to reading for meaning.[3]

However, despite the advances in teaching methods, the practice of teaching each facet of the language arts

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1. Ruth G. Strickland. "Reading in Its Setting - The Language Arts," in James C. MacCampbell, Readings in the Language Arts in the Elementary School. Boston: D.C. Heath and Company, 1964. p. 451.

2. Nila Banton Smith. American Reading Instruction. Newark, Delaware: The International Reading Association, 1965. pp. 196-264.

3. Ibid.

separately in designated blocks of time has been maintained by many schools. Leading authorities have continuously criticized such practices.[4] Their contention is that the language arts are closely interrelated, and that the teaching of reading, which touches upon all facets of the language arts, should take this into account.

In the wake of criticisms leveled by the authorities, attempts were made to measure the relationships of one facet of language development to the others.[5,6,7,8] However, less research has been centered on the skills in language development than on methods of teaching reading. Moreover,

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4. Gertrude Hildreth. "Early Writing as an Aid to Reading," Elementary English, 40:15-20, January, 1963.

5. Clyde Martin. "Developmental Interrelationships Among Language Variables in Children of the First Grade," Elementary English, 32:167-71, March, 1955.

6. Clotilda Winter. "Interrelationships Among Language Variables in Children of the First and Second Grades," Elementary English, 34:108-13, February, 1957.

7. Paul E. Sparks and Leo C. Fay. "An Evaluation of Two Methods of Teaching Reading," Elementary School Journal, 57:386-90, April, 1957.

8. Elmer F. Morgan Jr. and Morton Light. "A Statistical Evaluation of Two Programs of Reading Instruction," Journal of Educational Research, 57:99-101, October, 1963.

the findings on methods of teaching reading tend to contradict each other, creating further controversy.[9]

Flesch[10] has taken the position that methods of teaching reading advocated by writers of conventional basal approaches are inappropriate. In his words:

> Mind you, I am not accusing the reading "experts" of wickedness or malice. I am not one of those people who call them un-American or left-wingers or Communist fellow travelers. All I am saying is that their theories are wrong and that the application of those theories has done untold harm to our younger generation.[11]

A similar position has been taken by Trace[12] and Walcutt[13] who maintain that the basic cause of failure in reading among American children is rooted in methods of teaching reading.

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9. Donald L. Cleland. "Current Issues in Vocabulary Development and Word-Attack Skills," in Donald L. Cleland and Josephine T. Benson, Developing Vocabulary and Word-Attack Skills. A Report of the Eighteenth Annual Conference and Course on Reading. Pittsburgh, Penna.: University of Pittsburgh, 1962, pp. 15-25.

10. Rudolf Flesch. Why Johnny Can't Read. New York: Harper-Row, 1955.

11. Ibid., p. 133.

12. Arther S. Trace Jr. What Ivan Knows That Johnny Doesn't. New York: Random House, 1961.

13. Charles C. Walcutt. Tomorrow's Illiterates. Boston: Little, Brown and Company, 1961.

Not only have conventional methods come under criticism, but programs using a different alphabet, such as the Initial Teaching Alphabet (i/t/a), have become the subject of controversy.[14] Gillooly,[15] in appraising the results of the Lehigh University-Bethlehem City Area Schools i/t/a study, cautioned against the widespread adoption of materials using i/t/a. The Lehigh-Bethlehem i/t/a study was also evaluated by Barrett[16] who concluded:

> Therefore, the consumer of research on this topic (i/t/a) must be objective and must reserve judgment until all the cards are dealt or at least until the cards are reshuffled and dealt again.[17]

In defense of current practices, Yoakam[18] strongly upheld conventional basal reader instruction, not merely as a device for teaching but also in terms of an interrelated process involving the total language program.

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14. Albert J. Mazurkiewicz. "That 43 Letter Alphabet," Journal of the Reading Specialist, 3:9-12, September, 1963.

15. William B. Gillooly. "The Promise of i.t.a. Is a Delusion," Phi Delta Kappan, 47:545-50, June, 1966.

16. Thomas C. Barrett. "i.t.a: A Step Forward or Sideways," Educational Leadership, 22:394-397, March, 1965.

17. Ibid., p. 397.

18. Gerald A. Yoakam. Basal Reading Instruction. New York: McGraw Hill, 1955.

In a like manner, Stewart,[19] after two years' experimentation with i/t/a in the Bethlehem schools, has expressed confidence in utilizing i/t/a in beginning reading.

A number of studies completed at the end of third grade reveal that no differences were found among children who experienced different approaches to reading instruction in the primary grades. Some educators have cited the learning-plateau effect as the explanation of no differences among methods. They reason that because of the plateau effect, reading achievement would have been the same regardless of the approach used in beginning reading.

In some studies, differences have been found. When children taught to read with i/t/a were compared with children taught to read with the traditional alphabet, differences were found in reading achievement and certain facets of language development at the end of first, second, and third grade. The results of these studies may have been due to the use of the augmented alphabet or to the use of the language arts approach in beginning reading. Then, again, the differences may have been due to the

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19. Rebecca W. Stewart. "I.T.A. - After Two Years," Elementary English, 42:660-6, October, 1965.

result of "the reading drive"[20] or the Hawthorne Effect. In other studies reported, when children taught to read with the basal-phonics approach were compared with children taught to read with a basal reader alone, results were similar to those found in the i/t/a studies. The results of these studies may have been due to a concentration of phonics in the first grade.

The present study is concerned with investigating the development of certain language skills of four groups of third-grade children, each of whom was taught to read with a different approach in the first grade. At the third-grade level, however, all groups in the present study used conventional basal reader materials in their reading and language programs. Thus, it is reasonable to believe that any differences found in word recognition, word meaning, reading comprehension, and vocabulary used in written composition could be attributed to the different approaches to reading in the earlier grades.

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20. Vera Southgate. "Approaching i.t.a. Results with Caution," Reading Research Quarterly, Vol. 1, No. 3:35-56, Spring, 1966. (Southgate distinguishes between reading drive and Hawthorne Effect.)

Background of Study

During the 1963-64 school year, the Bethlehem, Pennsylvania, City Area Schools began a three-year experimental study using i/t/a, which utilized a language arts approach, as a medium for beginning reading. The project was conducted in cooperation with Lehigh University and was made possible through support by the Fund for the Advancement of Education. One-third of the Bethlehem schools' first-grade enrollment (454) and 15 teachers comprised the i/t/a experimental group. The remainder of the first-grade children (875) and 30 teachers made up the control group. Prior to the 1963-64 school year, all first grades in the Bethlehem schools had basal reader instruction.

Toward the end of the first year's instruction, approximately 65 percent of the i/t/a trained children had made the transition into the traditional alphabet. Those children who did not make the transition by the end of the first grade were continued in i/t/a in the second grade. By the end of the second year's instruction, all children who began reading in i/t/a in the first grade were in conventional readers.

While the experimental group was being taught to read with i/t/a, the remainder of the first grade was being

taught with basal readers supplemented with the Spalding list of phonograms[21] (basal-phonogram* approach).

The other two school districts involved in this study were the Hellertown-Lower Saucon Joint Schools, Hellertown, Pennsylvania, and the Palmer Township Elementary School, Easton Area Joint Schools, Easton, Pennsylvania. The Hellertown-Lower Saucon Joint Schools used basal readers (basal approach) in their reading program, while the Palmer Township School used a basal reader supplemented with a phonics program (basal-phonics approach).

At the end of three years' experimentation in the Bethlehem schools, certain results seemed to favor children taught to read with i/t/a over children taught to read with basal readers supplemented with a list of phonograms.[22] No comparisons had been made with either of the other two school districts mentioned above.

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* The term phonogram is used to indicate a letter or group of letters that represents a speech sound.

21. Romalda B. and Walter T. Spalding. The Writing Road to Reading. New York: Whiteside Inc. and Wm. Morrow and Company, 1962. pp. 37-66.

22. Albert J. Mazurkiewicz. "Third Annual Report on the Lehigh University-Bethlehem Area School System Demonstration and Evaluation Project: Use of the Initial Teaching Alphabet in Reading Instruction," School of Education, Lehigh University, Summer, 1966. (mimeographed).

Purpose of Study

The purpose of this study is to investigate the development of certain language skills of four groups of third-grade children who experienced different approaches to reading instruction in the primary grades. Group I was taught to read with i/t/a. Group II was taught to read with the basal-phonogram approach. Group III was taught to read with the basal approach. Group IV was taught to read with the basal-phonics approach.

Specifically, answers to the following questions were sought:

1. Are there differences among the four groups in word recognition?

2. Are there differences among the four groups in word meaning?

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4. Are there differences among the four groups in the number of running words used in written composition?

5. Are there differences among the four groups in the number of different words used in written composition?

6. Are there differences among the four groups in the number of different polysyllabic words used in written composition?

7. Are there differences among the four groups in the number of different spelling errors made in written composition?

Importance of Problem

In commenting on reading skills taught above the primary level, Foshay[23] noted that no new skills are introduced once a child has achieved the fourth-grade level of reading proficiency. Foshay's observation is in agreement with the philosophy of basal-reader instruction. Word attack skills in basal reader approaches are generally taught in the first three years of school and developed sufficiently to make reading a tool for learning in the intermediate grades. The authors of the i/t/a materials explain that theirs is a one-year program during which time children learn all the word attack skills necessary for reading at any level. However, unlike the basal approaches, i/t/a materials involve a total language arts program from the beginning. In the present study, in addition to the vocabulary program of the basal reader, children taught to read with the basal-phonics

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23. Arthur Foshay. "What is Happening in Curriculum Development," in Marjorie Seddon Johnson and Bruce W. Brigham, Reading and Curriculum Development. Proceedings of the 20th Annual Reading Institute. Philadelphia, Penna.: Temple University, 1963. pp. 8-14.

approach also received a concentrated phonics program in the first grade. Similarly, the list of phonograms was concentrated in the early part of first grade in the basal-phonogram approach. Both the basal-phonics and basal-phonogram vocabulary programs were continued through grades two and three.

Although the results of the Lehigh-Bethlehem i/t/a study, reported by Mazurkiewicz,[24] indicated that children taught to read with i/t/a, compared with children taught to read with the traditional alphabet, were superior in spelling ($P < .04$), in number of running words used in written composition ($P < .04$), and in number of polysyllabic words used in written composition ($P < .04$), no significant differences were found in word recognition and reading comprehension.

In concluding his report, Mazurkiewicz asserted, "I believe that i/t/a has been demonstrated to provide an effective approach to a variety of educational problems."[25] However, his generalization is based in part on a study limited to the use of materials written in the i/t/a

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24. Mazurkiewicz, "Third Annual Report...," op. cit.

25. Ibid., p. 24.

alphabet and materials written in the traditional alphabet. From the data reported, there is no indication that the same statement can be applied to other approaches to reading instruction.

Research findings relating to comparisons of various methods of teaching beginning reading have been contradictory and confusing. It is hoped that the present study will offer some definitive conclusions as to which approach will best serve the needs of children in beginning reading instruction.

CHAPTER II

RELATED RESEARCH

Although a number of studies have been reported on the development of language skills in relation to the teaching of reading in the primary grades, relatively few have involved third-grade children. The reported research has generally focused upon first- and second-grade activities and covers a wide range of subjects. In this chapter, only those reports of research considered pertinent to the present study are discussed under the headings of Reading, Writing Vocabulary, and Spelling.

Reading

For many years, much of the research in reading methods has involved comparisons of the phonics approach and the look-say (basal reader) approach. More recently, i/t/a, which closely approximates a phonics approach in methodology, has been studied.

In one of the earlier reports, Dumville[1] compared the results of a phonics approach to word recognition with those

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1. Benjamin Dumville. "The Methods of Teaching Reading in the Early Stages," School World, 14:408-13, November, 1912.

of a look-say approach. Thirty-six elementary school children were divided into two equal sections, a phonics group and a look-say group. Both groups were given a list of words in phonetic transcript along with regular spellings. The look-say children were told to learn the words as wholes, while the phonic children used word analysis. After a 15-minute study period, all were given a practice test. A final test was administered individually to each child. Two extracts written in phonetic symbols were used in the final testing. One list contained words previously studied, and the other contained unfamiliar words. The children were evaluated on the length of time it took them to complete the tests and the number of mistakes they made. The results favored the look-say group on both tests.

Although Dumville's experimental technique appears questionable, since he did not consider the many variables which might have affected the children's performance, in fairness it must be noted that his work was completed at a time when experimental research was just coming into its own.

In the years that followed, particularly in the 1920's, numerous reports on various facets of reading were published.[2]

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2. Arthur I. Gates. "Annual Summary of Investigations Relating to Reading," Elementary School Journal, 26:449 ff., February, 1926.

One of the reports during this period was that of Sexton and Herron[3] who conducted a controlled experiment in the Newark, New Jersey, schools "to test the value of phonics in the teaching of beginning reading." Sixteen first-grade classes, selected from eight schools, were divided into two groups. One group was given phonics and the other no phonics instruction. The teacher variable was not controlled among class groups. The results of the experiment, which was continued into the first part of second grade with six of the original eight schools participating, indicated that the teaching of phonics had little or no functional value for the beginning reader during the first five months of school. The phonics group showed an average loss of .29 in over-all testing at the end of five months, but a gain of 2.81 at the end of the second five months. However, the highest gain, 4.15, occured at the end of the second grade, leading the investigators to conclude that phonics instruction had greater value in the second grade. Sexton and Herron speculated that the results of a specific method may be due to teacher-enthusiasm rather than to method employed.

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3. Elmer K. Sexton and John S. Herron. "The Newark Phonics Experiment," Elementary School Journal, 28:690-701, May, 1928.

Mosher and Newhall[4] attempted to compare the reading habits of children resulting from two methods of teaching beginning reading, the phonic method and the look-say method. Although the investigators referred to the phonic method as though it were used to teach children to read, they actually used phonic instruction as a supplement to the look-say instruction. In reality, the experimental group was taught to read with the look-say approach supplemented with phonics. Seven first-grade classes were divided into two groups, a look-say group and a look-say supplemented with phonics group. Each group contained children of superior, average, and below average intelligence. A modified language experience approach was used from the beginning with both groups. At the end of six weeks, all classes started on primers. For the remainder of the school year, the phonics group received systematic instruction in phonics and other word attack skills for a period of 15 minutes each day. The look-say children concentrated on reading words and phrases as units. Final testing was delayed until the end of the second grade.

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4. Raymond M. Mosher and Sidney M. Newhall. "Phonics Versus Look-and-Say Training in Beginning Reading," Journal of Educational Psychology, 21:500-6, October, 1930.

Results were based on measures of speed, fixation pauses, and comprehension, which, according to the investigators, seemed to show, both individually and collectively, no significant differences between the two groups. They concluded that the differences were not significant enough to warrant spending the added time on phonics.

In a study similar to that of Sexton and Herron,[5] Garrison and Heard[6] began a three-year study in September, 1927, to determine the effectiveness of phonic teaching and nonphonic teaching with children who were entering first grade. At the beginning of school, the children were divided into two groups according to intelligence, one bright and one dull. The children were assigned to four classrooms of which two classrooms received instruction in phonics during the first and second grades. The other two groups received no instruction in phonics during the same period. As far as possible the amount and kind of reading of the two groups were kept the same. In addition, every effort was made to keep teaching conditions alike, except during a fifteen-minute period each day when the phonic group received instruction in phonics. Pupils were tested at the

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5. Sexton and Herron, op. cit.

6. S. C. Garrison and Minnie Taylor Heard. "An Experimental Study of the Value of Phonetics," Peabody Journal of Education, 9:9-14, July, 1931.

end of first, second, and third grade and at the beginning of second grade for loss over vacation. Among their conclusions, Garrison and Heard noted:

1. Training in phonics makes children more independent in the pronunciation of words.

2. In teaching children to read in the early part of the primary grades, first and perhaps second, bright children seem to be helped more by phonics training than are dull. For all children, phonetic training seems to be more effective in the latter part of the primary grades.

3. Children who receive phonics training seem to lose less during vacation than children without such training.

Sparks and Fay[7] used all of the pupils in the first, second, third, and fourth grades in two elementary schools of Louisville, Kentucky, to determine whether Phonetic Keys to Reading (PKR) produced better readers than did a conventional basal reader approach. The schools were identified as School A in which PKR was used for reading instruction, and School B in which a conventional basal reader was used for reading instruction. School A had 418 pupils, while School B had 406 pupils. Sparks and Fay concluded:

1. At the end of first grade, PKR was superior to the basal reader in comprehension and vocabulary.

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7. Sparks and Fay, op. cit.

2. At the end of second grade, PKR was superior to the basal reader in comprehension, but no differences were found in vocabulary.

3. At the end of third grade, neither group was superior, except that the slow learning group which had been taught to read by the basal reader approach showed slight superiority in reading comprehension.

4. At the end of fourth grade, neither group was significantly different in reading comprehension, reading vocabulary, speed of reading, or spelling.

Unlike Sparks and Fay, whose study covered four grades, Kelly[8] limited her research to second grade. She compared the reading achievement of children taught to read with Scott Foresman (SF) basal readers in 1950 with the reading achievement of children taught to read with PKR in 1955. From 137 children in the 1950 SF class and 120 children in the 1955 PKR class, 100 matched pairs were selected on the basis of the California Mental Maturity Test. Mean reading achievement for the 1950 SF children was 2.9 years, and for the 1955 PKR children, 3.8 years. The difference found was significant at the .001 level. The investigator concluded that PKR produced higher reading achievement scores than did the SF basal readers.

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8. Barbara Cline Kelly. "The Economy Method Versus the Scott Foresman Method in Teaching Second-Grade Reading in the Murphysboro Public Schools," Journal of Educational Research, 51:465-8, February, 1958.

There was no indication in Kelly's study whether the same teachers who taught the SF class also taught the PKR class. Another respect in which her study is questionable is lapse of time. Five years separated the testing periods. During this period, it seems reasonable to assume that several uncontrolled variables may have intervened. The only variable she matched her samples on was intelligence. Therefore, there is no way of telling how influential other variables may have been in the final analysis.

In the first of two studies, Bear,[10] like others,[11, 12] sought to compare the results of two methods of teaching phonics. In doing so, he tested the same groups of children at two different grade levels. He chose 14 first-grade classrooms for his first study and divided them into two groups. The control group received phonics training according to a basal reader, while the experimental group received phonics training through assorted methods. Both groups were found to be similar in achievement at the end of first grade.

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10. David E. Bear. "Phonics for First Grade: A Comparison of Two Methods," Elementary School Journal, 59:394-402, April, 1959.

11. Mosher and Newhall, op. cit.

12. Garrison and Herron, op. cit.

Five years later, at the end of sixth grade, Bear[13] again tested the two groups. The only difference in reading instruction between the two groups was that the experimental group had received extra phonics training in first grade. In grades two, three, four, five, and six, it was assumed that reading instruction was the same for both groups. The results of an over-all reading test favored the experimental group in reading achievement and spelling. When the scores were analyzed according to intelligence, the means again favored the experimental group. However, no significant differences were found among the lower fourth in intelligence. Among the middle half, the means on all tests favored the experimental group, but among the upper fourth, the means favored the control group. One questionable aspect of Bear's study was that no attempts were made to control the selection of teachers who taught the children in the primary and intermediate grades or to control the instructional programs. As a result, there was no way of determining whether the instructional programs were alike.

The effectiveness of PKR as compared to that of a basal reader was the subject of a study conducted by Morgan and

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13. David E. Bear. "Two Methods of Teaching Phonics: A Longitudinal Study," Elementary School Journal, 66:273-9, February, 1964.

Light.[14] They used two groups of rural Michigan third-grade pupils and evaluated both groups at the end of the third grade. The first evaluation included all third graders in both groups who were given the Gates Reading Survey. From the two groups, random sub-samples were selected and administered the third-and fourth-grade words of the Durrell-Sullivan Spelling Test. The second evaluation included a random sample of 50 boys and 50 girls. This random sub-sample was given the California Achievement Test. The results of the first evaluation indicated that no significant differences were found for method of instruction and sex when total reading averages were compared, but differences were found favoring the basal reader group at the .05 level when tests of reading comprehension and reading vocabulary were compared separately. The results of the spelling test revealed no significant differences between the groups in spelling achievement. The results of the second evaluation indicated that total reading averages were significantly different in favor of the basal reader group at the .01 level. On the reading performance subtest and the vocabulary sub-tests, the results favored the basal reader group at the .001

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14. Morgan and Light. op. cit.

level. No differences were found in spelling achievement. Thus, the investigators concluded that an intensive phonics approach such as PKR, was "significantly less effective" than a conventional basal reader approach.

At about the time when Morgan and Light were reporting their findings, the Bethlehem, Pennsylvania, schools launched a three-year study comparing i/t/a with material written in the conventional alphabet in beginning reading. The study, which was conducted in cooperation with Lehigh University,[15] was started with the opening of school in September, 1963. A total of 454 children were taught to read with i/t/a, while the remainder of the first-grade children (875) were taught to read with the conventional alphabet. During the last two weeks in May, 1964, and the first week in June, 1964, all the children, including those in i/t/a classrooms who had not made the transition, were tested in the traditional alphabet. The results indicated that no difference in reading achievement existed between the groups. However, it must be noted that since the test was

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15. Albert J. Mazurkiewicz. "First Annual Report on the Lehigh-Bethlehem Area Joint School System Demonstration and Evaluation Project: Use of the Initial Teaching Alphabet in Reading Instruction," Lehigh University, School of Education, Summer, 1964. (mimeographed).

written in the traditional alphabet, the children still reading in i/t/a and those who had recently completed transition may have been placed at a disadvantage, thus accounting for no differences.

In his second annual report, Mazurkiewicz[16] reported on the progress of the 1963-1964 samples who were now completing second grade. Test results for 387 children taught to read with i/t/a and 803 children taught to read with the conventional alphabet indicated that no differences were found in reading vocabulary and reading comprehension.

In his third annual report, Mazurkiewicz[17] reported on the progress of the 1963-1964 samples who were completing third grade. Test results were available for 312 children taught to read with i/t/a and 816 children taught to read with the conventional alphabet. There were no significant differences between the two samples in reading comprehension and reading vocabulary.

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16. Albert J. Mazurkiewicz. "Second Annual Report on the Lehigh University-Bethlehem Area Joint School System Demonstration and Evaluation Project: Use of the Initial Teaching Alphabet in Reading Instruction," School of Education, Lehigh University, Summer, 1965. (mimeographed).

17. Mazurkiewicz. "Third Annual Report...." op. cit.

During the same year that the Bethlehem schools were beginning their experimental work, Sebesta[18] investigated the effects of an artificial orthography, similar to that of i/t/a, upon primary reading instruction. The investigator instructed the experimental and control groups in both first-grade classrooms, from September to January. At the end of 16 weeks of instruction, he reported on the results of 32 matched pairs and concluded that the use of an artificial orthography did not appear to facilitate recognition of familiar words. When comparing results of males and females, he found that males did better in recognition of unfamiliar words. Finally, he stated, "The advantages ascribed to transitional consistent orthography in early decoding experiences may be questioned, although males did appear to benefit to some extent."

Swales[19] made a study in Manchester, England, of the efficiency of i/t/a in beginning reading when compared to a traditional reader approach. Included in the samples

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18. Sam L. Sebesta. "Artificial Orthography as a Transitional Device in First-Grade Reading Instruction," Ann Arbor, Mich.: University Microfilms, Inc., 1964.

19. Terence D. Swales. "The Attainments in Reading and Spelling of Children Who Learned to Read through the Initial Teaching Alphabet," University of Manchester, Manchester, England, 1966. (unpublished master's thesis).

were six schools in which i/t/a was taught in beginning reading and six schools in which a traditional approach was used in beginning reading. Groups were matched with respect to age (mean, 7-9), length of schooling, social status, and intelligence (low, medium, and high). Among his conclusions, he reported that:

1. Children (mean age, 7-7 years), taught by i.t.a for three years, were neither superior nor inferior in reading achievements to those taught by t.o. from the outset.

2. i.t.a. produced neither more nor less backward readers than t.o.

3. The effectiveness of i.t.a. was neither superior nor inferior in respect to the teaching of bright, dull or average children.

4. Significant variation 'between' schools (when intelligence was held constant) in reading performance, was revealed, indicating the importance of some factor, such as better teaching.

In summary, much of the research on reading methods prior to 1963 has dealt with a comparison of some form of phonics instruction with basal reader instruction. Regardless of the studies conducted, little has been resolved, and no definitive statement can be made about either approach. With regard to reading research, perhaps the observation made by Weintraub[20] best serves to describe what has occurred:

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20. Samuel Weintraub. "A Critique of a Review of Phonics Studies," Elementary School Journal, 67: 34-40, October, 1966.

> In searching through the mass of educational research, and reading research in particular, the reader can find evidence to support almost any bias he holds. For no area in reading research are the findings more equivocal than for the research in phonics.

When i/t/a was introduced to the American schoolman, it ushered in a new area for investigation. Since 1963, a number of studies have been reported.[21, 22] The results of these studies, as in the case of phonics instruction versus basal reader instruction, have been contradictory and have offered little direction as to which approach might best serve the needs of children in learning to read.

Writing Vocabulary

While several studies have been completed on written composition of primary-grade children, only a few have been concerned with the size of the vocabulary that the children use.

Gunderson[23] studied the writing vocabularies of seven-year-old children. Twenty-one second-grade children were

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21. The Reading Teacher: "U.S. Office of Education First Grade Reading Studies," Vol. 19, May, 1966.

22. The Reading Teacher: "U.S. Office of Education First Grade Studies," Vol. 20, October, 1966.

23. Agnes G. Gunderson. "Writing Vocabularies of Seven-Year-Olds," Elementary School Journal, 43:590-600, June, 1943.

encouraged to write their own stories and spell words as they thought they should be spelled. In addition, the children used scrapbooks for writing and drawing. She found that the writing vocabulary of children is not general but individualized.

Howell[24] questioned whether the vocabulary children used in their writing was the same as that found in their assigned speller and other common word lists. A record was kept of all of the words that a group of 25 second-grade children used in their written expression from the opening day of school in September until the following February. Words were compiled from the children's dictionaries, along with those used in individual and cooperative stories, poems, and letters. These words were checked against the words in Using Words and My Spelling, and also against Rinsland's A Basic Vocabulary of Elementary School Children, Thorndike's A Teacher's Word Book of Twenty Thousand Words, Thorndike and Lorge's The Teacher's Word Book of 30,000 Words, and the lists prepared by Gunderson, and Brittain, and Fitzgerald in their studies. From her comparisons, she generalized:

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24. Miriam Howell. "Spelling through Written Expression," Elementary School Journal, 52:207-13, December, 1951.

1. Children, in their writing, use many of the words of the spelling lists.

2. Children, in developing their writing vocabularies, use words that are listed in vocabulary lists for grades below and above them.

3. Children's writing vocabularies, to a large extent, are individual.

Herrick and Howell[25] sought to determine what likenesses and differences are found in the writing vocabularies of children at different ages. They reported that vocabulary is a personal matter at any age in both quality and quantity. Their findings were based on an analysis of both directed and independent writing samples of 25 second-grade children. In addition, Herrick and Howell concluded that the need for a word will increasingly determine the nature and the quality of its use.

The recorded words from the written language lessons of eight groups of third-grade children were analyzed by Wilson.[26] Her intent was to ascertain, if possible, the factors that influence writing and to determine which of

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25. Virgil E. Herrick and Miriam Howell. "Growth in the Maturity of Writing Vocabularies of Primary and Middle-Grade Children," Elementary School Journal, 54:338-44, February, 1954.

26. Louis Ada Wilson. "A Study of Some Influencing Factors Upon and the Nature of Young Children's Written Language," Journal of Experimental Education, 31:371-380, Summer, 1963.

these factors were most outstanding. Each group of children experienced a different approach to writing. She found that:

1. The length of time spent on language lessons influences the amount of written language produced by children.

2. The amount of written language produced by children seems to be correlated with intelligence.

3. Children in third grade will, in their written language, show a pattern that is similar to their oral speech used at an earlier age.

In his longitudinal study, Mazurkiewicz[27] attempted to investigate the writing ability of two different groups of children, each of whom experienced a different approach to reading instruction in the first grade. One group was taught to read with i/t/a and the other with the conventional alphabet. He concluded that children taught to read with i/t/a demonstrated a superiority at the end of third grade in the number of words written and the number of polysyllabic words used in creative writing.

From the studies cited thus far, children's writing vocabularies in the primary grades seem to be influenced by (1) the personality and intelligence of the children,

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27. Albert J. Mazurkiewicz. "Third Annual Report...," op. cit.

(2) the amount of time teachers are willing to spend on fostering writing skills and vocabulary, and (3) the approach used to teach children to read in the first grade.

Spelling

There is a growing tendency to consider spelling as it is reflected in the writing vocabulary of children. In her study on the writing vocabularies of seven-year-olds, cited earlier, Gunderson[28] reported that children possess more ability to spell words correctly than is commonly recognized.

Howell,[29] in addition to generalization about writing, noted that:

1. Children, in developing spelling through their writing, use many more words than those in the basic word lists.

2. Children, in developing their spelling through writing, tend to have more favorable attitudes toward spelling and writing.

3. Children, when they are learning to spell through written expression, employ a number of avenues of learning.

Rudisill[30] investigated the interrelations between

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28. Supra. p. 32.

29. Supra. p. 33.

30. Mabel Rudisill. "Interrelations of Functional Phonic Knowledge, Reading, Spelling, and Mental Age," Elementary School Journal, 57:264-67, February, 1957.

functional phonetic knowledge, reading achievement, spelling achievement, and mental age among children in the third grade. The total third-grade enrollment (315 children) of the Durham, N.C., city schools was used. She concluded that "The results of the present study strengthened the accumulating evidence that functional phonic knowledge makes a substantial contribution to achievement in reading and in spelling."

Singleton and Reid[31] studied the effects an intensified independent writing program in the primary grades would have upon spelling. They used the entire enrollment of a single grade starting with the year the children entered first grade and continuing through the fifth grade. They concluded:

> An emphasis on independent writing in primary grades seems to be accompanied by extraordinary prowess in spelling at the primary-grade level.
>
> The superiority found at second-grade level seems to diminish as the child advances through the grades. While still markedly superior to the general population the fifth graders exposed to a heavy emphasis on independent writing spelled only moderately better than did the children who had been in fifth grade three years earlier.

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31. Carlton M. Singleton and Hale C. Reid. "Early Independent Writing and Spelling Achievement." (unpublished Research Report, Cedar Rapids Public Schools, Cedar Rapids, Iowa, 1959).

The value of supplementary phonics to reading and spelling was questioned by Ibeling.[32] All the children in grades two, four, and six (about 600 children in all) of a suburban mid-western community were included in the study. For purposes of the study, about one-third of each class was randomly assigned to the experimental group, which was given supplemental phonics training in addition to basal reader instruction for a period of seven months. The control group did not receive any phonics instruction beyond that which was offered as part of the basal reader program. He concluded that supplementary phonics increased spelling ability of second-grade children, but at grades four and six, no increase was evident.

The effects of phonics training in beginning reading came under investigation in a study by Hahn.[33] He sought to determine how much concentrated phonics training in reading really contributed to children's spelling ability. He divided 202 second-grade children from three separate school districts into three groups. School A received

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32. Frederick W. Ibeling. "Supplementary Phonics Instruction and Reading and Spelling Ability," Elementary School Journal, 62:152-56, December, 1961.

33. William P. Hahn. "Phonics: A Boon to Spelling," Elementary School Journal, 64:383-86, April, 1964.

intensive phonics training with Phonetic Keys to Reading, while Schools B and C used a conventional reading approach. In grade one, none of the schools used a formal spelling program. In grade two, School A was taught spelling with a spelling text. Children in Schools B and C also used the same speller as School A, but teachers in B had children write sentences and paragraphs. School C children supplemented their program with Learn to Listen, Speak and Write. The results did not support the hypothesis that increased phonics training increased spelling ability. Furthermore, in School C where a broad language experience approach in meaningful writing situations was used spelling was superior.

Goodman and Goodman[34] sought to study the language and literacy skills of one self-taught reader. Their subject was a little girl, six years and five months of age, who demonstrated an ability to read and comprehend materials at a fifth-grade level, as measured by Gray's Standardized Oral Reading Paragraphs. In analyzing her spelling ability, the investigators found that the child used at least three patterns which she developed as she

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34. Yetta M. and Kenneth S. Goodman. "Spelling Ability of a Self-taught Reader," Elementary School Journal, 64:149-54, December, 1963.

learned to read without formal training. The three were (1) configuration or whole word, (2) sound-symbol generalizations, and (3) recurrent spelling patterns. Goodman and Goodman concluded:

> This study has shown that spelling can be learned naturally without instruction. At least one child has learned to spell without studying lists of words in isolation and without learning rules or generalizations.
>
> ...Even more difficult to justify is the teaching of lists of spelling words to children who already know the words or are in no position to learn them.

Mazurkiewicz,[35] in his third annual report, noted that children taught to read with i/t/a did significantly better in spelling achievement in free writing than did children taught to read with the conventional alphabet.

As has been shown, evidence exists that (1) if children are allowed to spell words as they think they should be spelled, they will spell more words correctly than expected, the implication being that children may devise ways of spelling words correctly that do not necessarily hold to the rules, (2) when children are encouraged to write independently in the primary grades, their ability

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35. Albert J. Mazurkiewicz. "Third Annual Report..." op. cit.

to spell is increased, (3) in certain cases training in phonics seems to help children to spell better, and (4) there seems to be some indication that children who learn to read with i/t/a do better in spelling. The evidence presented seems to indicate that those children who received training in phonics as well as those children who were taught to read with i/t/a did better in spelling; however, there may have been other factors contributing to spelling success. Among the objectives of the present study is an investigation of the number of spelling errors in written composition of four groups of third-grade children who had different approaches to reading in the early grades. Of the four groups under investigation, one received supplemental phonics in addition to a basal reader, and another received instruction with i/t/a in learning to read.

CHAPTER III

PROCEDURE

This chapter is concerned with (1) a description of the samples, (2) a description of the teachers who had instructed the children of the samples, (3) an explanation of the approaches used in reading instruction, (4) the sources of data, and (5) the method of analysis.

Samples Investigated

Four groups of third-grade children, who experienced different approaches to reading instruction in the primary grades, were selected from three school districts in Eastern Pennsylvania during the spring of 1966. All four groups of children attended schools located in middle socio-economic areas. The distribution of groups among the three school districts is presented in Table I.

The 209 children in Group I represented seven out of 15 classrooms in which i/t/a was used in beginning reading. These children, who were heterogeneously grouped for instructional purposes, were part of the experimental group in the Lehigh University-Bethlehem City Area Schools i/t/a study. In five of the seven classrooms, the children who

TABLE I

DISTRIBUTION OF GROUPS AMONG THE THREE SCHOOL DISTRICTS

Group	School District	Number of Classrooms	Total Number of Children
I (i/t/a)	Bethlehem	7	209
II (basal-phonogram)	Bethlehem	7	264
III (basal)	Hellertown	7	227
IV (basal-phonics)	Easton	6	191
Totals		27	891

were grouped for first-grade instruction remained with their original groups in grades 2 and 3. In the other two classrooms, children of sample II were grouped with children of sample I in grades 2 and 3 in order to bring the class size up to the number prescribed by school officials.

The 264 children in Group II represented seven out of 30 classrooms in which basal readers supplemented with a list of phonograms were used in beginning reading. These children, who were heterogeneously grouped for instructional purposes, were part of the control group in the Lehigh-Bethlehem i/t/a study. In five of the seven classrooms, the

children who were grouped for first-grade instruction remained with their original groups in grades 2 and 3. In the other two classrooms, the children were regrouped after first grade. This move was necessary, according to school officials, since there were more first-grade classrooms assigned in the buildings which housed these children than there were second-grade classrooms.

The 227 children in Group III represented seven classrooms in which basal readers were used in beginning reading. These children, who were heterogeneously grouped for instructional purposes, included all the children in the third grade in the Hellertown-Lower Saucon Joint School District.

The 191 children in Group IV represented six classrooms in which a basal reader supplemented with phonics was used in beginning reading. These children, who were homogeneously grouped for instructional purposes, included all the children in the third grade in the Palmer Township Elementary School, Easton Area Joint School District.

From the 891 children tested during the latter part of April, 1966, 337 were not considered in the final selection. These included those who (1) had repeated a grade, (2) were

referred for psychological testing, (3) were referred for remedial reading and received special attention outside the classroom, (4) had displayed language difficulty because of bi-lingual background, or (5) had transferred into any of the groups from a school outside the district at any point beyond the 30th day of instruction in the first grade. This information was gathered from the cumulative records prior to the testing period. In addition, children who had an I.Q. score below 89 on the Henmon-Nelson Test of Mental Ability were not considered. The mental ability test was administered as part of the testing done for this study under the supervision of the investigator. Of the children considered upon completion of the preliminary screening, those who had completed all the testing and furnished a writing sample were included in the study. Table II shows the total number of children making up the samples used.

Teacher Personnel

The primary concern of this study was to investigate the development of certain language skills of four groups of third-grade children who experienced different approaches to reading instruction. Unfortunately, it was not possible

TABLE II

TOTAL NUMBER OF CHILDREN
MAKING UP SAMPLES USED

Group	Number Tested	Number Not Included	Number Used in Study
I	209	75	134
II	264	98	166
III	227	82	145
IV	191	82	109
Totals	891	337	554

to equate teachers. Consequently, it is desirable to describe the teachers in some detail, particularly in those respects which might influence the outcomes. The number of the teachers by grades is shown in Table III.

Group I Teachers (i/t/a). The seven first-grade teachers in Group I were part of the 15 teachers who chose to teach classes in which i/t/a was used as a medium for reading instruction in the Bethlehem schools during 1963-64 school year. All 15 teachers attended two workshops, one day in June, 1963, and one and one-half days in August, 1963, on the use of i/t/a. Classes in which i/t/a was taught were

closely supervised throughout the year by two instructional supervisors from the Lehigh University i/t/a Study Center as well as by supervisory personnel from the Bethlehem schools.

TABLE III

NUMBER OF TEACHERS INSTRUCTING EACH GROUP IN GRADES 1, 2, and 3

Group	Grade 1	Grade 2	Grade 3
I	7	7	9
II	12	9	8
III	7	7	7
IV	6	6	6

The seven second-grade teachers in Group I were part of the 15 teachers who chose to teach second grade children who were taught to read with i/t/a. All 15 teachers attended two workshops, one day in June, 1964, and one and one-half days in August, 1964, on follow-up procedures to first-grade i/t/a instruction. Classes throughout the school year were closely supervised as in the case of first grade.

Among the nine third-grade teachers in Group I, seven were part of the 15 teachers who chose to teach third-grade children who were taught to read with i/t/a. From the seven teachers assigned to third grade in September, 1964, two left the school district during the school year, necessitating the hiring of two substitutes.

The 15 third-grade teachers attended a one and one-half day workshop jointly with Group II third-grade teachers in August, 1965. The purpose of the joint sessions was to acquaint both groups with the use of conventional basal readers which were to be used by all of the children in the third grade during the 1965-66 school year. Supervision of classes was similar to that found in first and second grades.

Group II Teachers (basal-phonogram). Although inspection of Table III indicates that a greater number of teachers were involved in first-grade reading instruction for the children of Group II, the higher figure was due to the assignment of more than one first-grade classroom in three of the selected buildings which later made up the seven classrooms used in this study. The 12 teachers in Group II, Grade I, were part of 30 teachers who chose to teach first-grade classes in which basal readers supplemented with a list of phonograms

were used for reading instruction in the Bethlehem schools during the 1963-64 school year. A one-half-day workshop was held in August, 1963, to acquaint these teachers with their role in the Lehigh-Bethlehem i/t/a study. Supervision of classes was similar to that found with the i/t/a teachers.

In the second grade, because of the reassignment of children, fewer teachers were needed. From the nine teachers assigned to second grade in September, 1964, two left the district during the school year, necessitating the hiring of two substitute teachers. The original seven second-grade teachers, however, were a part of a larger group of second-grade teachers who chose to teach reading with the basal-phonogram approach. All of these teachers attended a one-half-day workshop in August, 1964, in preparation for their role in the Lehigh-Bethlehem i/t/a study. Classes throughout the year were supervised similarly to those found in the i/t/a group.

In the third grade, eight teachers were assigned, one for each classroom. One teacher left during the school year, and a substitute was hired. These teachers attended a one and one-half-day workshop jointly with Group I teachers in August, 1965. The purpose of the joint sessions was to acquaint both groups with the use of basal readers which were

to be used by all of the children in the third grade during the 1965-66 school year. Supervision of classes was similar to that found in first and second grades.

Group III Teachers (basal). No turn-over in teachers was reported during the primary grades among Group III teachers. However, it should be noted that four of the seven teachers used a basal reader different from that used by the other three teachers in the first grade. In grades two and three, all teachers used both sets of readers in their classrooms. Throughout the three grades classes were supervised by the building principals.

Group IV Teachers (basal-phonics). Teachers in Group IV used a basal reader supplemented with a phonics approach throughout the primary grades. A building principal and an assistant principal supervised classes in all three grades. No turn-over in teachers was reported during the primary grades.

Age and Experience of First-Grade Teachers. When the chronological ages of first-grade teachers in the four groups were compared, the highest mean age, 44.3 was found in Group III. Teachers in Group I ranked second with a mean age of 40.7 years, Group II third with a mean age of 40.5 years, and Group IV fourth with a mean age of 39.3 years.

When the years of teaching experience of the first-grade teachers in the four groups were compared, teachers with the high-mean, 18.6, were found in Group III. Teachers in Group I ranked second with a mean of 14.4, and Group IV third with a mean of 13.6, and Group II fourth with a mean of 12.9 years.

The statistics for chronological ages and years of experience of first-grade teachers are shown in Table IV.

TABLE IV

AGE AND EXPERIENCE OF FIRST-GRADE TEACHER GROUPS

Group	N	Age in Years		Years of Experience	
		Range	Mean	Range	Mean
I	7	24-62	40.7	3-34	14.4
II	12	22-57	40.5	1-36	12.9
III	7	22-62	44.3	1-43	18.6
IV	6	24-61	39.3	2-33.8	13.6

Age and Experience of Second-Grade Teachers. When the chronological ages of second-grade teachers in the four groups were compared, the highest mean age, 51.6, was found in Group III. Teachers in Group IV ranked second with a mean age

of 50.8 years, Group I third with a mean age of 36.9 years, and Group II fourth with a mean age of 33.0 years.

When the years of teaching experience of the second-grade teachers in the four groups were compared, teachers with the highest mean, 20.3, were found in Group III. Teachers in Group IV ranked second with a mean of 18.5 years, Group I third with a mean of 9.0 years, and Group II fourth with a mean of 4.7 years.

The statistics for chronological ages and years of experience of second-grade teachers are shown in Table V.

TABLE V

AGE AND EXPERIENCE OF SECOND-GRADE TEACHER GROUPS

Group	N	Age in Years		Years of Experience	
		Range	Mean	Range	Mean
I	7	24-61	36.9	2-28	9.0
II	9	24-48	33.0	1-22	4.7
III	7	25-64	51.6	1-29	20.3
IV	6	26-68	50.8	4-35	18.5

Age and Experience of Third-Grade Teachers. When the chronological ages of third-grade teachers in the four groups were compared, the highest mean age, 46.9 was found in Group II.

Teachers in Group IV ranked second with a mean age of 43.1 years, Group III third with a mean age of 42.3 years, and Group I fourth with a mean age of 32.6 years.

When the years of teaching experience of the third-grade teachers in the four groups were compared, teachers with the highest mean, 20.6 were found in Group III. Teachers in Group I ranked second with a mean of 17.5 years, Group II third with a mean of 14.4 years, and Group IV fourth with a mean of 13.7 years.

The statistics for chronological ages and years of experience of third-grade teachers are shown in Table VI.

TABLE VI

AGE AND EXPERIENCE OF THIRD-GRADE TEACHER GROUPS

Group	N	Age in Years		Years of Experience	
		Range	Mean	Range	Mean
I	9	22-56	32.6	.5-40	17.5
II	8	25-60	46.9	.5-32	14.4
III	7	23-60	42.3	2.0-46	20.6
IV	6	33-55	43.1	6.0-25	13.7

Degrees and Certification of First-Grade Teachers. Of the 32 first-grade teachers represented in the four groups,

13 did not have a degree; 14 held a bachelor's degree, and five held a master's degree. With regard to certification, 11 were teaching with normal (two-year) college certificates; five were teaching with provisional certificates and were enrolled in graduate school working toward permanent certification, and 16 were permanently certified to teach in the state of Pennsylvania.

Table VII represents a breakdown, by groups, of degrees held and certification acquired.

TABLE VII

TYPES OF DEGREES HELD AND CERTIFICATION ACQUIRED BY FIRST-GRADE TEACHERS

Group	N	Degrees Held			Certification		
		None	B.A.	M.A.	Norm.	Prov.	Perm.
I	7	3	1	3	3	1	3
II	12	5	6	1	4	3	5
III	7	4	2	1	4	1	2
IV	6	1	5	0	0	0	6

Degrees and Certification of Second-Grade Teachers. Of the 29 second-grade teachers represented in the four groups, 10 did not have a degree; 15 held a bachelor's degree, and four held a master's degree. With regard to certification,

four were teaching with normal (two-year) college certificates; eight were teaching with provisional certificates and were enrolled in graduate school working toward permanent certification, and 17 were permanently certified to teach in the state of Pennsylvania.

Table VIII represents a breakdown, by groups, of degrees held and certification acquired.

TABLE VIII

TYPES OF DEGREES HELD AND CERTIFICATION ACQUIRED BY SECOND-GRADE TEACHERS

Group	N	Degrees Held			Certification		
		None	B.A.	M.A.	Norm.	Prov.	Perm.
I	7	2	3	2	2	2	3
II	9	0	7	2	0	5	4
III	7	5	2	0	2	1	4
IV	6	3	3	0	0	0	6

Degrees and Certification of Third-Grade Teachers. Of the 30 third-grade teachers represented in the four groups, 11 did not have a degree; 14 held a bachelor's degree, and five held a master's degree. With regard to certification, eight were teaching with normal (two-year) college certificates; eight were teaching with provisional certificates and were

enrolled in graduate school working toward permanent certification, and 14 were permanently certified to teach in the state of Pennsylvania.

Table IX represents a breakdown, by groups, of degrees held and certification acquired.

TABLE IX

TYPES OF DEGREES HELD AND CERTIFICATION ACQUIRED BY THIRD-GRADE TEACHERS

Group	N	Degrees Held			Certification		
		None	B.A.	M.A.	Norm.	Prov.	Perm.
I	9	3	5	1	3	4	2
II	8	4	3	1	4	2	2
III	7	3	3	1	0	1	6
IV	6	1	3	2	1	1	4

Ratings of Teachers. All teachers involved in this study received satisfactory rating, according to the responsible school administrator in each district. The ratings in all districts are conducted annually in accordance with the regulations set forth by the Pennsylvania Department of Public Instruction.

As has been shown, only slight differences existed among teacher groups in the first grade when mean chronological age and mean years of experience were compared. However, greater differences were noted when degrees held and certification were compared. Of the four groups, Group III had the highest percentage (57 per cent) of teachers who did not have earned degrees. Group I was second with 43 per cent, Group II third with 42 per cent, and Group IV fourth with 17 per cent. Earned bachelor's degrees were held by 83 per cent of Group IV, 50 per cent of Group II, 29 per cent of Group III, and 14 per cent of Group I teachers. Earned master's degrees were held by 43 per cent of Group I, 14 per cent of Group III, and .08 per cent of Group II teachers. None of Group IV teachers held a master's degree. With regard to certification, 57 per cent of Group IV, 43 per cent of Group I, and 33 per cent of Group II teachers were teaching with normal (two-year) college certificates. Those teaching with provisional certificates were 25 per cent in Group II, and 14 per cent in both Groups I and III. Permanent certification was acquired by all teachers in Group IV, while 43 per cent, 42 per cent, and 29 per cent had acquired permanent certification in Groups II, I, and III, respectively.

When the mean chronological age and the mean years of experience among teacher groups in the second grade were

compared differences were found. These differences were noticeable among the means of the highest groups (Groups III and IV) and the means of the lowest groups (Groups I and II). However, when the means between Groups I and II and the means between Groups III and IV were compared, only slight differences existed. Differences were also noted when degrees held and certification were compared. Of the four groups, Group III had the highest percentage (71 per cent) of teachers who did not have earned degrees. Group IV was second with 50 per cent, Group I third with 29 per cent, and Group II fourth with none. Earned bachelor's degrees were held by 78 per cent of Group II, 50 per cent of Group IV, 42 per cent of Group I, and 29 per cent of Group III teachers. Earned master's degrees were held by 29 per cent of Group I, and 22 per cent of Group II teachers. None of the teachers in Groups III and IV held a master's degree. With regard to certification, 29 per cent of the teachers in Groups I and III were teaching with normal (two-year) college certificates. Those teaching with provisional certificates were 56 per cent in Group II, 29 per cent in Group I, and 11 per cent in Group III. Permanent certification was acquired by all the teachers in Group IV, while 60 per cent, 44 per cent, and 42 per cent had acquired permanent certification in Groups III, II, and I, respectively.

When the mean chronological age and the mean years of experience among teacher groups in the third grade were compared only slight differences existed. However, greater differences were noted when degrees held and certification were compared. Of the four groups, Group II had the highest percentage (50 per cent) of teachers who did not have earned degrees. Group III was second with 42 per cent, Group I was third with 33 per cent, and Group IV fourth with 17 per cent. Earned bachelor's degrees were held by 56 per cent of Group I, 50 per cent of Group IV, 42 per cent of Group III, and 36 per cent of Group II teachers. Earned master's degrees were held by 33 per cent of Group IV, 16 per cent of Group III, 14 per cent of Group II, and 11 per cent of Group I teachers. With regard to certification, 50 per cent of Group II, 33 per cent of Group I, and 17 per cent of Group IV teachers were teaching with normal (two-year) college certificates. Those teaching with provisional certificates were 45 per cent of Group I, 25 per cent of Group II, 17 per cent of Group IV, and 16 per cent of Group III. Permanent certification was acquired by 84 per cent of the teachers in Group III, while 66 per cent, 25 per cent and 22 per cent had acquired permanent certification in Groups IV, II, and I, respectively.

The above summary indicates that the teachers of the four groups and grades were essentially alike in some respects and different in others. Moreover, there may be differences not reflected by the comparative data. One of the distinct limitations of this study was the impossibility to control teacher effect. However, it is reasonable to suppose that with the number of teachers involved the differences would tend to be compensating. As will be seen later, Group III children were significantly superior in reading, while Group I children were significantly superior in writing vocabulary. There would appear to be nothing significantly different among teachers that would account for the superiority of either of these groups of children.

Instructional Programs

Group I children were taught to read in the first grade with materials written in i/t/a. These materials used an alphabet consisting of 44 characters instead of the traditional 26-letter alphabet. Methodology emphasized the decoding and encoding of the major English phonemes on a one-symbol, one-sound basis.[1]

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1. Albert J. Mazurkiewicz. "First Annual Report...," op. cit.

The reading materials used were the Early-to-Read Series which is based on a unified language arts approach. No emphasis is placed on vocabulary control in these books. In addition to the Early-to-Read materials, the Downing Readers, published in England, were also used in some classrooms.

Following the transition from i/t/a into the use of the traditional alphabet (late in first grade or early second grade) the children received reading instruction in a variety of basal readers. Emphasis on the unified language arts approach was continued throughout the primary grades.

Group II children, (basal-phonogram approach), were taught to read in the first grade with a variety of basal readers supplemented with the Spalding list of phonograms.[2] These phonograms were presented in the order of frequency of sound occurrence. Although methodology in the first grade emphasized a unified language arts approach, reading, written composition, and spelling were taught as separate subjects in grades two and three.

Group III children, (basal reader approach), were taught to read in the first grade with basal readers. In

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2. Romalda B. and Walter T. Spalding, The Writing Road to Reading, op. cit.

four classrooms, Scott Foresman materials were used, while in three classrooms Ginn materials were used. Children in the advanced reading groups used Ginn while those in the lower reading groups used Scott Foresman.

In both basal reader programs, reading was taught as a separate subject with emphasis on sequential development of word recognition and comprehension. After development of a basic sight vocabulary of about sixty words, instruction in phonetic and structural analysis skills was initiated. The teaching of written composition and spelling was delayed until the second grade.

Group IV children, (basal-phonics approach), were taught to read with a conventional reader supplemented throughout the primary grades with Phonetic Keys to Reading. Initial instruction dealt with vowel sounds, both long and short. This presentation was followed by a study of the consonants. Thus, word analysis was stressed before vocabulary development. Spelling was taught incidentally as part of the word analysis program from the beginning. However, writing was not emphasized until the latter part of first grade or early second grade.

Sources of Data

The California Reading Test (Upper Primary, Form W) was

administered on April 20, 1966, to all third-grade children in the selected classrooms in order to determine the extent of skills development among the four groups. All tests were administered under the direction of the investigator. In the Bethlehem schools where the test was given as part of the regular testing program and scored by the teachers, the tests were checked by the investigator.

Scores obtained on Subtest 1 of the California Reading Test constituted a measure of word recognition. Scores obtained on Subtest 2 constituted a measure of word meaning. Combined scores obtained on Subtests 3, 4, and 5 constituted a measure of comprehension.

In order to establish an estimate of intelligence, the Henmon-Nelson Test of Mental Ability (Revised Edition for Grades 3-6, Form A) was given to all third-grade children on April 26, 1966, under the direction of the investigator. All tests were scored by the investigator.

An assessment of vocabulary used in written composition, as well as an estimate of the number of different spelling errors made in such writing, was obtained from a sample of writing from each child on April 28, 1966. An open-end story, written by the investigator, was used as a stimulus for writing. A total of 20 minutes was alloted during which time the children were encouraged to write.

Prior to the April testing, a pilot study was conducted in three third-grade classrooms in the Allentown School District, Allentown, Pennsylvania, in order to determine the effectiveness of the open-end story. A copy of this story, together with directions, appears in Appendix B.

Each writing sample was analyzed for (1) total number of words used in the composition, (2) number of different words used, (3) number of different polysyllabic words used, and (4) number of different spelling errors made.

The total number of words used in each composition was obtained by counting the total number of running words written by each child. Titles were not considered as part of the running-word total.

The number of different words used was determined by counting each word once regardless of how many times it appeared in the composition. From the number of different words, the number of different polysyllabic words used were recorded. Webster's Elementary Dictionary was used as the basic reference when the syllabication of a word was in doubt. The number of different spelling errors was also derived from the total number of different words used.

In correcting the writing sample the following criteria were used: (1) Proper names were not considered in tabulating either the number of different polysyllabic words or the

number of different spelling errors. (2) Homonyms were grouped into the category of developmentally taught words since all four approaches do provide contextual experiences in the use of words such as their-there, to-too-two, here-hear. As a result any confusion in the use of homonyms was counted as a spelling error. (3) In phrases or sentences which contained such expressions as "fighted with him" or "He runed home.", the words fighted and runed were not counted as misspellings since the concept of tense was not fully developed by the end of third grade in any of the approaches investigated. However, although the word fighted was received as a correctly spelled word, it was not included as a polysyllabic word. (4) The investigator used his judgment in evaluating words that appeared misspelled because of poor handwriting.

Concerning the reliability of the data, the California Reading Test and subtests have generally been found to be reliable. Application of the Kuder-Richardson methods of estimating test reliability indicates that for the present samples none of the data were too unreliable to permit trustworthy group comparisons despite the brevity of the word recognition and word meaning subtests.

The numbers of running words, different words used, different polysyllabic words used, and different spelling

errors made were obtained from the written compositions, as noted above. When there was doubt about the number of different words used, and the number of different spelling errors made, the compositions were rescored. It is believed that the scores found in the compositions are accurate.

Analysis of Data

In order to accomplish the objectives of this study, the data were subjected to an analysis of covariance.[3] This method was preferred over an analysis of variance technique since randomization was not possible. In the analysis of covariance, sex and intelligence were controlled in comparing the four groups in (1) word recognition, (2) word meaning, (3) reading comprehension, (4) number of running words used in written composition, (5) number of different words used in written composition, (6) number of polysyllabic words used in written composition, and (7) number of different spelling errors made in written composition.

The raw score data of six of the seven variables were recorded on IBM cards and submitted to the Computer Laboratory at Lehigh University for computation of the sums of

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3. Merle W. Tate. Statistics in Education. New York: The Macmillan Company, 1964. pp. 515-522.

squares and the cross-products in preparation to the final steps of computation by the investigator. The seventh variable, the spelling score, was recorded in terms of arc sin transformations* and also submitted to the Computer Laboratory.

In testing the adjusted means for significance, the method described by Winer[4] was first applied. Since this method gave results close to those obtained by Scheffe's method,[5] the latter, a simpler and more convenient method, was the one finally used.

In applying Scheffe's method, it is necessary first to compute the needed standard error for a contrast among means. This is accomplished by extracting the square root of the

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* The assumptions underlying the analysis of covariance technique are (1) linearity of regression, (2) homogeneity of residual variance within groups, (3) equal within-group regression coefficients, and (4) normality of the distribution of residuals within groups. (Cf. Merle W. Tate. Statistics in Education. p. 522.)

Logical considerations and inspection indicated that the data met the assumptions, except in the case of spelling. Here where the proportion of words misspelled was the basic score, the data were markedly skewed. Hence it was desirable to transform the proportion of misspelled words by the arc sin transformations which tended to normalize the proportions and to make the variances more homogeneous.

4. B. J. Winer. Statistical Principles in Experimental Design. New York: McGraw-Hill Book Company, 1962. pp. 619-21.

5. Quinn McNemar. Psychological Statistics. New York: John Wiley and Sons, Inc. 1962. p. 345.

product of the within groups variance estimate multiplied by the sum of the reciprocals of the numbers in the groups. The standard error is,

$$S_D = \sqrt{\text{Within Groups Var. Est. } (1/N_1 + 1/N_2)}$$

To test for significance of difference among means, the adjusted mean of one group is subtracted from the adjusted mean of a second group and the difference is divided by the standard error. A quotient of $|2.50|$ is needed to be significant at the .10 level, $|2.79|$ at the .05 level, $|3.06|$ at the .025 level, $|3.36|$ at the .01 level, and $|3.58|$ at the .005 level. The absolute values were obtained from an F table by methods described by McNemar.[6]

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6. Ibid. p. 286.

CHAPTER IV

PRESENTATION AND DISCUSSION OF FINDINGS

The purpose of this study was to investigate the development of skill in (1) reading, including word recognition, word meaning, and comprehension, and (2) written composition, including vocabulary and spelling among four groups of third-grade children. Each of the four groups experienced a different approach to reading instruction in the primary grades.

Reading

Subtest scores of the California Reading Test (Upper Primary, Form W) were used to measure differences among the four groups of children in the development of word recognition, word meaning, and reading comprehension.

Word Recognition. Scores obtained on Subtest 1 were used to measure differences in word recognition skill. The maximum score possible for each child was 20. The means and standard deviations for Subtest 1 are classified by groups in Table X.

Inspection of Table X indicates that Group IV had the highest mean, and Group II the lowest. The differences among the groups, although not large, are highly significant, according to an over-all analysis of covariance. The F value is 12.28 with 3 and 548 degrees of freedom. The corresponding P is less than .005. Thus the hypothesis that no significant

TABLE X

MEANS AND STANDARD DEVIATIONS OF THE WORD RECOGNITION SUBTEST

Group	N	Mean	S.D.
I (i/t/a)	134	19.34	.78
II (basal-phonogram)	166	18.74	1.16
III (basal)	145	19.26	1.25
IV (basal-phonics)	109	19.38	.89

differences would be found in the development of word recognition skills is rejected. The statistics for the analysis of covariance are shown in Table XI.

TABLE XI

ANALYSIS OF COVARIANCE FOR MEANS IN WORD RECOGNITION

Source of Variation	Sums of Squares of Residuals	Degrees of Freedom	Variance Estimate
Methods	32.58	3	10.86
Within	484.498	548	.884
Total	517.078	551	

$F_{3, 548} = 12.28, \quad P < .005$

As shown in Table XII, when the original group means were adjusted, the results indicated higher means for Group II and Group III. The difference among the adjusted means, 1.82, was considerably larger than the difference among the original means which favored Group I and Group IV.

TABLE XII

ORIGINAL MEANS AND ADJUSTED MEANS FOR WORD RECOGNITION

Group	Original Means	Adjusted Means
I (i/t/a)	19.34	18.97
II (basal-phonogram)	18.74	19.11
III (basal)	19.26	20.05
IV (basal-phonics)	19.38	18.23

Scheffe's method was applied to the adjusted means resulting from the analysis of covariance to test for significance between pairs of means. The results are shown in Table XIII.

The findings indicate that children of the sample who were taught to read with basal readers alone (Group III) are significantly superior in word recognition skills to those taught to read with any of the other approaches. However,

TABLE XIII

GROUP COMPARISONS, OBSERVED RATIOS AND LEVELS OF SIGNIFICANCE FOR WORD RECOGNITION

Group Comparisons	Observed Ratio*	Levels of Significance*
Group I with Group II	-1.28	P > .10
Group I with Group III	-9.59	P < .005
Group I with Group IV	6.10	P < .005
Group II with Group III	-8.80	P < .005
Group II with Group IV	7.59	P < .005
Group III with Group IV	15.27	P < .005

*The observed ratio in each comparison was based on the difference obtained by subtracting the mean of the second group shown from the mean of the first group shown.

children taught to read with i/t/a (Group I) and children taught to read with basal readers supplemented with a list of phonograms (Group II) are significantly superior to those taught to read with a basal reader supplemented with phonics (Group IV).

Word recognition skills in the basal reader approach were sequentially taught throughout the primary grades. These skills included the developmental use of word-form clues,

context clues, and word analysis (phonetic and structural). In the basal-phonics approach, word recognition skills were developed through the sequential program of the basal reader in addition to a supplemental phonetic analysis program concentrated particularly in the first grade. In the basal-phonogram approach, except for the introduction of phonograms, the word recognition program followed the sequential pattern of skills development found in basal reader instruction. By contrast, in i/t/a word analysis skills, based on a sounding procedure (one-symbol, one-sound relationship), were completed by the end of the seventh or eighth month of the first grade. Throughout the remainder of the primary grades, children taught to read with i/t/a were encouraged to utilize context clues in the further development of their word recognition skills.

The results of Subtest 1 indicate that the development of word recognition skills in the basal reader approach, spread over a three-year period, is superior to the word recognition programs of any of the other approaches.

Word Meaning. Scores obtained on Subtest 2 were used to measure differences in word meaning skill. The maximum score possible for each child was 25. The means and standard deviations for Subtest 2 are classified by groups in Table XIV.

TABLE XIV

MEANS AND STANDARD DEVIATIONS OF THE WORD MEANING SUBTEST

Group	N	Mean	S.D.
I (i/t/a)	134	23.00	2.00
II (basal-phonogram)	166	22.76	2.75
III (basal)	145	23.30	1.96
IV (basal-phonics)	109	23.58	2.03

Inspection of Table XIV indicates that Group IV had the highest mean, and Group II the lowest. The differences among the groups, although not large, are significant, according to an over-all analysis of covariance. The F value is 3.58 with 3 and 548 degrees of freedom. The corresponding P is less than .025. Thus the hypothesis that no significant differences would be found in the development of word meaning skills is rejected. The statistics for the analysis of covariance are shown in Table XV.

As shown in Table XVI, when the original means were adjusted, the results indicated higher adjusted means for Group II and Group III. The difference among the adjusted means, 1.86, was considerably larger than the difference

TABLE XV

ANALYSIS OF COVARIANCE FOR MEANS IN WORD MEANING

Source of Variation	Sums of Squares of Residuals	Degrees of Freedom	Variance Estimate
Methods	42.14	3	14.05
Within	2149.96	548	3.92
Total	2192.10	551	

$F_{3, 548} = 3.58, P < .025$

among the original means which favored Group III and Group IV.

TABLE XVI

ORIGINAL MEANS AND ADJUSTED MEANS FOR WORD MEANING

Group	Original Means	Adjusted Means
I (i/t/a)	23.00	22.58
II (basal-phonogram)	22.76	23.17
III (basal)	23.30	24.17
IV (basal-phonics)	23.58	22.31

Scheffe's method was applied to the adjusted means resulting from the analysis of covariance to test for significance between pairs of means. The results are shown in Table XVII.

TABLE XVII

GROUP COMPARISONS, OBSERVED RATIOS AND LEVELS OF SIGNIFICANCE FOR WORD MEANING

Group Comparisons	Observed Ratio*	Levels of Significance*
Group I with Group II	-2.56	$P > .10$
Group I with Group III	-6.70	$P < .005$
Group I with Group IV	1.05	$P > .10$
Group II with Group III	-4.44	$P < .005$
Group II with Group IV	3.52	$P < .01$
Group III with Group IV	7.41	$P < .005$

*The observed ratio in each comparison was based on the difference obtained by subtracting the mean of the second group shown from the mean of the first group shown.

The findings indicate that children of the sample who were taught to read with basal readers alone (Group III) are significantly superior in word meaning skills to those taught to read with any of the other approaches. However, children

taught to read with basal readers supplemented with a list of phonograms (Group II) are superior to those taught to read with a basal reader supplemented with phonics (Group IV). No significant differences were found when children taught to read with i/t/a were compared with those taught with basal readers supplemented with a list of phonograms or those taught to read with a basal reader supplemented with phonics.

Word meaning (defined here as deriving meaning from the printed word) was developed through context in all four approaches. In most instances new words were introduced during the initial stage of a reading lesson and explored further during discussion of the story and workbook activities. Stress was also placed on listening and speaking throughout the lesson and subsequent follow-up activities. However, despite the similarity in presentation, differences were found in word meaning. These differences may have occurred because of differences in the reading readiness program of each approach in the first grade.

Of the four groups, the basal group had a reading readiness program that did not deviate in any way from what the authors of the series intended. The readiness program, which varied from four to five weeks in length, emphasized speaking,

listening, letter formations, and manipulative skills. A whole-word approach was used as a means of starting children to read. The words were taught first in isolation and then in context. Meaning was stressed on both occasions.

The readiness program of the basal-phonogram approach attempted to combine the whole-word approach with the teaching of phonograms. Children were paced according to their ability to assimilate the phonograms. They were moved along through the readiness stage more rapidly than the children taught to read with the basal approach.

In the basal-phonics approach, reading readiness involved both the whole-word method and the phonics method. Children were taught phonetic analysis with the hope that they would be able to transfer such learnings to the basal text. To accomplish the objectives of the basal-phonics approach, certain facets of language skills development were shifted or delayed as a result of the emphasis on phonetic analysis.

With children taught to read with i/t/a, initial reading experiences were based on teaching children symbol-sound relationships. The 44 sounds of English were taught as rapidly as children learned them. Before children were actually introduced to a text written in i/t/a, experience

charts were used extensively. Through such procedures, the rudiments of word meaning were developed. Listening, speaking, writing, spelling, and reading were taught simultaneously from the beginning. However, unlike the readiness program of the basal readers, pacing was rapid since the principle philosophy of i/t/a was to get children to read as quickly as possible.

Reading Comprehension. Combined scores obtained on Subtests 3, 4, and 5 were used to measure differences in reading comprehension skill. The maximum score possible for each child was 55. The means and standard deviations for reading comprehension are classified by groups in Table XVIII.

TABLE XVIII

MEANS AND STANDARD DEVIATIONS OF THE READING COMPREHENSION SUBTESTS

Group	N	Mean	S.D.
I (i/t/a)	134	46.64	5.31
II (basal-phonogram)	166	45.61	5.60
III (basal)	145	46.75	5.61
IV (basal-phonics)	109	46.71	4.97

Inspection of Table XVIII indicates that Group III had the

highest mean, and Group II the lowest. The differences among the groups, although not large, are significant, according to an over-all analysis of covariance. The F value is 3.66 with 3 and 548 degrees of freedom. The corresponding P is less than .025. Thus the hypothesis that no significant differences would be found in the development of reading comprehension skills is rejected. The statistics for the analysis of covariance are shown in Table XIX.

TABLE XIX

ANALYSIS OF COVARIANCE FOR MEANS IN READING COMPREHENSION

Source of Variation	Sums of Squares of Residuals	Degrees of Freedom	Variance Estimate
Methods	210.97	3	70.32
Within	10534.04	548	19.22
Total	10745.01	551	

$F_{3, 548} = 3.66, \quad P < .025$

As shown in Table XX, when the original means were adjusted, the results indicated higher adjusted means for Group III and Group I. The difference among the adjusted means,

2.62, was considerably larger than the difference among the original means which favored Group III and Group IV.

TABLE XX

ORIGINAL MEANS AND ADJUSTED MEANS FOR READING COMPREHENSION

Group	Original Means	Adjusted Means
I (i/t/a)	46.64	46.14
II (basal-phonogram)	45.61	46.10
III (basal)	46.75	47.80
IV (basal-phonics)	46.71	45.18

Scheffe's method was applied to the adjusted means resulting from the analysis of covariance to test for significance between pairs of means. The results are shown in Table XXI.

The findings indicate that children of the sample who were taught to read with conventional basal readers alone (Group III) are significantly superior in reading comprehension skills to those taught to read with any of the other approaches. No significant differences were found among the other groups when the adjusted means were tested for significance.

TABLE XXI

GROUP COMPARISONS, OBSERVED RATIOS AND LEVELS OF SIGNIFICANCE FOR READING COMPREHENSION

Group Comparisons	Observed Ratio*	Levels of Significance*
Group I with Group II	.08	$P > .10$
Group I with Group III	-3.16	$P < .025$
Group I with Group IV	1.70	$P > .10$
Group II with Group III	-3.41	$P < .01$
Group II with Group IV	1.70	$P > .10$
Group III with Group IV	4.71	$P < .005$

*The observed ratio in each comparison was based on the difference obtained by subtracting the mean of the second group shown from the mean of the first group shown.

Although all four approaches recognized the importance of comprehension skills, the emphasis in each case differed. In the basal approach, development of comprehension skills in meaningful reading situations (word context reading) did not begin until children were given pre-primer reader materials. This generally occurred at about the fourth or fifth week of school. In the basal-phonogram approach, because of the introduction of phonograms, meaningful reading

could have occurred sooner. In i/t/a, the development of comprehension skills began within the first week of school in the first grade. In the basal-phonics approach, the emphasis on comprehension skills was governed by the basal reader program since little or no training in comprehension was provided by the supplementary phonics program.

Throughout the primary grades, children taught to read with the basal approach had extended drill in comprehension through workbook exercises. These activities were usually coordinated with the stories read in the basal reader. Except for the learning of phonograms, children of the basal-phonogram sample experienced a similar program for instruction as the basal children. However, children in the i/t/a sample were paced more rapidly following transition, thus affording them the opportunity to read more than the children in the other approaches. The basal-phonics sample children, meanwhile, continued a program of supplemental phonics in grades 2 and 3 with many of the comprehension skills perpetuated through the basal reader.

Written Composition

An assessment of vocabulary used in written composition, as well as an estimate of the number of different spelling

errors made in such writing, was obtained from a sample of writing from each child. Each writing sample was analyzed for (a) total number of running words used in the composition, (b) number of different words used, (c) number of different polysyllabic words used, and (d) number of different spelling errors made.

Running Words. The total number of words used in each composition was obtained by counting the total number of running words written by each child. Titles were not considered as part of the running-word total. The means and standard deviations for running words are classified by groups in Table XXII.

TABLE XXII

MEANS AND STANDARD DEVIATIONS OF THE RUNNING-WORD TOTALS

Group	N	Mean	S.D.
I (i/t/a)	134	115.72	47.76
II (basal-phonogram)	166	95.66	39.24
III (basal)	145	92.37	43.85
IV (basal-phonics)	109	100.65	44.80

Inspection of Table XXII indicates that Group I had the highest mean, and Group III the lowest. The differences among the groups are highly significant, according to an over-all analysis of covariance. The F value is 7.18 with 3 and 548 degrees of freedom. The corresponding P is less than .005. Thus the hypothesis that no significant differences would be found in the total number of running words is rejected. The statistics for the analysis of covariance are shown in Table XXIII.

TABLE XXIII

ANALYSIS OF COVARIANCE FOR MEANS IN RUNNING WORDS

Source of Variation	Sums of Squares of Residuals	Degrees of Freedom	Variance Estimate
Methods	39671.64	3	13223.88
Within	1008697.72	548	1840.69
Total	1048339.36	551	

$F_{3, 548} = 7.18, \quad P < .005$

As shown in Table XXIV, when the original means were adjusted, the results indicated little variation between

original means and adjusted means.

TABLE XXIV

ORIGINAL MEANS AND ADJUSTED MEANS
FOR RUNNING WORDS

Group	Original Means	Adjusted Means
I (i/t/a)	115.72	115.63
II (basal-phonogram)	95.66	95.75
III (basal)	92.37	92.55
IV (basal-phonics)	100.65	100.38

Scheffe's method was applied to the adjusted means resulting from the analysis of covariance to test for significance between pairs of means. The results are shown in Table XXV.

The findings indicate that children of the sample who were taught to read with i/t/a (Group I) are significantly superior in the number of running words used in written composition to those taught to read with the basal-phonogram (Group II) or the basal (Group III) approaches. Moreover, when children taught to read with i/t/a were compared with those taught to read with the basal-phonics approach (Group IV),

the observed ratio approached significance at the .05 level. No significant differences were found among the other groups when the adjusted means were tested for significance.

TABLE XXV

GROUP COMPARISONS, OBSERVED RATIOS AND LEVELS OF SIGNIFICANCE FOR RUNNING WORDS

Group Comparisons	Observed Ratio*	Levels of Significance*
Group I with Group II	3.99	$P < .005$
Group I with Group III	4.49	$P < .005$
Group I with Group IV	2.76	$P < .10$
Group II with Group III	.66	$P > .10$
Group II with Group IV	.88	$P > .10$
Group III with Group IV	1.44	$P > .10$

*The observed ratio in each comparison was based on the difference obtained by subtracting the mean of the second group shown from the mean of the first group shown.

Differences found in the number of running words used in written composition may have been due to the use of the language arts approach with children taught to read with i/t/a. In i/t/a, reading, writing, and spelling were taught simultaneously from the beginning; whereas, in the other three

approaches, each facet of the language arts was treated separately and introduced at different times. For example, children in Group II and Group III were taught to read in the first grade, but writing and spelling were not introduced formally until late in first grade or early second grade. Children of the basal-phonics sample received some spelling instruction as part of their instruction in phonics, but writing was delayed until the latter part of first grade or early second grade.

Different Words. The total number of different words used in each composition was obtained by counting each word once regardless of how many times it appeared in the composition. The means and standard deviations for running words are classified by groups in Table XXVI.

TABLE XXVI

MEANS AND STANDARD DEVIATIONS OF THE DIFFERENT-WORD TOTALS

Group	N	Mean	S.D.
I (i/t/a)	134	67.41	26.15
II (basal-phonogram)	166	56.72	21.00
III (basal)	145	54.93	24.73
IV (basal-phonics)	109	58.70	20.92

Inspection of Table XXVI indicates that Group I had the highest mean, and Group III the lowest. The differences among the groups are highly significant, according to an over-all analysis of covariance. The F value is 7.10 with 3 and 548 degrees of freedom. The corresponding P is less than .005. Thus the hypothesis that no significant differences would be found in the total number of different words used in written composition is rejected. The statistics for the analysis of covariance are shown in Table XXVII.

TABLE XXVII

ANALYSIS OF COVARIANCE FOR MEANS IN DIFFERENT WORDS USED

Source of Variation	Sums of Squares of Residuals	Degrees of Freedom	Variance Estimate
Method	10872.28	3	3624.09
Within	279422.47	548	509.90
Total	290294.75	551	

$F_{3,\ 548} = 7.10, \quad P < .005$

As shown in Table XXVIII, when the original means were adjusted, the results indicated little variation between original means and adjusted means.

TABLE XXVIII

ORIGINAL MEANS AND ADJUSTED MEANS
FOR DIFFERENT WORDS USED

Group	Original Means	Adjusted Means
I (i/t/a)	67.41	67.25
II (basal-phonogram)	56.72	56.87
III (basal)	54.93	55.26
IV (basal-phonics)	58.70	58.21

Scheffe's method was applied to the adjusted means resulting from the analysis of covariance to test for significance between pairs of means. The results are shown in Table XXIX.

The findings indicate that children of the sample who were taught to read with i/t/a (Group I) are significantly superior in the number of different words used in written composition to those taught to read with any of the other approaches. No significant differences were found among the other groups when the adjusted means were tested for significance.

TABLE XXIX

GROUP COMPARISONS, OBSERVED RATIOS AND LEVELS OF SIGNIFICANCE FOR DIFFERENT WORDS USED

Group Comparisons	Observed Ratio*	Levels of Significance*
Group I with Group II	3.95	$P < .005$
Group I with Group III	4.43	$P < .005$
Group I with Group IV	3.10	$P < .05$
Group II with Group III	.63	$P > .10$
Group II with Group IV	- .48	$P > .10$
Group III with Group IV	-1.03	$P > .10$

*The observed ratio in each comparison was based on the difference obtained by subtracting the mean of the second group shown from the mean of the first group shown.

Different Polysyllabic Words. The total number of different polysyllabic words used in each composition was obtained by counting each polysyllabic word once. The total was derived from the total number of different words used. Proper names and words that reflected the improper use of tense, such as fighted and runed, were not considered in tabulating the number of different polysyllabic words. The means and standard deviations for polysyllabic words are classified by groups in Table XXX.

TABLE XXX

MEANS AND STANDARD DEVIATIONS OF THE POLYSYLLABIC-WORD TOTALS

Group	N	Mean	S.D.
I (i/t/a)	134	13.16	6.47
II (basal-phonogram)	166	9.89	5.09
III (basal)	145	10.24	5.07
IV (basal-phonics)	109	10.79	5.46

Inspection of Table XXX indicates that Group I had the highest mean, and Group II the lowest. The differences among the groups are highly significant, according to an over-all analysis of covariance. The F value is 9.60 with 3 and 548 degrees of freedom. The corresponding P is less than .005. Thus the hypothesis that no significant differences would be found in the total number of different polysyllabic words used in written composition is rejected. The statistics for the analysis of covariance are shown in Table XXXI.

As shown in Table XXXII, when the original means were adjusted, the results indicated little variation between

TABLE XXXI

ANALYSIS OF COVARIANCE FOR MEANS IN DIFFERENT POLYSYLLABIC WORDS USED

Source of Variation	Sums of Squares of Residuals	Degrees of Freedom	Variance Estimate
Method	764.17	3	254.72
Within	14540.81	548	26.53
Total	15304.98	551	

$F_{3, 548} = 9.60, \quad P < .005$

original means and adjusted means.

TABLE XXXII

ORIGINAL MEANS AND ADJUSTED MEANS FOR DIFFERENT POLYSYLLABIC WORDS USED

Group	Original Means	Adjusted Means
I (i/t/a)	13.16	12.89
II (basal-phonogram)	9.89	10.15
III (basal)	10.24	10.81
IV (basal-phonics)	10.79	10.13

Scheffe's method was applied to the adjusted means resulting from the analysis of covariance to test for significance between pairs of means. The results of the test for significance are shown in Table XXXIII.

TABLE XXXIII

GROUP COMPARISONS, OBSERVED RATIOS AND LEVELS OF SIGNIFICANCE FOR DIFFERENT POLYSYLLABIC WORDS USED

Group Comparisons	Observed Ratio*	Levels of Significance*
Group I with Group II	4.58	$P < .005$
Group I with Group III	3.37	$P < .01$
Group I with Group IV	4.15	$P < .005$
Group II with Group III	1.13	$P > .10$
Group II with Group IV	- .03	$P > .10$
Group III with Group IV	-1.04	$P > .10$

*The observed ratio in each comparison was based on the difference obtained by subtracting the mean of the second group shown from the mean of the first group shown.

The findings indicate that children of the sample who were taught to read with i/t/a (Group I) are significantly superior in the number of different polysyllabic words used

in written composition to those taught to read with any of the other approaches. No significant differences were found among the other groups when the adjusted means were tested for significance.

Different Spelling Errors. The total number of different spelling errors made in each composition was obtained by counting each misspelled word once. The total was derived from the total number of different words used. In correcting the writing samples, the following criteria were established: (1) Proper names were not considered in tabulating the number of different spelling errors. (2) Homonyms were counted as spelling errors if such words were not used correctly. (3) Words like fighted and runed were not recorded as misspellings. (4) The investigator used his judgment in evaluating words that appeared misspelled because of poor handwriting. The means and standard deviations for different spelling errors are reported in Table XXXIV.

Inspection of Table XXXIV indicated that Group I had the highest mean, and Group IV the lowest. The differences among the groups are not significant, according to an over-all analysis of covariance. The F value is .77 with 3 and 548 degrees of freedom. The corresponding P is greater than .10. Thus the hypothesis that no significant differences would be found in the total number of different spelling errors

TABLE XXXIV

MEANS AND STANDARD DEVIATIONS OF THE SPELLING ERRORS-TOTALS

Group	N	Means*	S.D.*
I (i/t/a)	134	55.50	25.46
II (basal-phonogram)	166	54.84	24.26
III (basal)	145	53.80	24.72
IV (basal-phonics)	109	53.60	25.54

*Means and standard deviations represent arc sin transformations of the proportions of misspelled words multiplied by 100.

was accepted. The statistics for the analysis of covariance are shown in Table XXXV.

TABLE XXXV

ANALYSIS OF COVARIANCE FOR MEANS IN DIFFERENT SPELLING ERRORS

Source of Variation	Sums of Squares of Residuals	Degrees of Freedom	Variance Estimate
Method	1303.78	3	434.59
Within	307676.12	548	561.45
Total	308979.90	551	

$F_{3, 548} = .77, \quad P > .10$

Since the differences are not significant, no further analyses are warranted.

The results of the analyses of compositions written by the children in the four samples, with the exception of spelling, seem to reflect certain advantages gained by those children who were taught to read with i/t/a. Of the four approaches investigated, only i/t/a utilized a unified language arts approach from the very beginning of first grade. Under this type of language arts program, reading, writing, and spelling were taught simultaneously. Although the other three approaches provided for reading instruction throughout the first grade, writing in the form of compositions was delayed until late in the first or early second grade. Spelling entered the curriculum in the second grade, except in the basal-phonics approach where some spelling skills were taught as part of phonics instruction. In any case, as each facet of the language arts was introduced, it was treated separately and not as a unified program as in i/t/a.

Thus, since children taught to read with i/t/a had more experience in writing, it would seem likely that they would produce a greater number of running words in written composition. It follows that their ability to write more afforded them the opportunity to use a greater number of different

words as well as a greater number of polysyllabic words. The extra time devoted to teaching children to write in i/t/a may have accounted for the differences found.

Interestingly, though, children taught to read with i/t/a learned from the beginning the one-symbol, one-sound principle in pronouncing words. This symbol-sound relationship appeared to extend into their spelling. Thus i/t/a taught children spelled words as they were sounded, utilizing all 44 phonemes in i/t/a. Consequently, the words written by these children differed from regular English words because of the use of i/t/a symbols. However, once the children made the transition into conventional readers regular English spellings were taught and insisted upon. Despite the emphasis on traditional spellings, many of the children taught to read with i/t/a continued to spell certain words in i/t/a at the end of the third grade.

With regard to spelling errors, the children taught to read with the basal-phonics approach displayed errors similar to those of the i/t/a children. Since phonics is also based on a system of sounding, the children who experienced this approach also committed errors which reflected attempts to write words as they sounded. The only noticeable differences in the kinds of spelling errors between the i/t/a taught

children and the basal-phonics children were that the i/t/a children misspelled words the same way consistently; whereas with the basal-phonics children, the pattern of misspellings was inconsistent. This same inconsistency, but to a lesser degree, was also observed in the writings of children taught to read with the basal-phonogram and basal approaches.

Discussion

What may have accounted for the relatively slight differences in over-all means in the various reading subtests was that the subtests themselves were not sufficiently difficult to challenge the ablest readers since a large proportion of children from each sample obtained perfect scores on all the tests. However, the tests discriminated sufficiently to yield substantially significant differences.

Subtest 1, word recognition, provided a possible score of 20. The slight variations in over-all mean scores is illustrated by the achievements of children who were taught to read with the basal-phonics approach (Group IV) and those taught to read with the basal-phonogram approach (Group II). The means were 19.36 and 18.74, respectively, and represent a difference of .64 between the highest mean and the lowest mean. These slight variations in mean scores are also reflected in the small fluctuations about the means in the standard deviations reported (Table X).

Subtest 2, word meaning, provided a possible score of 25. The slight variations in over-all mean scores is illustrated by the achievements of children who were taught to read with the basal-phonics approach (Group IV) and those taught to read with the basal-phonogram approach (Group II). The means were 23.58 and 22.76, respectively, and represent a difference of .82 between the highest mean and the lowest mean. These slight variations in mean scores are also reflected in the small fluctuations about the means in the standard deviations reported (Table XIV).

Subtests 3, 4, and 5, reading comprehension, provided a possible score of 55. The slight variations in over-all mean scores is illustrated by the achievements of children who were taught to read with the basal approach (Group III) and those taught to read with the basal-phonogram approach (Group II). The means were 46.75 and 45.61, respectively, and represent a difference of 1.14 between the highest and the lowest mean. These slight variations in mean scores are also reflected in the small fluctuations about the means in the standard deviations reported (Table XVIII).

In addition to the subtests not having enough ceiling to challenge the ablest children, the slight differences in means may have been due to the fact that all of the children in the

samples received basal reader instruction in grades 2 and 3. The only difference in treatment of the three groups was that the children in Group IV had a supplemental phonics program in grades 2 and 3.

Although the differences found in reading, which included word recognition, word meaning, and reading comprehension, were statistically significant, they appear to be of limited practical value. There is little reason to believe that more discriminating tests would have produced greater differences since a substantial number of children in each sample achieved top scores. If so, it would seem to make little practical difference which method was used to instruct the children of the samples tested.

On the other hand, the differences found in written composition, which included the number of running words, the number of different words, the number of different polysyllabic words, and the number of different spelling errors, were highly significant and seemed to be of practical importance, except in the number of different spelling errors where no significant differences were found among the four groups. Whereas, the average difference between the adjusted group means in the reading subtests divided by the average of the adjusted means was about five percent, the corres-

ponding percentage for running words, different words, and polysyllabic words was about 20 percent.

It is not clear why the differences in written composition were both highly significant and substantial. The children were limited in time (20 minutes), but this did not seem to differentially inhibit their performance, since the majority of the children in all groups completed the exercise well within the prescribed time. It seems reasonable to conclude that the superiority demonstrated by children of the sample taught to read with i/t/a was due to the influence of the language arts approach used from the very beginning of the first grade. This interpretation is consistent with findings of Mazurkiewicz.[1]

Since no differences were found in the number of different spelling errors in written composition, it may be that the teachers of all four approaches utilized similar techniques in the teaching of spelling which tended to produce the same results.

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1. Mazurkiewicz, "Third Annual Report...," op. cit.

CHAPTER V

SUMMARY, CONCLUSIONS, AND RECOMMENDATIONS

Summary

Four groups of children who experienced different approaches to reading instruction in the primary grades were included in this study which was designed to test the null hypothesis that no significant differences would be found in the development of certain language skills at the end of third grade. Group I was taught to read with the Initial Teaching Alphabet (i/t/a) which utilizes a unified language arts program from the beginning in first grade. Group II was taught to read with a variety of basal readers supplemented with a list of phonograms (basal-phonogram). Group III was taught to read with basal readers alone (basal). Group IV was taught to read with a basal reader supplemented with phonics (basal-phonics).

Specifically answers to the following questions were sought:

1. Are there differences among the four groups in word recognition?

2. Are there differences among the four groups in word meaning?

3. Are there differences among the four groups in reading comprehension?

4. Are there differences among the four groups in the number of running words used in written composition?

5. Are there differences among the four groups in the number of different words used in written composition?

6. Are there differences among the four groups in the number of different polysyllabic words used in written composition?

7. Are there differences among the four groups in the number of different spelling errors made in written composition?

A total of 891 boys and girls were included in the initial screening which was completed during the spring of 1966. These children were drawn from 27 classrooms found in three school districts in Eastern Pennsylvania. The three districts represented by the four groups were the Bethlehem City Area School District, Bethlehem, Groups I and II; the Hellertown-Lower Saucon Joint School District, Hellertown, Group III; and the Easton Area Joint School District, Palmer Township Elementary School, Easton, Group IV. All children used in the study were representative of middle socio-economic populations.

From the children considered upon completion of the preliminary screening, only those who completed all the testing and furnished a writing sample were included in the four groups investigated, one for each of the four reading approaches. Of the 891 children initially tested, 554 children were used in the final statistical analysis. One hundred thirty-four children made up Group I; 166 made up Group II; 145 made up Group III, and 109 made up Group IV.

Ninety-one teachers were responsible for instructing the children in the primary grades: 32 in first grade, 29 in second grade, and 30 in third grade. Although differences were found among teacher groups at each grade level in mean chronological age, mean years of experience, degrees held, and certification, none of the differences seemed to be related to the outcomes. With regard to teacher rating, all 91 teachers were rated satisfactory by the school officials responsible for their performance. The ratings in all districts are conducted annually in accordance with the regulations set forth by the Pennsylvania Department of Public Instruction.

The California Reading Test (Upper Primary, Form W) was used to measure word recognition, word meaning, and reading comprehension. A sample of each child's writing

was used to measure the number of running words, number of different words, number of different polysyllabic words, and number of different spelling errors made in such writing. The Henmon-Nelson Test of Mental Ability (Revised Edition for Grades 3-6, Form A) was administered to establish an estimate of intelligence.

An analysis of covariance teachnique with control of IQ and sex was applied to the raw score data on each variable except spelling in order to obtain an over-all F test of significance and to adjust the original group means. In spelling, the arc sin transformation was applied to the proportions of misspelled words, and the transformed values were used in the analysis. The adjusted means were compared and tested for significance by Scheffe's method with the following results:

Word Recognition. The basal approach was superior to any other approach represented. Both i/t/a and the basal-phonogram approach were superior to the basal-phonics approach. P was less than .005 in each case. No significant difference was found between i/t/a and the basal-phonogram approach, $P > .10$.

Word Meaning. The basal approach was superior to any other approach represented. P was less than .005 in each case. The basal-phonogram approach was superior to the

basal-phonics approach, $P < .01$. No significant differences were found between i/t/a and the basal approach, and i/t/a and the basal-phonics approach, $P > .10$.

Reading Comprehension. The basal approach was superior to any other approach represented. P was less than .025 when the basal approach was compared with i/t/a, less than .01 when compared with the basal-phonogram approach, and less than .005 when compared with the basal-phonics approach. No significant differences were found when i/t/a was compared with the basal-phonogram approach and the basal-phonics approach. Nor were there any differences found between the basal-phonogram approach and the basal-phonics approach. P was greater than .10 in each case.

Running Words. i/t/a was superior to any other approach represented. When i/t/a was compared with the basal-phonogram approach, $P < .005$; with the basal approach, $P < .005$, and with the basal-phonics approach, $P < .10$. The last was of borderline significance. No significant differences were found among other group comparisons. P was greater than .10 in each case.

Different Words. i/t/a was superior to any other approach represented. When i/t/a was compared with the basal-phonogram approach, $P < .005$; with the basal approach, $P < .005$, and with the basal-phonics approach, $P < .05$. No

significant differences were found among other group comparisons. P was greater than .10 in each case.

Different Polysyllabic Words. i/t/a was superior to any other approach represented. When i/t/a was compared with the basal-phonogram approach, $P < .005$; with the basal approach, $P < .01$, and with the basal-phonics approach, $P < .005$. No significant differences were found among other group comparisons. P was greater than .10 in each case.

Different Spelling Errors. No significant differences were found among the groups. P was greater than .10 in each case.

Conclusions

Based on the findings, and subject to the limitations, of this study, the following conclusions are justified.

At the end of third grade:

1. Children of the sample taught to read with the basal reader approach were significantly superior to those taught to read with i/t/a, the basal-phonogram approach, and the basal-phonics approach in the skill of word recognition as measured by Subtest 1 of the California Reading Test.

2. Children of the sample taught to read with the basal reader approach were significantly superior to those taught

to read with i/t/a, the basal-phonogram approach, and the basal-phonics approach in the skill of word meaning as measured by Subtest 2 of the California Reading Test.

3. Children of the sample taught to read with the basal reader approach were significantly superior to those taught to read with i/t/a, the basal-phonogram approach, and the basal-phonics approach in the skill of reading comprehension as measured by Subtests 3, 4, and 5 of the California Reading Test.

4. Children of the sample taught to read with i/t/a were significantly superior to those taught to read with the basal approach, the basal-phonogram approach, and the basal-phonics approach in the number of running words used in written composition.

5. Children of the sample taught to read with i/t/a were significantly superior to those taught to read with the basal approach, the basal-phonogram approach, and the basal-phonics approach in the number of different words used in written composition.

6. Children of the sample taught to read with i/t/a were significantly superior to those taught to read with the basal approach, the basal-phonogram approach, and the basal-phonics approach in the number of different poly-syllabic words used in written composition.

7. No group was superior in spelling when the number of different spelling errors made in written composition were compared.

In interpreting these conclusions, it should be kept in mind that only the differences in the number of running words, different words, and polysyllabic words were both statistically significant and large enough to be of practical importance. The differences in reading skills, although statistically significant, appeared to be too small to be of practical importance. Thus, it would appear that it makes little practical difference what approach is used in teaching reading in the primary grades provided the approach incorporates a unified language arts program.

Recommendations

The findings, conclusions, and limitations of the present study suggest the following recommendations:

1. An investigation similar to the present should be carried out after teachers become more familiar with approaches differing from the basal approach. Such an investigation should use a reading test capable of measuring the widest range of abilities. One of the limitations of the present study was the use of a "low ceiling" reading

test, a circumstance unanticipated at the outset.

2. An investigation controlling for teacher effect should be designed to determine the extent to which teacher performance affects the development of the language arts skills. A second limitation of the present study was the impossibility to control teacher effect.

3. An investigation dealing with the interactions of sex, intelligence, and method should be designed to determine whether the approaches differ with differing sexes at varying levels of ability.

4. An investigation involving approaches which incorporate, as does i/t/a, a unified language arts program should be conducted to determine whether it is i/t/a or the unification which contributes to increased writing ability of children at the end of third grade.

APPENDIX A

Dear Teacher,

Through the cooperation of your school district administrators I have been given permission to secure your assistance in the collection of certain data on the children in your classroom. The data will be used in a doctoral dissertation to be presented to the School of Education, Lehigh University, some time during the 1966-1967 school year.

Initially, I need to have the name of the children in your classroom (see Item 2, Data Summary). Also needed is the information asked for in Items 3, 4, 5, 6, and 7. Since the completed summary will not be due until April 15, it is felt that sufficient time is provided to furnish the required information. The following is a brief description of each item:

Item 1: Please do not write in this space.

Item 2: Please list the boys and girls separately. Indicate at the top of the page (Boys - Girls) by crossing out one or the other. The reason for this is to provide quick identification of the lists as they are processed.

Item 3: Merely check (✓) Item 3 if the pupil has repeated grades 1 or 2. If the pupil is repeating grade 3, check (✓) him as a repeater.

Item 4: If the pupil was referred for psychological testing at any point (grades 1, 2 or 3) please check (✓). Whether or not he was tested is not important. What is important is the fact that he was referred.

Item 5: Please check (✓) if the pupil received remedial reading outside the classroom in grades 1, 2 or 3.

Item 6: If the pupil displays any language problem due to bilingualism, please check (✓) Item 6. Example: Pupil of foreign extraction who has problems learning to speak English.

Item 7: Please check (✓) if the pupil transferred into first grade after the 30th day of instruction. Example: If opening day of school was September 6, count 30 instructional days after the opening date.

The information referred to above will be due April 15, 1966.

In addition to the Class Data Sheet, you will find enough Pupil-Teacher Record Sheets for each pupil in your classroom. What is asked for is that each pupil write in the name (or names) of his teacher (or teachers) he has had at each grade level. The real concern here is that dealing with only those pupils who have been in the same school district since first grade (see explanation, Item 7, above). Please note: The data sought on the Teacher-Pupil Record Sheets are due March 15, 1966. Two due dates are important. March 15, 1966, the Teacher-Pupil Record Sheets and April 15, the Class Data Summary.

Any efforts you may make in assisting me to fulfill these two basic, but very important, requirements will be greatly appreciated.

Yours very truly,

PETER A. LAMANA
Doctoral Candidate
School of Education
Lehigh University

PAL:lec

CLASS DATA SUMMARY

(Boys - Girls)

School_____ Teacher_____

1	2	3	4	5	6	7
	Name (Alphabetically, Surname First)	Repeated Grade	Referred for Psychological Testing	Received Remedial Reading Instruction	Bilingual Problem	Transferred into School System

Pupil-Teacher Record

Pupil's Name _____ Teacher_____

School_____

PRINT TEACHER'S NAME

My teacher in first grade was _____

_____

_____

My teacher in second grade was _____

_____

_____

My teacher in third grade is _____

_____

_____

APPENDIX B

Stimulus Writing Response
(Twenty Minutes Writing Time)

Instructions to Teacher:

1. See to it that children clear desks.
2. Be certain that all children have a pencil(s) and eraser.
3. Hand out paper. (Use paper that children are accustomed to writing on.)
4. Show children where you want them to write their names. Tell them to write your name and the name of the school right under your name. (Write or print your name and the name of the school on the chalkboard so children may copy them.)
5. When all have finished writing, say..."Now put your pencils down. I am going to read a story about a frog named Hoppy. I want you to listen closely for I am going to omit the ending. When I have finished reading, I want you to take your pencil and tell how you think the story should end."

   "You will need to listen very carefully because I can't help you write this story. If you can't spell a word, just write it the way it sounds. Are there any questions?"

   (If the question arises about asking for additional paper, tell the children that they may use as much paper as they feel is necessary. When two or three sheets are used, please see to it that they are properly coded and stapled.)

   "Ready...Listen...Here is the story."

Hoppy was the most unusual frog that ever lived in Blue Swamp. Hoppy was different because of his color. All of the other frogs had brown skin, but not Hoppy. No, sir, he was a purple frog. He was different, too, because he never worried about anything. Life for Hoppy was just fun, fun,

fun. But the thing that really made him different was that he turned somersaults instead of hopping and jumping as the other frogs did. This made the other frogs jealous, but Hoppy did not care. He was having fun.

One day Hoppy was hopping and somersaulting along, having fun like he always did, when he saw Racky, the raccoon, hiding up in a tree.

"Hey, Racky," said Hoppy, "what are you doing up in the tree? Why don't you come down and have some fun with me?"

"Oh, no," said Racky, "Willie Crocodile is looking for his supper and I'm staying right here until it's safe to come down."

"Suit yourself," said Hoppy as he hopped along.

Soon he saw Brownie, the mouse, digging a hole in the ground.

"Hey, Brownie," yelled Hoppy, "how come you are digging that hole? Why don't you stop a while and play with me."

"No, sir," replied Brownie, "Willie Crocodile is looking for his supper, and I'm going to hide until it's safe to come out again."

"Well, suit yourself," said Hoppy as he hopped along.

By and by, Hoppy met Mr. Owl. He was perched on a limb judt above Hoppy's head. "Hey, Mr. Owl, will you play with me?"

"Oh, no," said Mr. Owl, "it's not safe to be funnin' especially when Willie Crocodile is looking for his supper. You'd better find a place to hide."

"Well, maybe so," replied Hoppy, "but I don't have time to hide, not when I can have fun instead." And he hopped along.

By now Hoppy was feeling real happy. He was jumping higher and higher as he went along. He jumped and turned over and over. Wheeee! He was having fun.

In his excitement, Hoppy didn't notice that Blue Swamp had become very quiet. It wasn't until he stopped to catch his breath that he noticed how quiet things really were. Not even the leaves stirred. He didn't know what to make of it.

Suddenly the silence was broken by a squeeking sound. It was Brownie running alongside him. All he kept saying was, "Run for your life Hoppy! Run!" Then Brownie scurried as fast as he could back to his hole in the ground.

Racky, the raccoon, peeped out through the leaves of the tree he was hiding in. "yes, yes, you'd better hurry Hoppy."

"Hoot, hoot!" cried Mr. Owl, "Go, Hoppy, go before it's too late."

6. Upon completion of the reading, say..."That's as much of the story I can tell you. Now you tell me what you think happened."

7. Once the children begin to write, begin timing them. They have twenty (20) minutes writing time. Stop them at the end of twenty (20) minutes. Children who finish ahead of time may go on to something else. Their papers should be collected upon finishing. Please try to keep those who finish early from interrupting those who are still writing. At the end of twenty (20) minutes writing, say..."Please stop writing."

APPENDIX C

Interpretation of Raw Data Print Out (Table XXXVI)

Column 1: identification number of method

1 - i/t/a (Group I)
2 - basal-phonogram (Group II)
3 - basal (Group III)
4 - basal-phonics (Group IV)

Column 2: sex identification

1 - male
2 - female

Column 3: word recognition

Column 4: word meaning

Column 5: reading comprehension

Column 6: number of running words

Column 7: number of different words used

Column 8: number of different polysyllabic words used

*Column 9: number of different spelling errors made

Column 10: intelligence quotient

*The asterisk signifies that numerals in Column 9 are arc sin transformations.

TABLE XXXVI

PRINT OUT OF RAW DATA

1	2	3	4	5	6	7	8	9	10
1	1	020	023	050	091	062	009	044	115
1	1	018	024	045	083	058	015	094	115
1	1	020	025	054	081	058	010	046	146
1	1	020	025	053	128	080	020	023	134
1	1	019	024	046	131	070	011	048	112
1	1	020	024	053	138	070	016	034	125
1	2	020	024	051	161	098	026	058	118
1	2	019	023	050	120	075	013	033	126
1	2	020	024	050	127	091	016	035	133
1	2	018	025	051	131	079	016	039	126
1	2	020	025	053	150	084	018	054	124
1	2	019	025	049	140	089	012	030	129
1	2	020	023	050	153	102	014	049	115
1	2	020	024	053	115	083	015	038	137
1	2	020	023	052	151	103	018	057	127
1	1	020	023	046	096	062	010	083	108
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166

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3	2	020	023	046	097	054	009	047	113
3	2	018	020	043	094	051	011	076	112
3	2	018	021	049	097	058	014	053	112
3	2	019	021	043	158	079	009	056	106
3	1	020	024	050	091	052	012	063	115
3	2	020	021	047	130	057	012	046	108
145									

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4	2	020	024	046	076	051	006	000	121
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109

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