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A Comparative Study of the Reading Achievement Between Two Approaches to Primary Reading Instruction--the Initial Teaching Alphabet and the Traditional Orthography

Rodney O. Johnson
University of Nebraska at Omaha

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A COMPARATIVE STUDY OF THE READING ACHIEVEMENT BETWEEN TWO APPROACHES TO PRIMARY READING INSTRUCTION--THE INITIAL TEACHING ALPHABET AND THE TRADITIONAL ORTHOGRAPHY

A Field Study

Presented to

the Faculty of Graduate College

University of Nebraska at Omaha

In Partial Fulfillment

of the Requirements for the Degree

Specialist in Education

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by

Rodney O. Johnson

October 1971

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Accepted for the faculty of The Graduate College of the University of Nebraska at Omaha, in partial fulfillment of the requirements for the degree Specialist in Education.

Graduate Committee

Name	Department
Kenneth Burkholder	Ed. Ad.
Robert Ackerman	Ed. Ad.
Darrell Kellam, Chairman	Ed Ad

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CHAPTER I

THE PROBLEM AND DEFINITIONS OF TERMS USED

Reading is the single most important subject that a child learns at school. It is the base on which much of his success or failure in school is built. The National Council of Teachers of English estimates that four million elementary school pupils have reading disabilities. In many instances we do not have effective reading programs in junior high school and many high school graduates score from one to two years below grade level in reading when they enter college. It has become necessary to establish remedial reading instruction, beginning with the second grade, and to continue it through high school and college. The root of the trouble seems to be anchored at the first grade. Most of the failures of the primary grades are attributed to the inability to read adequately.

Learning to read is a difficult and complex task. Although our methods of teaching reading in the past have produced many students with outstanding ability, we continue to produce far too many disabled and retarded readers. Our English language, so filled with irregularities between sound and symbol, is not easily mastered. Many attempts have been made to bring forth "the best method" of teaching reading. There is a constant search for one method of teaching reading

which would help us eradicate our failures and bring us greater success in teaching children how to read.

I. THE PROBLEM

Statement of the problem. It is the purpose of this study to compare the reading achievement of the fourth grade students at Sunset Hills School, Westside Community Schools, Omaha, Nebraska, who received instruction in the Initial Teaching Alphabet at the first grade level, and the fourth grade students at Loveland School, Westside Community Schools, Omaha, Nebraska, who received instruction in the traditional orthography, at the first grade level.

Hypothesis. Two null hypotheses were posed. There is, in the fourth grade, no significant difference in vocabulary achievement for the initial teaching alphabet group or the traditional orthography group. There is, in the fourth grade, no significant difference in comprehension achievement for the initial teaching alphabet group or the traditional orthography group.

Importance of the study. There is a need to find the better way. It is most important that those in charge of curriculum planning know just how effective this new program of instruction is and how it could be improved. While constantly striving for excellence, the school administration must at all times be cognizant of the end results through objective testing and evaluation of all programs.

II. DEFINITIONS OF TERMS USED

Reading achievement. The proficiency of performance in reading shall be interpreted as reading achievement of the students.

Null hypothesis. The hypothesis that states that there was no significant difference in two or more treatments.

Initial Teaching Alphabet.* A temporary alphabet designed for use in the initial stages of learning to read and write is known as the Initial Teaching Alphabet.

Traditional orthography.** The conventional means of spelling and writing words according to standard usage of English is known as traditional orthography.

Limitations of the study. The study was confined to the comparing of vocabulary and comprehension achievement in reading of the i.t.a. group and the t.o. group. It was not the intent of the study to compare mental ability with achievement in reading, spelling ability, nor creative writing ability of the two groups, all of which are so closely allied to the reading achievement.

Organization of the Study. In the ensuing pages the discussion is divided into the following major topics:

* Abbreviated to the letters i.t.a. hereafter.

** Abbreviated to the letters t.o. hereafter.

(1) Review of the Literature, (2) Groups Studied and Materials Used, (3) The Statistical Method and Results, (4) Summary, Generalizations, Conclusions and Recommendations.

CHAPTER II

REVIEW OF THE LITERATURE

The controversy which i.t.a. has created has produced a quantity of literature about the subject. In this chapter an attempt will be made to present a brief history of i.t.a., a background of some studies which have been made, and some opinions about i.t.a. by authorities in the reading field, who both commend and condemn it.

History of i.t.a. In 1959, Sir James Pitman invented the Augmented Roman Alphabet, which is better known as i.t.a. The alphabet has forty-four symbols instead of the conventional twenty-six; each of the forty-four symbols represents one and only one sound. The alphabet is basically phonemic rather than strictly phonetic. Twenty-four of the forty-four symbols are the traditional ones; fourteen of the augmentations look very much like two familiar letters joined together. Other special symbols represent the remaining phonemes. It is wholly in lower-case and the capital letters are the small letters written large.

In September 1961, i.t.a. was introduced in some of the British schools. In 1963, approximately six hundred children in Bethlehem, Pennsylvania, participated in the first i.t.a. study conducted in the United States. In 1965, all

first grade children in the Bethlehem School District used i.t.a. as the method for teaching initial reading and writing instruction. As i.t.a. neared its fifth birthday in the United States, it was estimated that almost a half-million American children had learned to read with i.t.a. It is estimated that there are schools in over fifty per cent of the states which are using i.t.a. to teach first grade children to read. Despite setbacks, controversies, and negative evaluations by some leaders in the reading field, i.t.a. has held on doggedly to a place in American schools and made slow but steady growth.[1]

There seems to be a realization in both the United States and Great Britain that "primary education is of primary importance, as is the beginning of reading and writing."[2] The difference of opinions, and there are many, concerning which is the most effective way to solve the difficulties children encounter in learning to read seem to center around which medium to use. There have been other phonemic alphabets that have appeared from time to time which have not been widely accepted because they were so radically different from t.o. Nilson says "While some writers are critical of the system,

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[1] John Downing, "American versus British Experience," Phi Delta Kappan, Vol. LII, No. 7, March 1971 (Dayton, Ohio: Phi Delta Kappa, Inc., 240 W. 5th Street), pp. 416-419.

[2] "I.T.A. Crusader Returns to do Battle," Times Education Supplement, August 23, 1968, London, England, Vol. 2779, p. 319.

(i.t.a.) others confidently state that it is the greatest English import since the 'Beatles'."[3]

Studies. In their study, Tanzer, Alpert, and Sandel concluded that children who learned to read under the i.t.a. did not suffer any significant loss in t.o. reading and spelling at the time of transition to t.o.[4] In 1967 Willford and Shapiro found that the level of achievement of i.t.a. children which decreased during and after transition to t.o. " . . . may well be an indication of the quality of the transition and post-transition curriculum rather than an inherent problem of transfer."[5] Gillooly cautions that there should be more investigation of the difficulties of transition and of the effect that i.t.a. has had on spelling difficulties and creative writing.[6]

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[3]Don Nilson, "Is i.t.a. Phonemic?", Elementary English, Vol. XLIII, No. 4, April 1966 (Champaign, Illinois: The National Council of Teachers of English, 508 South Sixth Street), p. 381.

[4]Harold J. Tanzer, Harvey Alpert, and Lenore Sandel, "The Effects of Transition from i.t.a. to t.o. on Reading and Spelling Achievement," i.t.a. as a Language Arts Medium (Hempstead, N. Y.: editor J. R. Block, i.t.a. Foundation, 1968, in press.)

[5]Robert E. Willford and Bernard J. Shapiro, "The Effect of Three Different Methods of Transition on Tested Reading Achievement," i.t.a. as a Language Arts Medium (Hempstead, N. Y.: editor J. R. Block, i.t.a. Foundation, 1968, in press.)

[6]William Gillooly, "Is the Promise of i.t.a. a Delusion?", Phi Delta Kappan, Vol. XLVII, No. 10, June 1966 (Dayton, Ohio: Phi Delta Kappa, Inc., 240 W. 5th Street), pp. 545-550.

The three main conclusions of the British i.t.a. research report, as Downing notes, are:

> 1. t.o. is a serious cause of difficulty in the early stages of learning to read and write. Thus English spelling is a severe handicap to teachers and children in the English-speaking countries of the world.
>
> 2. i.t.a. generally leads to superior t.o. reading and t.o. spelling by the end of the third year in school. In word recognition the average i.t.a. student is five or six months advanced in reading t.o.
>
> 3. This success of i.t.a. in improving t.o. literacy skills comes only after a plateau or even regression in the growth of such skills at the stage of transition from i.t.a. to t.o.[7]

Dolmatch tested i.t.a., revised it in the light of actual classroom experience, and added up the results of its use with hundreds of thousands of children. He states, "We proved that it works well. This proof lets us offer a guarantee to educators who are anxious to move ahead in the teaching of reading and writing."[8]

Inspectors Blackie and Sadler give the following "summing up" which they say is "as fair and honest as space and brevity permit. It quotes a mere fraction of published evidence in favor of i.t.a."

> 1. By using i.t.a., children learn to read more quickly and pleasurably. They not merely sound, but

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[7]W. D. Wall, "The Evaluations: A Summary," in J. A. Downing (Ed), The i.t.a. Symposium (England: The National Foundation for Educational Research in England and Wales, 1967), pp. 162-168.

[8]Theodore B. Dolmatch, "Accountability for New i.t.a. School Systems," I.T.A. Bulletin, Vol. 7, No. 3, March 1970 (New York, N. Y., 20 East 46th Street.

understand what they read. They read independently and therefore widely in a great variety of books. The proportion of non-readers and strugglers in i.t.a. schools has been vastly reduced.

2. The ease of transfer causes "wonder and delight" to every teacher without exception, though many add that there should be no haste to rush it.

3. Children who learn to read and write easily with i.t.a. develop confidence and independence, and show initiative and responsibility at quite an early stage.[9]

The most comprehensive study to date of the i.t.a. was sponsored by the British Government's School Council. Warburton and Southgate conclude, "that most children have learned to read earlier, more easily, and at a faster rate with i.t.a. than similar children using the t.o." It appears that this difference is wiped out after three years of schooling, the study adds. They say, "that having children learn reading earlier, more easily, and without frustration justifies the use of i.t.a."[10]

Opinions. If a hypothetical group of 100 investigators in different schools were to begin separate studies of the effectiveness of i.t.a. vs t.o., J. R. Block believes that the overall results of these studies should show several things:

1. The probability is that two-thirds of the studies will demonstrate that i.t.a. children read at a higher level than children taught with t.o.

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[9]John Blackie and Donald Sadler, "A Summary of the Report on i.t.a. by the Schools Council," Teachers World, November 13, 1970, pp. 18-19.

[10]F. W. Warburton and Vera Southgate, I.T.A., An Independent Evaluation (London: Chambers and Murray, 1969).

2. The remaining one-third will find no significant difference between the experimental and control groups and no study will find any generally adverse effects associated with i.t.a.

3. A high probability of finding a significant difference favoring the i.t.a. group in those sub-tests identified with such terms as word recognition, word meaning, word study skills, reading sentences, etc.

4. On sub-tests dealing with issues such as paragraph meaning and comprehension, it is somewhat more probable that the study will show no significant difference.[11]

Downing calls for some "change and refinement of characters to insure future progress of i.t.a."[12] Artley agrees that it would be unfortunate if " . . . it were to be assumed that both the code system and the method of its use were fixed and established so that no further work on either would be necessary."[13] Holmes comments that there is need for experiments to determine how the characters need to be modified "and further investigation to find what new material and techniques are needed to make the transfer from i.t.a. to t.o.

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[11]J. R. Block, "I.T.A. Superiority a Predictable Finding," I.T.A. Bulletin, Vol. 6, No. 1, October 1968 (New York, N. Y., 20 East 46th Street).

[12]John Downing, "What's Wrong with i.t.a.?", Phi Delta Kappan, Vol. XLVIII, No. 6, February 1967 (Dayton, Ohio: Phi Delta Kappa, Inc., 240 W. 5th Street), p. 263.

[13]Dr. A. S. Artley, of the University of Missouri, comments on "The Evaluations: A Summary," in J. A. Downing (Ed), The i.t.a. Symposium (England: The National Foundation for Educational Research in England and Wales, 1967), p. 163

an easier process."[14] Ohanian questions Downing's conclusions and doubts the feasibility of changing the present characters of i.t.a.[15] She states, "The advocates of the new medium would have us believe that i.t.a. introduces changes in orthography and not teaching methods."[16]

Some who have made studies of various approaches have noted that the testing instrument may give an advantage of one approach over the other. Harris states, "Available reading tests, including those prescribed for the cooperating studies, tend to be inherently biased for or against particular teaching procedures." He observes that the vocabulary section of the Stanford test " . . . seems to emphasize the words commonly taught in basal reader series for the primary grades."[17] Block, in considering the effectiveness of i.t.a., reports:

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[14]Dr. Jack Holmes, of the University of California, comments on "The Evaluations: A Summary," in J. A. Downing (Ed), The i.t.a. Symposium (England: The National Foundation for Educational Research in England and Wales, 1967), p. 167.

[15]Vera Ohanian, "I.T.A. Misunderstood," Elementary English, Vol. XLV (Champaign, Illinois: The National Council of Teachers of English, 508 South Sixth Street), p. 630.

[16]Vera Ohanian, "Control Populations in i.t.a. Experiments," Elementary English, Vol. XLIII, No. 4, April 1966 (Champaign, Illinois: The National Council of Teachers of English, 508 South Sixth Street), p. 373.

[17]Albert J. Harris, "Comparison of Reading Approaches in First Grade, Reading with Disadvantaged Children," Cooperative Project No. 2677 (New York, N. Y.: Office of Research and Evaluation, Division of Teacher Education, City University of New York), p. 98.

> It seems remarkable to this author, considering the fact that i.t.a. is an alphabet and may be used in a variety of ways, that in over forty studies of its effectiveness, two-thirds have found significant differences in favor of i.t.a.-taught children, with the remaining one-third showing no significant differences. This, despite the fact that there has been very little research dealing with the most effective methods used to present i.t.a. to the beginning reader.[18]

The controversy rages, experiments and studies continue, both sides make claims of success, and Ohanian wonders:

> Will experimentation verify the confidence expressed in i.t.a. by its innovator Sir James Pitman and the news media? Or will interest in i.t.a. become dimmed and lost by the end of a decade as forecast by Donald Durrell?*[19]

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[18] J. R. Block, "A Reply to Downing's 'Can i.t.a. Be Improved?'," Elementary English, Vol. XLV, No. 5, May 1968 (Champaign, Illinois: The National Council of Teachers of English, 508 South Sixth Street), p. 633.

[19] Vera Ohanian, "Control Populations in i.t.a. Experiments," Elementary English, Vol. XLIII, No. 4, April 1966 (Champaign, Illinois: The National Council of Teachers of English, 508 South Sixth Street), p. 373.

* Donald D. Durrell, noted reading authority, Professor of Education, Director of Educational Clinic, Boston University.

CHAPTER III

GROUPS STUDIED AND MATERIAL USED

In this chapter the discussion will be concerned with pupil selection, formation of samples, socio-economic distribution, preparation of teachers, program of instruction, and the Hawthorne factors of the groups studied. There will also be presented a description and discussion of the tests administered.

I. GROUPS STUDIED

It is recognized that the study is limited because of the small samplings involved which could not be controlled because of children moving from the school district. Of the original group of ninety children being tested, sixty-four were available at the final testing.

Pupil Selection. Subjects in this study consisted of twenty-nine fourth grade children who had received initial instruction in reading using i.t.a. in first grade, and who were known as the i.t.a. group, and thirty-five fourth grade children who had received initial instruction in reading using t.o., and who were known as the t.o. group.

Formation of samples. The four classes of the two schools involved were given a Pre-Reading Inventory and Draw-A-Man Test before beginning instruction was started in i.t.a. or t.o. On the basis of these tests, plus the observation of the teacher, the first grade pupils of each school were placed in two classes. In this manner it was believed that both groups were heterogeneous with respect to readiness for formal reading instruction and mental ability.

Socio-Economic Distribution. The children were predominantly of the upper-middle class socio-economic status. The groups were equated as nearly as possible for age, sex and ethnic composition. The two schools in a suburban school district of approximately 10,000, located in a medium sized midwestern city, were picked for their background of low mobility.

Preparation of Teachers. The teachers both for the i.t.a. group and the t.o. group were experienced within the district. A workshop was held for the teachers to become acquainted with i.t.a. teaching.

Program of Instruction. The teachers of both groups combined group activity and individualized instruction. Realizing that children are different and learn at different rates, the teachers adapted their instruction to the need of the child, within the framework of the teaching method used.

i.t.a. program. Instruction in i.t.a. emphasized the deciphering of printed code by teaching children to

associate each of the forty-four symbols of i.t.a. with the speech sound it represented. A reader of an i.t.a. series was used. Supplemental reading was provided by a programmed reading series.

t.o. program. Instruction in t.o. emphasized the deciphering of printed code by teaching children the traditional orthography. A basal reader was used. Individual supplemental reading in classroom and library was stressed.

Hawthorne Factors. It may be assumed that a Hawthorne effect operated in the i.t.a. group because of its experimental nature and the discussions of parents. The t.o. group was supposedly unaware of their role in the experiment.

II. MATERIALS USED

Since tests are among the most useful tools of educational research, and their basic purpose is to describe and measure individual differences, they were used in this study as the instrument to gather data from which conclusions were drawn. Five different tests were given both groups at different grades to provide the necessary information.

Goodenough Intelligence Scale-Draw-A-Man Test. The Draw-A-Man Test was used to determine the mental ability of the children. It is a non-verbal test. The child's drawing of a man is scored. It may be used with children who have a

mental age of four to ten.[1] It compares favorably in test-retest reliability with most group tests of intelligence applicable in the same age range. It compares favorably in validity as on the basis of its correlations with the Stanford-Binet.[2]

The test was administered at the beginning of first grade to all students in this study by the classroom teacher. It was scored by the Director of Testing of the Westside Community Schools.

A Pre-Reading Inventory of Skills Basic to Beginning Reading - Part Two. The second part of this inventory contains four sub-tests. It is a diagnostic test and may be used to determine just what instruction the child needs to meet a satisfactory reading program. Test one, using context, measures the pupil's ability to use context to call to mind a word which makes sense with that context. Test two, finding letters, measures a pupil's ability to identify letter forms by name. Test three, listening for letter sounds, measures both the pupil's understanding of what is meant by the beginning of a spoken word and his awareness of the fact that certain consonant sounds are used at the beginning of words. Test four, matching letters and sounds, measures a pupil's

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[1]Florence L. Goodenough, Measurement of Intelligence by Drawings (New York: World Book Company, 1926).

[2]Oscar Krisen Buros, Editor, The Fourth Mental Measurements Yearbook (Highland Park, N. J.: The Gryphon Press, 1953), Vol. IV, p. 392.

knowledge of letter-sound associations for consonants.[3]

The test was administered at the beginning of first grade to all students in this study. It was scored and administered by the classroom teacher.

Gates-MacGinitie Reading Tests, Primary A, B, C. The Primary A Test was given to children who were reading at the preprimer or the 1^1 level, Primary B Test to children who were reading at the 1^2 or the 2^1 level, and Primary C Test was given to children who were reading at the 2^2 level or above. The vocabulary test measures the child's ability to recognize or analyze isolated words. The comprehension test measures the child's ability to read and understand whole sentences and paragraphs.[4]

The tests were administered to all children in this study at the end of the first grade. They were administered and scored by the classroom teacher.

The Nelson Reading Test -- Form A. There are two comparable forms of the revised test, each containing 175 items: 100 items to measure vocabulary and 75 items to measure reading comprehension. Each reading-comprehension

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[3]Paul McKee, M. Lucile Harrison and James B. Stroud, Pre-Reading Inventory of Skills Basic to Beginning Reading, Teacher's Manual (Boston: Houghton Mifflin Company, 1962).

[4]Arthur S. Gates and Walter H. MacGinitie, Gates-MacGinitie Reading Tests, Primary C, Teacher's Manual (New York: Teacher's College Press, Teachers College, Columbia University, 1965).

paragraph is followed by three questions, one pertaining to its general significance, one to knowledge of detailed information contained therein, and one planned to assess the ability to predict probable outcomes from the situation depicted in the paragraph. It is designed for use in grades three through nine. It is a timed test of thirty minutes. In Part One, the vocabulary test, the student is given ten minutes. In Part Two, the comprehension test, the student is given twenty minutes.[5] The test appears to be effective as a rough measure of reading achievement. The standardization procedure was meticulous and comprehensive. The test appears to be reliable and, when compared with other reading tests, gives some evidence of validity.[6]

The tests were administered in the first half of the third grade to all students in this study. They were administered and scored by the writer.

The Standford Achievement Test - Intermediate I. Reading was measured by using two parts of this test--paragraph meaning and word meaning. The word meaning test consists of 48 multiple-choice items. In addition to items measuring knowledge of synonyms, of simple definitions, and of associations, there are items designed to measure higher-level

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[5]M. J. Nelson, The Nelson Reading Test Examiner's Manual (Boston: Houghton Mifflin Company, 1962).

[6]Oscar Krisen Buros, Editor, The Sixth Mental Measurements Yearbook (Highland Park, N. J.: The Gryphon Press), Vol. VI, p. 1082.

comprehension of concepts represented by words, and fullness of understanding terms.

The selection of words for inclusion in this test was based on considerations of the frequency of occurrence of words in pupils' usage and in material which they read. The appropriateness of all words or as alternative responses, was checked by reference to available word counts.

The paragraph meaning test consists of a series of paragraphs, graduated in difficulty. One or more words have been omitted from each paragraph. The pupil's task is to demonstrate his comprehension of the paragraph by selecting from four choices that are afforded him the proper word for each omission. It also includes complete paragraphs about which questions are asked, to be answered by selecting one of four possible choices. The test provides a functional measure of the pupil's ability to comprehend connected discourse involving levels of comprehension varying from extremely simple recognition to the making of inferences from what is stated in several sentences.[7]

The test is designed for use from the beginning of the fourth grade to the middle of grade 5. In Part One, the word meaning test, the students are given twelve minutes. In Part Two, the paragraph meaning, the students are given thirty minutes.

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[7]Truman L. Kelley, Standford Achievement Test Administration Manual (New York: Harcourt, Brace and World, Inc., 1964).

The tests were administered to all students in this study at the end of the fourth grade. They were administered by the writer and machine scored.

CHAPTER IV

THE STATISTICAL METHOD USED AND RESULTS

The hypothesis which was presented in the beginning of this study will be tested in this chapter. The statistical method, a two factor analysis of variance, which was followed will be presented. The results will be discussed and the findings will be shown in the tables.

Criteria Used. The criteria for evaluating the students who received beginning reading instruction under the i.t.a. and those who received instruction under the t.o. in the first grade was the Gates-MacGinitie Vocabulary and Comprehension Reading Tests. The criteria for evaluating the same students in the third grade was the Nelson Vocabulary and Comprehension Reading Tests. The test used in the fourth grade was the Standford Achievement Test.

Statistical Method Used. Assuming that the student's response to the criterion could be influenced by the reading readiness, these individual differences were controlled by using the scores of the Pre-Reading Inventory Test--Part II as control variables. A two factor analysis of variance was used to test the two hypotheses. Control for differences in pre-reading skills was obtained by dividing the scores of the

Pre-Reading Inventory Test--Part II into two groups. The median of the Pre-Reading scores was computed and then separated into High and Low Groups on the basis of the median. Those scores above the median were placed in the High Group and those scores which fell below the median were placed in the Low Group. These two groups constituted one source of variance. The other source of variance was the reading approach--i.t.a. or t.o.

RESULTS

The means for the first grade and the third grade of both the i.t.a. group and the t.o. group on The Gates-MacGinitie Vocabulary and Comprehension Reading Tests and the Nelson Vocabulary and Comprehension Reading Tests are presented in Table I.

TABLE I

MEANS OF GATES-MAC GINITIE AND NELSON READING TESTS FOR FIRST AND THIRD GRADE

	Gates-MacGinitie Reading Test First Grade				Nelson Reading Test Third Grade			
	Vocabulary		Comprehension		Vocabulary		Comprehension	
Pre-Reading Level	I.T.A.	T.O.	I.T.A.	T.O.	I.T.A.	T.O.	I.T.A.	T.O.
Low	55.847	52.466	54.024	53.493	59.747	59.093	54.976	55.460
High	64.200	58.005	62.533	57.660	67.525	61.785	63.067	60.505
Combined	59.303	55.637	57.545	55.847	62.966	59.346	58.324	58.343

The results of the analysis of variance for the vocabulary scores of the Gates-MacGinitie Reading Tests are shown in Table II. It will be noted that there was a high degree of difference between the two groups. The difference was significant at the .01 level in favor of the i.t.a. group. It should also be observed that there was a significant difference in the Pre-reading level as there was on all the tests as will be noted in Tables III, IV, V, VI and VII on pages 24, 25, 26, 27 and 28. This was to be expected as it was hypothesized that there should be a high and low in Pre-reading and one of the reasons for dividing the scores into two groups was to control this. The interaction between reading approaches and Pre-reading level was not significant.

TABLE II

ANALYSIS OF VARIANCE FOR THE SCORES ON THE GATES-MAC GINITIE VOCABULARY TEST

First Grade

Source of Variance	df	SS	MS	F
Reading Approach	1	213.17848	213.17848	10.0671 **
Pre-Reading Level	1	724.27950	724.27950	34.2033 **
Approach X Level	1	30.39069	30.39069	1.4352
Error	112	2,371.68133	21.17572	
Total	115	3,339.53		

** Significant at .01 level.
* Significant at .05 level.

There was no significant difference between the two groups' scores of the Gates-MacGinities Reading tests given when the students were in the first grade, as can be seen in Table III. There was no significant interaction between the reading approach and the pre-reading level.

TABLE III

ANALYSIS OF VARIANCE FOR THE SCORES ON THE GATES-MAC GINITIE COMPREHENSIVE TEST

First Grade

Source of Variance	df	SS	MS	F	
Reading Approach	1	44.25892	44.25892	1.8770	
Pre-Reading Level	1	585.34484	585.34484	24.8240	**
Approach x Level	1	72.87916	72.87916	3.0907	
Error	112	2,640.93708	23.57979		
Total	115	3,343.42			

** Significant at .01 level.
* Significant at .05 level.

The Nelson Reading Vocabulary Test was given to the third grade of both groups. The scores, after being subjected to analysis of variance procedures, produced a significant difference in favor of the i.t.a. group as pointed out in Table IV. It should be observed, however, that the difference was significant at the .05 level, whereas in Table II, page 23, the difference was significant at the .01 level. The .01 level of significance indicates a real difference with only a 1 per cent possibility that the difference was due to chance. The .05 level of significance indicates a difference with a 5 per cent possibility of the difference resulting from chance. There was no significant interaction between the reading approach and the pre-reading level.

TABLE IV

ANALYSIS OF VARIANCE FOR THE SCORES ON THE NELSON VOCABULARY TEST

Third Grade

Source of Variance	df	SS	MS	F
Reading Approach	1	207.80497	207.80497	4.5991 *
Pre-Reading Level	1	686.41605	686.41605	15.1917 **
Approach x Level	1	16.81664	16.81664	
Error	136	6,144.96234	45.18354	
Total	139	7,056.00		

** Significant at .01 level.
* Significant at .05 level.

The results of the analysis of variance for the scores on comprehension of the Nelson Reading Test which was given to the third grade, are displayed in Table V. There was no significant difference indicated between the two groups. The interaction between reading approaches and pre-reading level was not significant.

TABLE V

ANALYSIS OF VARIANCE FOR THE SCORES ON THE NELSON COMPREHENSION TEST

Third Grade

Source of Variance	df	SS	MS	F
Reading Approach	1	.00555	.00555	1
Pre-reading Level	1	642.74772	642.74772	19.2592 **
Approach x Level	1	35.82835	35.82835	1.0736
Error	136	4,538.79838	33.37351	
Total	139	5,217.38		

** Significant at .01 level.
* Significant at .05 level.

Note: F_{05} (1,112)=3.92 F_{01} (1,112)=6.84

F_{05} (1,136)=3.91 F_{01} (1,136)=6.82

The Standford Achievement Test was given to the fourth grade of both groups. The vocabulary scores, after being subjected to analysis of variance procedures, produced no significant difference between the two groups. There was no significant interaction between the reading approach and the pre-reading level.

TABLE VI

ANALYSIS OF VARIANCE FOR THE SCORES ON THE STANDFORD ACHIEVEMENT VOCABULARY TEST

Fourth Grade

Source of Variance	df	SS	MS	F
Reading Approach	1	3.2445	3.2445	1.0
Pre-Reading level	1	49.2165	49.2165	5.777 **
Approach x Level	1	30.1546	30.1546	3.540
S/AB	50	425.9630	8.5193	

** Significant at .01 level.
* Significant at .05 level.

F_{95} (1.50) = 4.04

F_{99} (1.50) = 5.08

The results of the analysis of variance for the scores on comprehension of the Standford Achievement Test was given to the fourth grade of both groups and are displayed in Table VII. There was no significant difference indicated between the two groups. The interaction between reading approaches and Pre-reading level was not significant.

TABLE VII

ANALYSIS OF VARIANCE FOR THE SCORES ON THE STANDFORD ACHIEVEMENT COMPREHENSION TEST

Fourth Grade

Source of Variance	df	SS	MS	F
Reading Approach.	1	.42529	.42529	1.0
Pre-reading level	1	59.69416	59.69416	6.8360 **
Approach x level	1	36.72102	36.72102	5.2052 **
S/AB	50	436.6129	436.6129	

** Significant at .01 level.
* Significant at .05 level.

F_{95} (1.50) = 4.04

F_{99} (1.50) = 5.08

CHAPTER V

SUMMARY, GENERALIZATIONS, CONCLUSIONS AND RECOMMENDATIONS

I. SUMMARY

In this study it was attempted to compare the reading achievement of two groups of children, one taught by the Initial Teaching Alphabet and the other by the Traditional Orthography. Both groups were given tests to evaluate their mental ability and readiness for reading before formal instruction in reading was started in first grade. At the end of the first grade a reading test for vocabulary and comprehension was given the two groups. In the first half of the third grade a reading test for vocabulary and comprehension was given both groups. At the end of the fourth grade a reading test was given again to both groups, testing vocabulary and comprehension. The data were tabulated and an analysis of variance was used to test the null hypotheses.

II. GENERALIZATIONS

Generalizations from the Literature Reviewed. In reviewing the literature there seemed to be an increasing concern about finding the "best" approach to reading in hopes of correcting and discontinuing the many reading disabilities among children and youth. The proponents of i.t.a. claim much success in

initial reading and creative writing. The proponents also agreed that children learned to read earlier, more easily, and at a faster rate. The opposition seemed to be most concerned about the transitional period (when the child transfers to t.o.) causing confusion, regression and spelling difficulties, as was seen from the literature on pages 7 and 8. There was a plea for longitudinal studies using more and tighter controls so that the effects due to i.t.a. alone can be evaluated.

Generalizations from Data. The following generalizations were drawn from the results of the analysis of the data gathered in this study:

1. At the end of the first grade the children who had been given beginning reading instruction under the i.t.a. showed a considerably higher degree of achievement in vocabulary than the children who had been given reading instruction under the traditional orthography, as was noted in Table II, page 23. Two of the more logical reasons for this difference may be the early introduction of the more difficult words, and the lack of stringent vocabulary control in the i.t.a. series.

2. As was shown in Table III, page 24, at the end of the first grade there was no difference indicated in achievement in comprehension between the two groups.

3. In the first half of the third grade, Table IV, page 25, showed a higher degree of achievement for the i.t.a. group in vocabulary, but not nearly as high as the first

grade achievement in vocabulary which was observed in Generalization 1. However, it should be pointed out that two different tests were used to produce the data; therefore, it is difficult to ascertain whether the difference is the test or an actual significant difference.

4. There was no difference shown in the achievement in comprehension in the first half of the third grade, as was indicated in Table V, page 26.

5. At the end of the fourth grade there was no difference shown in the achievement in vocabulary or comprehension, as was indicated in Table VI, page 27.

The interaction between reading approaches and the pre-reading level was not significant for any of the tests, as was seen in Tables II, III, IV, V, VI, and VII on pages 23, 24, 25, 26, 27 and 28. This indicates that the effect of the reading approach was the same whether students had high or low scores on the Pre-reading test.

III. CONCLUSIONS

On the basis of the statistical evidence presented in this study to test the hypothesis, the following conclusions appear justified:

1. There was no significant difference in vocabulary achievement in the fourth grade between the two groups. The data supported the first hypothesis, therefore the null hypothesis was accepted.

2. There was no significant difference in comprehension achievement in the third grade between the two groups. The data supported the second hypothesis, therefore the null hypothesis was accepted.

IV. RECOMMENDATIONS

Recommendations for Further Studies. Recognizing the limitations of this study, it is suggested that the following areas may be considered for further investigation:

1. There seems to be concern shown by some reading authorities about the transition period of i.t.a. Some feel that the British Schools keep the children too long in i.t.a.; others feel the children in the United States are pushed to make the transition to the traditional orthography too soon. It would be valuable to conduct a study to find out just how long the children should stay in i.t.a. to reap the most benefits of the program and forestall any possible ill effects caused by transition.

2. Some writers have indicated that the use of i.t.a. is inferior to traditional orthography in developing spelling skills. Perhaps it would be profitable to do further research in this important area.

3. Proponents of the i.t.a. claim outstanding creative writing successes at a very early stage. This may well be "bonanza" of i.t.a., since the ability to communicate correlates highly with reading success. It is felt that the children are less inhibited by the constant fear of

misspelling words when writing about their experiences and therefore show a great desire to do so. It would be of extreme interest to a school system to validate this claim.

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APPENDIXES

APPENDIX A

Raw Data -- i.t.a. group

Name	PR	GV 1967	GC 1967	NV 1969	NC 1969	SV 1970	SC 1970
1	57	76	82	95	92	96	99
2	51	98	96	99	95	99	99
3	35	62	54	73	39	62	34
4	38	38	34	77	49	32	46
5	44	86	86	87	84	76	68
6	48	97	84	98	84	99	92
7	52	93	93	99	98	99	96
8	50	97	96	99	97	99	99
9	57	82	86	94	76	96	84
10	44	46	38	49	11	18	8
11	45	82	54	75	49	76	52
12	26	58	34	49	49	48	52
13	57	97	98	98	86	94	90
14	58	92	84	93	93	62	99
15	57	96	92	99	95	98	94
16	41	82	82	96	84	84	88
17	43	86	84	97	97	98	94
18	45	66	66	80	62	94	62
19	34	73	79	75	58	84	56
20	57	96	96	98	84	99	98
21	31	73	79	77	62	50	46
22	57	95	96	99	98	99	98
23	48	79	79	96	96	88	94
24	40	82	79	97	98	94	84
25	58	96	92	97	91	92	84
26	40	73	90	97	84	98	94
27	49	46	12	47	34	11	6
28	40	54	54	90	76	50	40
29	43	50	12	49	13	28	14

PR -- Pre-reading (possible 58)
GV -- Gates MacGinitie vocabulary
GC -- Gates MacGinitie comprehension
NV -- Nelson vocabulary
NC -- Nelson comprehension
SV -- Standford vocabulary
SC -- Standford comprehension

APPENDIX B

Raw Data -- t.o. group

Name	PR	GV 1967	GC 1967	NV 1969	NC 1969	SV 1970	SC 1970
1	57	90	95	97	93	90	86
2	42	79	84	99	95	99	98
3	56	90	73	87	81	88	82
4	50	88	84	98	96	96	98
5	50	58	46	73	76	62	62
6	54	86	84	99	97	99	99
7	57	79	79	96	99	94	98
8	56	99	99	99	94	96	98
9	40	82	82	96	89	96	90
10	47	82	88	90	84	76	90
11	31	58	62	82	78	80	76
12	57	79	73	89	84	90	99
13	57	73	66	68	62	76	74
14	50	76	76	99	99	99	99
15	47	58	76	10	65	58	50
16	56	82	76	96	97	94	94
17	54	88	84	73	54	88	74
18	52	88	88	95	89	92	88
19	51	62	79	87	81	82	78
20	51	97	86	98	86	99	96
21	49	16	66	32	49	22	46
22	33	54	42	68	68	68	52
23	52	95	79	98	97	99	90
24	46	79	66	71	76	76	74
25	38	54	79	84	89	54	58
26	51	54	58	49	49	50	52
27	42	42	58	62	54	50	26
28	38	38	38	19	10	18	30
29	46	58	58	99	98	98	90
30	40	62	69	73	76	76	84
31	28	38	38	53	68	32	34
32	49	50	50	68	84	54	76
33	48	79	84	65	58	76	82
34	56	38	62	10	13	12	10
35	48	21	14	29	8	11	1

PR -- Pre-reading (possible 58)
GV -- Gates MacGinitie vocabulary
GC -- Gates MacGinitie comprehension
NV -- Nelson vocabulary
NC -- Nelson comprehension
SV -- Standford vocabulary
SC -- Standford comprehension