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A TWO-YEAR LONGITUDINAL STUDY TO DETERMINE THE ABILITY OF FIRST GRADE CHILDREN TO LEARN TO READ USING THE EARLY-TO-READ I/T/A, A RESEARCH SUMMARY.

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A 2-YEAR LONGITUDINAL STUDY WAS CONDUCTED TO EVALUATE THE "EARLY-TO-READ I/T/A PROGRAM." THIRTY-FOUR PUPILS RAMDOMLY ASSIGNED TO ONE FIRST GRADE WERE TAUGHT USING THE "EARLY-TO-READ I/T/A SERIES," AND 26 PUPILS RANDOMLY ASSIGNED TO ANOTHER FIRST GRADE WERE TAUGHT USING THE "GINN BASIC READERS" AND TRADITIONAL ORTHOGRAPHY (TO). A SUBCONTROL GROUP OF 86 PUPILS WAS SELECTED RANDOMLY FROM THE REMAINING FIRST GRADES AND RECEIVED ONLY INITIAL READINESS TESTING AND FINAL READING ACHIEVEMENT TESTING AT THE END OF GRADES 1 AND 2. TESTS ADMINISTERED WERE THE PREREADING TEST ACCOMPANYING THE SHELDON READING SERIES, A LETTER KNOWLEDGE TEST OF THE ALPHABET, THE WECHSLER INTELLIGENCE SCALE FOR CHILDREN (WISC), THE GRAY ORAL READING TEST, THE STANDARD READING INVENTORY, AND THE STANFORD ACHIEVEMENT TESTS. THERE WERE NO DIFFERENCES AMONG THE GROUPS IN READINESS TO READ. THERE WAS NO SIGNIFICANT DIFFERENCE IN OVERALL READING ACHIEVEMENT BETWEEN THE EXPERIMENTAL AND MAIN CONTROL GROUP AT THE END OF FIRST OR SECOND GRADE WHEN THE READING WAS DONE IN TO. THERE WERE FAIRLY SIGNIFICANT DIFFERENCES BETWEEN BOTH THE EXPERIMENTAL AND SUBCONTROL GROUPS, AND BETWEEN THE CONTROL AND SUBCONTROL GROUPS ON MOST MEASURES OF READING ACHIEVEMENT AT THE END OF FIRST AND SECOND GRADES. THE EXPERIMENTAL GROUP CONSISTENTLY ACHIEVED THE HIGHEST SCORES, AND THE SUBCONTROL GROUP CONSISTENTLY ACHIEVED LOWEST SCORES. THESE AND OTHER RESULTS SEEMED TO INDICATE THAT GOOD TEACHING UNDER TRADITIONAL ORTHOGRAPHY WAS PREFERABLE TO CHANGING THE ALPHABET. (BK)

A Research Summary

JUNE 1967

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LOUIS BRUNO
State Superintendent
of Public Instruction
Olympia

A TWO-YEAR LONGITUDINAL STUDY TO DETERMINE THE ABILITY OF FIRST GRADE CHILDREN TO LEARN TO READ USING THE EARLY-TO-READ i/t/a PROGRAM

A Research Summary

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This research was conducted jointly by Mukilteo School District #6, Mukilteo, Washington, Mr. J. O. Simpson, Superintendent of Schools, and Western Washington State College. This research was funded through the Research Division of the Office of the Superintendent of Public Instruction of the State of Washington. A complete report is on file in that office.

LOUIS BRUNO
State Superintendent of Public Instruction
Olympia, Washington

Research Report 07-07
June 1967

FOREWORD

The Office of the State Superintendent of Public Instruction has been pleased to support the research study summarized in this report.

Initial experiences in learning to read are a most important key to the success of all subsequent school experience for our young people. Studies of this nature, designed to assess the effectiveness of a particular approach to reading instruction, are consistent with our continuing efforts toward the improvement of instruction through research.

We are indebted to Dr. Robert McCracken, Reading Center Director, Western Washington State College, and to the Mukilteo School District #6 for their cooperation in this project. It is our sincere hope that others may benefit as a result of their efforts and their desire to provide the best possible school programs.

LOUIS BRUNO
State Superintendent
of Public Instruction

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In 1960 John A. Downing, Reading Research Officer at the University of London, initiated experimental work using the New Augmented Roman Alphabet[1] in teaching beginning reading. This is commonly called i/t/a, Initial Teaching Alphabet. I/t/a has 43 letters. These letters are identical with traditional orthography insofar as possible, and the added letters retain a similarity to traditional orthography. Spelling in i/t/a is regularly phonetic, with a few exceptions, so that the transition from i/t/a to traditional orthography can be made easily. For example, the ck digraph representing the phoneme k has been retained. However, c is never used to represent the phoneme s.

Children seem to learn to read very quickly in i/t/a, and have been reported as changing to traditional orthography at approximately mid-first grade without instruction or difficulty.[2] Later reports suggest that transfer should not be pushed but might take two or more years.

Mazurkiewicz and Tanyzer[3] in 1963 published a completely new set of readers and workbooks for teaching reading in the United States by use of i/t/a. The series includes seven readers, six workbooks, teachers' manuals and supplementary teaching aids. The American version of i/t/a has 44 letters. Mazurkiewicz is directing a six-year longitudinal study using his own materials, the Early-to-Read i/t/a Program, in Bethlehem, Pennsylvania.

It seemed desirable to check the value of the Early-to-Read i/t/a Program independent of its author, since it was the only i/t/a program available in the United States in 1964 although three or more programs were available in England in September 1964.

The U. S. Office of Education first grade reading studies[4,5,6,7,8] included five studies comparing i/t/a with a variety of other approaches to beginning reading. No study reported i/t/a as yielding achievement results which were significantly different from all of the other methods tested in each study.

Purpose:

The primary purpose of this study was to evaluate the Early-to-Read i/t/a Program. The secondary purposes were to evaluate the individual's rate of learning to read and to examine the relationship of intelligence to success in learning to read under the Early-to-Read i/t/a Program.

Initiation of the i/t/a Teaching Experiment:

The i/t/a project was initiated by Mr. Lawrence Ames, Principal in the Mukilteo School District #6. Mr. Ames had been assigned to the Rose-Hill Elementary School for the 1964-65 school year. It seems important to note that this was not an experiment initiated by teachers. The Rose-Hill Elementary School houses two first grades. Both first grade teachers expressed a willingness to cooperate in the experiment. The experiment was designed and a summer meeting was held on August 23, 1964 to explain the program to parents.

The subjects:

Sixty-one first grade pupils entered the Rose-Hill Elementary School in September of 1964. Thirty-four of these pupils were assigned randomly to the experimental i/t/a group and 26 of the pupils were assigned randomly to the traditionally taught control group. The larger number of children was assigned to the i/t/a group because it was felt that pupils entering the Rose-Hill

Elementary School during the year would need to be placed in the traditionally taught classroom and that by the end of the school year the classes would be approximately the same size.

Three first grade classes were chosen randomly from the remaining 10 first grades in the Mukilteo School District #6 to serve as a second control group. This group is referred to in this report as the sub-control group. These classes received only initial readiness testing and final reading achievement testing at the end of grades one and two.

The two Rose-Hill teachers were assigned randomly to the i/t/a experimental class and the traditional orthography (t.o.) control class. The children in the i/t/a experimental class and the t.o. control class remained as separate classes during second grade.

The testing program:

The following tests were used.

1. The Pre-Reading Test to accompany the Sheldon Basic Reading Series Form I[9] was used to evaluate reading readiness in September 1964. The test was administered in the experimental, control, and sub-control groups, providing a measure of auditory discrimination (rhyming words and initial consonants), visual discrimination of word form, comprehension of material read to the pupil and a perceptual motor tracing test.

2. A letter knowledge test of the alphabet (in both capital and lower case letters) was administered individually to each child in the experimental and control groups in September of 1964.

3. The Wechsler Intelligence Scale for Children[10] was administered to each child in the experimental and control groups during October and November.

4. The Gray Oral Reading Test Form D[11] was administered in December of 1964 to each child in the experimental and control groups. The i/t/a class read from transliterated materials and the control group read from t.o.

5. The word lists for measuring the ability to pronounce words in isolation from the Standard Reading Inventory Forms A and B were administered in December of 1964 to the experimental and control groups. Form A[12] was administered in t.o. to both groups; Form B was administered in i/t/a to both groups.

6. Form C of the Gray Oral Reading Test[11] was administered at the end of March 1965 to each child in the experimental and control groups. The children in the experimental group read from transliterated materials and the children in the control group read from t.o.

7. The two word lists from Forms A and B of the Standard Reading Inventory[12] were administered again in March of 1965. Form A was administered in t.o. to each child in the experimental and control groups and Form B in i/t/a to each child in the experimental class and in t.o. to each child in the control group.

8. Form B of the Standard Reading Inventory[12] was administered in its entirety at the end of May 1965 to each child in the experimental class, to each child in the control group and to each child in a group randomly selected from the sub-control group. The test was printed in i/t/a for the experimental group and in t.o. for the control group and the randomly selected group from the sub-control group.

9. The 1964 Stanford Achievement Tests[13] Form W were administered during the last week of May 1965 to all children in the experimental, control, and sub-control groups. The tests were printed in t.o. for all groups. The complete battery was administered: tests in word reading, paragraph meaning, vocabulary, spelling, word study skills, and arithmetic. The children in the experimental

class were told to spell in both i/t/a and t.o. if they could, and the pupils were encouraged to attempt to spell the words in t.o. The scoring of the spelling test was done according to t.o. spelling.

10. Forms B and D on the Gray Oral Reading Test[11] were administered in September 1965 to each child in the experimental and control groups. Form B was administered in i/t/a to both groups, and Form D in t.o. to both groups. The purposes of this were to evaluate transfer and to evaluate loss or gain over the summer.

11. Form C of the Gray Oral Reading Test[11] was administered at the end of January of 1966. This was administered in t.o. to both experimental and control groups.

12. Form A of the Standard Reading Inventory[12] was administered at the end of second grade (May 1966) to each child in the experimental class, to each child in the control group, and to each child in the randomly selected sub-control group who was tested at the end of grade one. All the testing was done in t.o.

13. The Stanford Achievement Tests, Form W, Primary II were administered during the last week of May 1966 to all children in the experimental and control and sub-control groups. The tests were administered in t.o. for all groups.

14. A time study of pupil activity was conducted throughout grade one in the experimental and control groups. The observers were asked to record in minutes the amount of time a child spent during the day in reading, in writing, in phonics, in arithmetic, and in miscellaneous activities. They were asked to divide each category into pupil-work or teacher-work.

TIME SCHEDULE FOR TESTING

Dates	Test	Group and Orthography		
		Experimental	Control	Sub-Cor
Sept. 1964 to June 1965	Time Study of Pupil Activity	x	x	
Sept. 1964	Pre-Reading Test, Form I	x (t.o.)	x (t.o.)	x (t.o
	Letter Knowledge Test	x (t.o.)	x (t.o.)	
Oct. 1964	WISC	x	x	
Dec. 1964	Gray Oral Reading Test, Form D	x (i/t/a)	x (t.o.)	
	SRI Words in Isolation, Form A	x (t.o.)	x (t.o.)	
	SRI Words in Isolation, Form B	x (i/t/a)	x (i/t/a)	
March 1965	Gray Oral Reading Test, Form C	x (i/t/a)	x (t.o.)	
	SRI Words in Isolation, Form A	x (t.o.)	x (t.o.)	
	SRI Words in Isolation, Form B	x (i/t/a)	x (t.o.)	
May 1965	Standard Reading Inventory, Form B	x (i/t/a)	x (t.o.)	x (t.o
	Stanford Achievement Tests, Form W	x (t.o.)	x (t.o.)	x (t.o
Sept. 1965	Gray Oral Reading Test, Form B	x (i/t/a)	x (i/t/a)	
	Gray Oral Reading Test, Form D	x (t.o.)	x (t.o.)	
Jan. 1966	Gray Oral Reading Test, Form C	x (t.o.)	x (t.o.)	
May 1966	Standard Reading Inventory, Form A	x (t.o.)	x (t.o.)	x (t.o
	Stanford Achievement Tests, Form W	x (t.o.)	x (t.o.)	x (t.o

* Group here tested was random sample of Sub-Control Group.

Statistical tests used:

An analysis of variance was used to analyze the results of the Pre-Reading Test, the WISC, and the Stanford Achievement Tests. A t-test was used to check the significance of differences between groups on the Stanford Achievement Tests, and the grade two results of the SRI.

The Wilcoxon Two Sample Test[14] was used to analyze the results of the alphabet knowledge test and the Gray Oral Reading Paragraph Tests. A chi-square test of independence[15] was used to analyze the grade one results of the SRI among the three groups. A sign test[16] was used to analyze the results of the SRI word list tests within the control and experimental classes.

Instructional programs:

The i/t/a teacher was instructed to follow the Early-to-Read Series manuals as closely as possible. She was judged to be successful in doing this, although admittedly such a judgment is subjective. The teacher of the control group used the Ginn Basic Reading Series.

Beginning books which were available in i/t/a print were purchased for the i/t/a classroom library in addition to the Early-to-Read i/t/a Series. Approximately 160 beginning reading trade books were transliterated for the experimental group. A t.o. edition of each was placed in the classroom library for the control group.

Results and discussion:

1. The results of the Pre-Reading Test indicate that there were no significant differences among the experimental group, the control group and the sub-control group in readiness to read. These results indicate that all three groups were drawn from the same population.

2. The mean I.Q. as measured by the Wechsler Intelligence Scale for Children for the experimental group was 106, with a mean verbal I.Q. of 102 and a mean performance I.Q. of 108. The mean I.Q. as measured by the WISC for the control group was 102, with a mean verbal I.Q. of 102 and a mean performance I.Q. of 102. There were no significant differences between the two groups. The mean I.Q. for those children still available for testing at the end of grade two was 103 for both the control and experimental groups.

The results of the three tests given at the beginning of the school year--the Pre-Reading Test, the WISC, and the alphabet knowledge test--indicate no significant differences between the experimental group and the control group. It seems reasonable to conclude that these two classes were drawn from the same population.

3. Over-all, the amount of time in first grade spent in the teaching of reading and writing did not seem to be different under the Early-to-Read i/t/a Program in the experimental group from that under the traditional program in the control group.

The Wilcoxon Two Sample Test analysis of the time study indicates that significantly more time was devoted to teacher instruction of the pupils in reading in the control group, and significantly more time was devoted to teacher instruction in arithmetic in the experimental group. Significantly more time was spent in independent pupil writing activities in the experimental group.

When teacher and pupil times were combined, the control group was found to have spent significantly more time on reading, and the experimental group significantly more time in writing and arithmetic. If the reading and writing times are combined there is no significant difference between the two groups. These differences seem to reflect the differences in the two methods, since

the Early-to-Read i/t/a Series uses writing as a basic part of its method of teaching reading.

There were no significant differences noted in the total amounts of time teachers spent in teaching or in the total amounts of time pupils spent in working independently. There were no significant differences noted in the categories labelled phonics or miscellaneous.

4. There is no significant superiority in over-all reading achievement between the experimental and main control group at the end of first or second grade when the reading is done in t.o. There are consistent, significant differences with better performance by the experimental group in tests requiring only word pronunciation skill.

5. The results of the spelling tests indicate that the Early-to-Read i/t/a Program is not detrimental to t.o. spelling achievement at the end of first or second grade. Pupils taught in i/t/a can be expected to spell in t.o. as well as traditionally taught pupils.

6. The pupils taught under the experimental program had a greater range of achievement and their scores had a more normal distribution than did the others', particularly at the end of grade one when measured by individually administered reading tests in i/t/a. The average and above average pupils seemed to be extended in their achievement. However, a slow beginning achievement for some children was not eliminated.

7. Word pronouncing achievement as measured by the SRI Vocabulary in Isolation Sub-Test was significantly better for the experimental group than for the other groups when reading from i/t/a at the end of grade one and significantly better when reading from t.o. at the end of grade two.

8. Word pronouncing skill as measured by the SRI Vocabulary in Isolation Sub-Test indicates that for all children in all groups word pronouncing achievement

is superior to general ability to read. Children were frequently rated at frustration level in reading at a book level at which they could pronounce correctly all of the vocabulary in isolation. This is not meant to say that these children did not understand the words which they pronounced. They recognized (pronounced and understood) the individual words. They lacked fluency in reading sentences consecutively, their reading was slow, and their oral reading characterized by numerous pauses, poor-phrasing, repetition, miscalled words, etc., causing their performances to be rated at frustration level. This superiority of word pronouncing to over-all reading was exhibited by the experimental group at the end of grade one and all groups at the end of grade two.

9. The amount of loss which might be expected in transfer from i/t/a to t.o. is crucial in evaluating this study. One indication of the loss is given on the Vocabulary in Isolation Sub-Test of the SRI administered in March of first grade. The experimental and control groups were not significantly different in their abilities to pronounce words in t.o. The experimental group was significantly better when tested in i/t/a. The difference or loss as the experimental children transferred from i/t/a to t.o. was approximately two years. Their performance in i/t/a was at ending 3^2 level in word pronouncing; their performance in t.o. was at ending primer level.

The mean scores of the SRI Pronouncing Vocabulary in Isolation Test were 181.44 for the experimental group, 130.44 for the control group, and 98.52 for the sub-control group at the end of grade two. The mean scores were 175.14 for the same experimental children and 60.94 for the same control children at the end of grade one.

The experimental group did not change significantly in its performance at the end of grade one to the end of grade two. In grade one the test was

administered in i/t/a, and in t.o. in grade two. This would indicate that children taught with i/t/a do learn to decode very rapidly but that once this skill is mastered we should not expect continued rapid growth. This could indicate that it took a year of work in reading to transfer in this one area. It might mean that something of a maximum had been reached and that transfer was reached in a relatively short time with a plateau of achievement being maintained for several months.

The results of the Gray Oral Reading Test administered at the beginning of grade two showed no significant differences in achievement between the experimental group's scores when tested in i/t/a and t.o. This would indicate a substantial loss in i/t/a achievement over the summer months, since achievement in i/t/a had been superior to achievement in t.o. in the June testing.

The results of the Gray Oral Reading Test administered in the middle of second grade indicate no significant difference in achievement between the experimental and control groups. This would indicate that transfer was not taking place immediately but rather slowly.

It would seem that the early high achievement in i/t/a is lost in transfer except for skill in pronouncing words in isolation. It would appear that the control pupils are catching up in this area. This result should be neither surprising nor unexpected. Early achievement in reading has not been demonstrated to mean greater achievement later. The problem of learning to read is largely one of word pronouncing at the very beginning stages; thus, i/t/a succeeds well at the beginning stages. However, very few people, if any, equate word pronouncing with reading. Reading is more than word pronouncing. The results of this study support this contention. It seems that transfer does take place, that it takes place without stress, and that it takes a long period of practice

for recovery of fluency before growth continues. It would seem unwise to expect that a child will transfer and continue to grow in reading achievement without a period of practice. This period of practice is rather lengthy, averaging a minimum of six months perhaps.

10. The superior achievement of the experimental and control groups as compared to the sub-control group indicates good achievement under both the Early-to-Read i/t/a Program and the traditional program. There are no marked detrimental effects noted for the children in the experimental group. There is one marked superiority, word pronouncing in isolation. This superiority may not be maintained. The results of this study are not clear on this since the experimental pupils seem to have reached a plateau while the control pupils continue to grow.

11. One sub-study was added to the main study. The 1964-65 control and experimental first grade teachers again taught first grade during the 1965-66 school year. The experimental teacher continued with the Early-to-Read i/t/a Series and the control teacher continued in t.o. with the Ginn Basic Readers. The children entering first grade were placed in either of the two first grades according to the judgment of the kindergarten teacher. This procedure was customary, but was not random placement as used the preceding year.

The main concern was whether the classes of the two teachers would maintain their 1964-65 achievement levels. The Stanford Achievement Tests, Primary I, Form W were administered to the classes of the control and experimental teachers in May of 1966. There were no significant differences in achievement between the 1964-65 and the 1965-66 experimental classes.

The 1965-66 control class had a median grade level performance of 2.25. The 1964-65 class had scored a median of 2.00. The mean scores achieved by the

1965-66 control group were significantly better in Word Reading, Paragraph Meaning, and Spelling.

The 1965-66 control class achieved significantly better than the 1965-66 experimental class in Word Reading, Spelling, and Arithmetic. This reversed the one significant difference noted between the 1964-65 groups where the experimental group was significantly better than the control group in Word Reading achievement. There was no significant difference in Spelling achievement between the 1964-65 groups. This lack of difference in Spelling in 1964-65 is contrary to most other reported findings for achievement at the end of the first grade. The difference favoring the 1965-66 control group in spelling is consistent with the findings of other studies of spelling achievement for the end of first grade. The better achievement in arithmetic in the 1965-66 control class is consistent with the direction of the achievement of the 1964-65 study. This superior arithmetic achievement is taken to indicate that the control teacher did not sacrifice her arithmetic program in 1965-66 in order to give more time to reading.

The achievement scores for both years might be interpreted as a negative Hawthorne effect on the control teacher, or the combination of a negative Hawthorne effect during the 1964-65 year and a positive effect during the 1965-66 year. In 1964-65 the control teacher, although given as much observation attention as the experimental teacher had, did not receive the community, parental, and school attention that the experimental teacher received. Neighboring school districts asked to visit the i/t/a class. None asked to visit the control class. Some visitors were bootlegged in although visits by outsiders were forbidden under the experimental design. Parents of the i/t/a children were highly interested. Normal interest, only, was displayed by the parents of the control children. The press featured the i/t/a class in an article and editorial, excluding the

control class and the experiment. It was felt that the control teacher became increasingly dissatisfied as the year progressed, and in June of 1965, prior to knowledge of results of any of the testing, she had decided that she would shift to i/t/a the next year.

The control teacher changed her mind when she learned that there were generally no significant differences in achievement. She approached the 1965-66 year with the attitude that she would prove that a t.o. basal approach worked well. She had noted the amount of independent writing which had been done in the i/t/a classroom and decided that a t.o. classroom could do as much. She added the S.R.A. Reading Laboratory I: Word Games for grade one to her program.

The results achieved by the control group in 1964-65 and again in 1965-66 compare favorably with the results of the U. S. Office of Education sponsored studies, although the U. S. Office sponsored studies have 15 to 20 fewer teaching days in their measurements.

Summary:

Thirty-four pupils randomly assigned to one first grade were taught using the Early-to-Read i/t/a Series, and 26 pupils randomly assigned to another first grade were taught using the Ginn Basic Readers in a traditional manner. A sub-control group composed of three first grades' 86 pupils was selected randomly from the remaining first grades in the school system.

The randomization seemed effective in that no significant differences were found between the experimental and control groups as measured by the WISC and knowledge of the alphabet at the beginning of the school year, and no significant differences were found among the experimental, control and sub-control groups on the Pre-Reading Test.

Pupils in the experimental and control groups were tested in December 1964, March 1965, September 1965, and January 1966 for reading achievement using the Gray Oral Reading Tests and the Vocabulary in Isolation Sub-Test of the SRI in December 1964 and March 1965. All three groups were tested with the SAT and the SRI at the end of May 1965 and again in May 1966. The Gray Oral Reading Tests and the SRI were transliterated for administration to the experimental group in first grade and the September 1965 testing in second grade. The SAT was administered in t.o. to all groups.

There were no significant differences in first grade achievement as measured by the six tests of the SAT, Primary I, except in Word Recognition between the experimental and control groups. Both the experimental and control groups were superior to the sub-control group on all six tests of the SAT. The experimental group read significantly better than the control and sub-control groups when reading from i/t/a according to the SRI administered at the end of grade one.

There were no significant differences in second grade achievement between the experimental and control groups as measured by the seven tests of the SAT, Primary II, except in Arithmetic Concepts; there were no significant differences in maximum or minimum instructional reading levels as measured by the SRI in May of second grade; there were no significant differences on the nine sub-tests of the Standard Reading Inventory except in Pronouncing Vocabulary in Isolation. There were no significant differences in error pattern when reading orally on the SRI between the experimental and control groups. There were no significant differences in over-all reading achievement as measured by the Gray Oral Reading Test in second grade in September or January.

There were fairly consistent and significant differences between both the experimental and sub-control groups, and between the control and sub-control

group on most measures of reading achievement at the end of first grade and at the end of second. The experimental group consistently achieved the highest scores and the sub-control group consistently achieved the lowest scores.. There were more significant differences between the experimental and sub-control groups than there were between the control and sub-control groups.

Good teaching under traditional orthography appears to be more the answer to the problem of first grade instruction than a change of the alphabet. Our problem is stimulating good teaching, because the evidence in this study indicates that it can be stimulated. Both control and experimental teachers learned that children can learn to write and write fairly well if they are not hampered by artificial barriers, the teacher's emphasizing handwriting craftmanship to the detriment of expression, the teacher's correcting spelling to the point that children do not wish to try, the teacher's assuming that children cannot learn vowel sounds until second grade and thereby assuming that most independent word attack skills must wait until second grade, and the teacher's emphasizing the child's dependence upon the teacher for help in learning to read, write, and spell. Both teachers became aware of the importance of auditory discrimination.

The preceding summary of Dr. McCracken's research report was prepared by the Research Office, State Superintendent of Public Instruction, Olympia, Washington. A copy of the complete report is available at that office.

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