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THE EFFECT OF AN AUDIO-VISUAL PHONICS
AID IN THE INTERMEDIATE GRADES

by

Eileen Evelyn Stanton

A Thesis Submitted to the Faculty of the Graduate School
of Loyola University in Partial Fulfillment of
the Requirements for the Degree of
Master of Arts

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1961

VITA

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The writer, in collaboration with Charles I. Doyle, S. J., and Carol (Luser) Cabanski, has published an article titled: "Effect of an Audio-Visual Phonics Aid in the Intermediate Grades," Journal of Educational Psychology, LIX, (March, 1958), 28-30.

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CHAPTER I

INTRODUCTION

The teaching of reading has presented many problems through the centuries. Since the middle 1920's, educators have made a concerted effort to improve methods in teaching reading. One of the areas in which they have exhibited particular interest is in remedial methods and devices to help children who for one reason or another are not making satisfactory progress in reading.

Basic to the beginning reading technique are word attack skills which the child must assimilate to enable him to read independently with facility and comprehension of what he reads. Noah Webster, interested in standardizing American speech, advocated phonics as an aid to pronunciation in the latter part of the eighteenth century. Since that time, word study skills have been refined to the point where today the two most widely used and controversial techniques of teaching reading are the "look and say" method and the phonics approach.

The phonics method is the older of the two and consists in learning the sounds appropriate to the letters of the alphabet, letter groups, and combinations. Rules which govern the non-phonetic words in the English language must be memorized. Once a child has mastered the sounds and learned the phonics rules, he can apply his knowledge to words and pronounce them. Hildreth (24) and Gray(18), among others, refer to this method as the traditional, or the synthetic method; synthetic in that

teachers using this approach endeavor to help the child sound out the letter symbols or parts of the word until they associated the sequence of sounds with the whole word. Thus the synthetic method builds from parts to the whole word. Teachers who use the "look and say" method train children to first observe the word as a whole, then by analysis, using context clues, word structure, and phonetic elements, to identify the word. This approach is designated as the analytic (24,18,33), or whole-to-part relationship method of teaching reading.

The Sound Way to Easy Reading (7) is a set of recorded drills which combined both analytic and synthetic word attack in that sound elements are heard and pronounced by the child, who at the same time is associating the sound with a pictorial representation of the key word. In other words, this technique uses an approach to phonetic training which combines four reinforcing elements: sight of the symbol, sound of the symbol, pronunciation of the sound, and a picture representing a key word in which the sound is incorporated.

The purpose of this study is to assess the value of this specific phonics method by using it in a series of drills in a controlled situation on children who have reached the intermediate grades without sufficiently mastering the art of reading.

Chapter II presents relevant published material which lays a foundation for the present research which aims to discover if this remedial device might be an important contribution to education of the handicapped reader.

CHAPTER II

REVIEW OF RELATED LITERATURE

Controversial for the past forty years among educators has been the role of phonics in the teaching of reading. Prior to that time, children were taught to read by a strictly phonetic approach or a "word and sentence" method. In the early 1920's prominent educators became much concerned with how reading was and should be taught. They argued that phonics, the traditional tool of the teacher, had become overemphasized to the point where children wasted too much time learning sounds before they enjoyed the experience of reading. The Twenty-fourth Yearbook of the National Society for the Study of Education, Part I (39) contained one of the first comprehensive reports on reading which treated the subject of the phonics controversy. Gray, Whipple, Horn, and others reviewed the field and recommended that phonics should indeed be taught, but as an incidental aid to the word method in teaching reading. More stress should be placed on meaning, and the reason they offered for curtailing phonics was that meaning does not result directly from phonics drills. Therefore, they declared, phonics should be delayed until second grade, and then be taught on an incidental basis. At the same time, they pointed out that phonics was very effective in remedial reading.

By the end of the next decade the necessity of remedial programs in many high schools attested to the fact that there were many intelligent

children who had not learned the mechanics of reading. Surprisingly, all studies reviewed by Fleach (14) covering fifty years of research dealing with phonics and non-phonics programs in reading methods reported no evidence that the phonetic approach was inferior to any other method of teaching reading. Still, there are many who decry the need for phonics except as a supplementary aid in word recognition. This idea is widespread among many leaders in the field of education, and the reports which follow delineate their attitude toward phonics.

In 1940 Strang (37) wrote:

The meaning of words is acquired through the recognition of words as part of dynamic thought patterns. . . . Isolated word study is wasteful because the students are gaining no experience in reading during the time spent in study of isolated words.

The phrase "dynamic thought patterns" places a gestalt emphasis on word recognition. Some authorities describe the non-phonetic method of teaching reading as the "gestalt" approach (20, 30, 34).

In the Thirty-sixth Yearbook of the National Society for the Study of Education (40), Gray advocated the experience activity approach in teaching the children word recognition. The teacher was encouraged to contrive experiences that would help the child to recognize, comprehend, and retain words. In the same publication, Gates refers to remedial reading as "so new a field" and recommends phonics as the best remedy. The conclusion might be drawn that the new "word" method was not effective for all children.

Later, almost all writers consulted by the author seemed to endorse the word, or "look and say" technique of teaching reading.

In the Forty-eighth Yearbook of the National Society for the Study of Education, Part II, Beery says:

The yearbook committee views phonics as one means of word recognition which should not be used alone but in conjunction with context and visual clues. . . . The committee decries, as harmful to well-rounded development in reading, the mechanistic, elaborate, involved systems of phonetic analysis which have been revived recently and which have been accepted in certain schools.

For most children the "look and say" method is a natural method to use in beginning reading because they are able to pick up rapidly a basic vocabulary by this means and can center their attention on the meaning of the content. The "look and say" method alone, however, will not produce independent readers.

. . . the ability to sound out a word is a valuable technique when a quicker method fails.

In the same year, 1948, McKee (27) recommended the teaching of "certain phonetic elements" along with the initial seventy-five word pre-primer vocabulary, and further, that it was a "serious error" to devote too much time to the teaching of phonics, that it should be taught "in conjunction with the use of context."

The next year, 1949, Russell (35), outlining objectives for first and second grade teachers, does not mention phonics at all unless he intends that method be understood to be included in "a few skills to note similarities and differences of known words."

Bond and Bond (6) in 1953, in a publication on the teaching of reading, say that "the phonetic method is slow but sometimes helpful." Yet, in the same text, "through the use of phonetic analysis the child is able to work out the pronunciation of many words that then become known to him as familiar words in his recognition vocabulary of spoken words."

The increasing need for remedial programs has drawn the attention of many educators; among them, Betts (5) writes:

* . . . when 10% to 25% of the pupils appear to be in need of remedial reading, a careful appraisal should be made of the school program producing this result.

He later points out that "word analysis begins with phonetic elements," and by "phonetic elements", Betts means incidental phonics used as a supplementary skill in teaching reading.

McKin (28) in 1955 describes a "case study" approach to remedial reading, which, however, includes the teaching of "roots, suffixes, and prefixes," the non-phonetic words using context clues plus incidental phonics.

In 1960, Sister Claudia, O.P. (11) presented a systematized phonics method which she says has been criticized as too traditional, but which she defends by saying: "I know it's good, because it works. Our children read in first grade." Her method is taught by all teachers under her supervision, in the primary grades as a method of teaching reading, and in the intermediate grades as a remedial aid.

In the foregoing discussion, phonics methods are nearly always referred to by mentioned authorities as the most effective remedial method. To support their recommendation the following studies are noted as indicative of the usefulness of phonics in teaching reading.

In 1930 Gillentine (16) matched 148 pairs of fifth grade pupils for IQ and age. She used a ten-minute phonics drill daily for eight months on the experimental group. Analysis of tests administered at the beginning and at the end of the eight months period revealed that the experimental group "exceeded the norms of the tests" in statistical evaluation. She concluded

that the intensive drill had brought above grade level the experimental group in which practically all had been reading below grade level at the beginning of the remedial study.

Mosher and Newhall (32) in 1930, in a two-year evaluative program, used seven beginning first grade classrooms. The children were tested for ability in order that all rooms would receive an equal distribution of various levels of ability. Three of the rooms taught reading by the "look and say" method and four rooms taught the traditional phonics method. At the end of two years the children were tested. The test was constructed from stories from the schools' reading series. Among the children who completed the two years of training and who fulfilled the attendance and test administration criteria, seventy-three of those in the phonics program and fifty of those in the "look and say" program were evaluated for comparison. Those receiving phonics training excelled in reading rate, fewer eye fixations, silent reading, oral reading, and comprehension. The "look and say" group excelled in only one difficult passage in one of the reading subtests. Mosher and Newhall found no significant differences in this study, however, all evaluation was quite subjective.

A controlled experiment in phonics was conducted by Sister Dorothy Browne in 1939. An experimental group of 160 sixth grade children received a ten-minute phonics drill preceding their reading lesson daily for one year. A control group of equal number received no phonics drill. Tests at the end of the year showed that the experimental group had gained eight months more reading age than the control group. She concluded that phonics was beneficial for all intermediate grades, especially those children with IQ's just under 100.

Agnew (2), also in 1939, compared all third grades in Raleigh, N.C. , who had received only incidental phonics instruction with all third grades in Durham, N.C., who had been taught phonics for the three years. He found, after administering tests in word recognition, word analysis, oral reading, pronunciation, silent reading, comprehension, and vocabulary, that the phonics group of Durham was superior to the Raleigh group to a marked degree.

In England, Burt and Lewis (10) made an effort to ascertain the more effective reading technique for retarded children of intermediate grades with IQ's ranging from 76 to 81. Their ages ranged from nine to twelve. The four methods used were a) kinesthetic, b) alphabet, c) phonics, and d) "look and say". Tests at the end of one year in this controlled experiment showed that the most effective method for these retarded children was the "look and say" method, and it was ten per cent better than the least effective method, which was the kinesthetic. These children who had been at least three years retarded in reading were brought up to ability level. Phonics was the second best method.¹

Rev. John B. McDowell in 1953 (26) in research to evaluate the teaching of phonics, used ten third grade rooms in ten schools. The grades were matched for IQ and socio-economic level, and all children tested at the 4.0

1.

As a teacher of mentally retarded children with IQ's ranging from 80 down to 50 in approximately the same age group as the children used in the Burt and Lewis investigation, the present writer remarks that in her experience with these children, she finds that many of them rely heavily on a highly developed memory, and therefore, the "visual", or "look and say" method of word study appears to them to be the easier with which to cope; however, those in the upper IQ range in her class use phonetic analysis with success.

grade level. The five classrooms constituting the experimental group had received three years of phonics instruction. The control rooms had not. The Iowa Silent Reading Test was administered at the close of the third year and it was found that the group which had received the phonics training was better in all measures except spelling. The measures in which the phonics group was better were: reading rate, word meaning, sentence meaning, and alphabetizing.

Another study conducted in England by Ace (1) in 1956 compared the efficiency of a "look and say" method with a "Moxon" method which begins with the vowel sound and builds up the rest of the word to the right and then adds the initial sound. The "Moxon" method is essentially a visual phonetic approach and proved to be the more effective of the two (No tables).

This review of pertinent literature would seem to justify the phonics method as the more useful and effective way of teaching reading. If this is true, as these studies indicate, then phonics drill could be assumed to be the most desirable technique to apply in remedial reading.

Those authors and reports cited above which refer to remedial reading (3, 5, 10, 6, 38, 40) all recommend phonics as being most helpful for children who need assistance in reading skills.

Consideration of this evidence appears to justify the present research. The experimental design and a description of the materials used will be the subject of Chapter III.

CHAPTER III

PROCEDURE

Since the purpose of this experiment was to discover and to measure a possible gain in reading ability, a plan using an experimental and a control group offered the obvious design. This research device seemed most appropriate for yielding scores which could be treated statistically for most effective comparison.

Initial consideration was given to the kind of population which would best suit the purpose of the study. It was tentatively assumed that schools in an underprivileged area would probably have a higher incidence of reading retardation in the intermediate grades. This grade level was chosen since reading difficulties would be more evident than in primary grades.

Permission was requested from the Chicago Board of Education to approach the principals and teachers in several schools in the area selected, which is described later. Approval of the submitted project was granted and two fourth grade rooms in each of two schools in the desired location were made available for the study.

A similar request to the Archdiocesan Board of Education resulted in the cooperation of two parish schools to the extent that two similar rooms in each of two schools were included in the project. All the schools were located in the same semi-alum neighborhood, which was predominantly Negro

in composition with a scattering of other nationalities, including a few Mexican and Puerto Rican children.

Some of the factors involved in the reading retardation of these children might be a) their limited experiential background, and b) frequent change of schools. Besides, a shortage of teachers in the public schools at the time of the experiment had resulted in a series of substitute teachers for some of the children, a condition which may have meant a history of inconsistent teaching of reading and spelling skills.

A total of 281 children from the eight rooms participated in the tests at the beginning of the experiment. Transiency was quite marked for some of the rooms; in the final tally at the close of the study it was found that one fourth of the original population was eliminated. The re-test scores of some of these pupils had to be discarded, not because the children moved away, but because of their markedly irregular attendance, which would have reduced the validity of the study.

Once the population was determined, a battery of four tests yielding five measures was used. First of all, the Kuhlmann-Anderson Test, Form D, was administered to the entire eight rooms. An intelligence test was chosen in order to match as nearly as possible the two rooms in each school for mental age and rate of learning. The Kuhlmann-Anderson test was selected primarily because the mental age derived is the median of the ten sub-tests, five of which, in Form D, are verbal, and five non-verbal in nature. Room averages for IQ were computed; where there was a difference the room with lower IQ in each school was designated as the experimental room. Slight differences were found in all the matched rooms but the room with lower

average IQ was consistently assigned as the experimental room. Thus, the design was weighted to a slight degree in favor of the control group.

With the groups somewhat equated in intelligence a battery of three tests covering skills that might be improved by phonics drill was administered to all eight rooms. These tests were the following, and in their selection, consideration was given to the low reading achievement of the children.

The World Book Company graciously gave permission to reproduce the Stanford Primary Test, Form D, which was out of print. This edition of the test was preferred to the later revision employing multiple-choice answers rather than the "fill-in" answers of the former edition which was felt to be more appropriate to the reading level of the subjects. Individual scores for paragraph meaning and word meaning were obtained from this test.

Individual reading scores were procured using Gray's Standardized Oral Reading Paragraphs, a test which yields possible grade scores from 1.0 to 10.1.

Marion Monroe's form (written) of the Ayres Spelling Scale was administered by the group method. The grade score spread on this test is from 1.0 to 8.5.

This battery of tests enabled the author to compare experimental and control data in five areas for analysis: oral reading, paragraph meaning, word meaning, spelling, and intelligence quotient.

Because of mid-year promotions and final examinations in June, the time available for the project, exclusive of testing, was limited to fifteen weeks.

The audio-visual aid used, The Sound Way to Easy Reading (7), may be described as an intensive phonics drill consisting of eight recordings (four twelve-inch 78 RPM records). A pupil chart corresponds to each record side. The series of drills begins with a sound alphabet and proceeds through consonant sounds, short and long vowels, blends, and word analysis. The pupil charts are printed with letters corresponding to the sound being introduced on the record followed by a word which includes the sound, after which is printed a picture representing the word, thus aiding the child in assimilating the drills with simple pictorial representation. The charts are colored in pastel tints and each child was supplied with an individual chart used in conjunction with the separate sides of the records.

The drills, 43 in all, covered fifteen weeks, as mentioned above, beginning as soon as the pre-tests were scored and selection of the experimental room in each school was determined. The drills were administered during the regular reading periods of each of the experimental rooms. They were presented three times a week by one of the workers who had aided in the administration of the tests, and was therefore a person familiar to the subjects. No supplementary motivation was offered other than that presented on the recordings.

Re-tests were administered about two weeks before the close of the school year, in order not to interfere with the school's closing activities. The entire battery was again administered using the same tests.

The statistical procedures and findings of the experimental data are presented in Chapter IV.

CHAPTER IV

RESULTS

The first step in organizing the data gathered from tests administered before and at the end of the study was to eliminate from the experimental group the scores of those children who had moved away, who had not participated in all of the tests, or who had missed more than one third of the phonics drill sessions. The same process of elimination, with the exception of that applying to the drill sessions, in which they did not participate, was used in treating the scores of the children in the control group. The refined totals for the experimental group and the control group were 105 and 109 respectively. The pre-test mean chronological age for the experimental group was 9-9 with an average mental age of 8-7; for the control group the mean chronological age was 9-6, and average mental age was 8-9.

The grade level scores and IQ measures may be examined in Table I (p.15). The groups were considered to be well matched.

The null hypothesis proposed at this point was stated thus:

No significant difference in improvement in reading and spelling skills can be expected to result from the use of formal phonics drill enriched by an audio-visual aid.

Comparison of the control group pre-test scores with their scores at the close of the experiment showed an approximate gain such as might be expected

TABLE I
TEST SCORES FOR EXPERIMENTAL AND CONTROL
GROUPS AT BEGINNING OF THE STUDY

Test	Experimental N=105		Control N=109		Difference in scores
	Score	S.D.	Score	S.D.	
Oral reading	3.0	1.15	2.97	1.13	.03
Paragraph meaning	2.84	.84	2.90	.92	.06
Word meaning	2.79	.78	2.76	.83	.03
Spelling	2.79	.97	2.76	.84	.03
K-A IQ	88.3	11.2	92.3	11.0	4.0

in a three and one-half month period. Gains in paragraph meaning and word meaning were precisely at the expected level; oral reading slightly less than the normal expectancy, and spelling a little better than half as much as might be expected during the period covered by the study.

Before presenting all the data including two sets of test scores for two groups and two tests of significant differences in gains, the total statistical study may be more easily followed if the mean scores and mean gains of each group are presented separately. Table II (p. 16) shows these data for the control group.

Comparison for grade level achievement scores and IQ by the experimental group on the same measures using pre-test and post-test results are presented in Table III (p. 16).

TABLE II

ACHIEVEMENT GAINS IN GRADE LEVEL SCORES AND IQ AS MEASURED BY PRE-TEST AND POST-TEST FOR THE CONTROL GROUP

Test	Pre-test	S.D.	Post-test	S.D.	Gain in test scores
Oral reading	2.97	1.13	3.27	1.29	.36
Paragraph meaning	2.90	.92	3.30	.97	.40
Word meaning	2.76	.83	3.16	.89	.40
Spelling	2.76	.84	3.00	.94	.24
K-A IQ	92.3	11.0	93.0	13.0	.70

TABLE III

ACHIEVEMENT GAINS IN GRADE LEVEL SCORES AND IQ AS MEASURED BY PRE-TEST AND POST-TEST FOR THE EXPERIMENTAL GROUP

Test	Pre-test	S.D.	Post-test	S.D.	Gain in test scores
Oral reading	3.0	1.15	3.76	1.40	.76
Paragraph meaning	2.84	.84	3.61	1.16	.77
Word meaning	2.79	.78	3.26	.93	.47
Spelling	2.79	.97	3.26	1.17	.47
K-A IQ	88.3	11.2	94.5	11.9	6.20

Once it was established in terms of grade level on re-test scores that a gain greater than expectancy was shown by the experimental group, the data were further analyzed to test the significance of the difference. This was approached by two methods: t test and chi square.

Of the two methods used to analyze these data the t test was the more precise. In order to use the chi square statistic, it was necessary to assume for the experimental group a gain greater than the average gain of the control group. Accordingly, a gain of .5 grade score in 3.5 months was considered significantly greater than expectancy. In treating the IQ scores by chi square, a gain of three IQ points was chosen as significant, thus making liberal allowance for practice effect much greater than that shown by the control group.

Table IV (p. 18) selects from the foregoing tables the respective gains of the two groups in all of the concluding achievement tests and reports the net gains of the experimental group plus the significance thereof as shown by t test and chi square. The reader is referred back to the foregoing tables for other details. Table IV also includes gains in IQ scores and the significance of the gain by use of the same devices.

TABLE IV

NET GAINS AND SIGNIFICANCES OF DIFFERENCES BETWEEN CONTROL GROUP SCORES
AND EXPERIMENTAL GROUP SCORES AS SHOWN BY t TEST AND
CHI SQUARE AFTER AUDIO-VISUAL PHONICS DRILL

Test	Exp. N=105 gain	Contr. N=109 gain	Net diff. in gain	<u>t</u>	(P)	chi square	(P)
Oral reading	.76	.30	.46	3.65	.001	13.93	.001
Paragraph meaning	.77	.40	.37	4.40	.001	8.57	.01
Word meaning	.47	.40	.07	1.11	.30*	1.22	.30*
Spelling	.47	.24	.23	2.35	.02	3.26	.05
K-A IQ	6.20	0.70	5.5	4.91	.001	23.28	.001

Interpretation and comment on the data presented above will be found
in Chapter V.

*Not significant

CHAPTER V

SUMMARY AND CONCLUSIONS

The object of this study was to ascertain the effectiveness of a recorded phonics drill in the form of standard records accompanied by corresponding pupil charts as a means of improving reading and spelling skills in the intermediate grades. Experimental and control groups were assigned from two matched rooms in each of four schools in a low socio-economic area. Forty-three drill sessions of the phonics records were administered to the experimental rooms three times a week for fifteen weeks. Analysis of test scores obtained at the beginning and at the end of the experiment was accomplished by t test and chi square. The null hypothesis proposed was:

No significant differences in improvement in reading and spelling skills can be expected to result from the use of formal phonics drill enriched by an audio-visual aid.

Analysis of the data presented in Chapter IV renders ample evidence to permit us to reject this null hypothesis. The effectiveness of the phonics drill for the experimental group is clearly demonstrated in Table IV (p. 17). Differential gains for the experimental group in three of the four measures of grade scores were shown to be significant at a high level of confidence. Intensified drill and reinforcement of phonetical word attack skills aided the experimental group to better the control group from two to four months grade progress in oral reading, paragraph meaning, and spelling.

Achievement in the first two mentioned skills was nearly twice as great for the children in the experimental rooms.

Increased facility in spelling was double that of the control group although not significant to the degree that was evidenced in oral reading and paragraph meaning.

Achievement in word meaning was slightly better than expectancy for both groups, yet not reaching a significant level for the children having the advantage of the phonics drills. In view of the limited backgrounds of the children in both the experimental and control groups, gain in word meaning apart from context might not be expected to be so great as that of more sophisticated children from a higher socio-economic level. Families having a more stable background and better financial status are in a position to expose their children to more varied experiences thus making it possible for the children to enrich their vocabularies to a wider degree than that of less fortunate children such as participated in this experiment. Furness (15) Goldstein (17), and Smith (36) all point out the effects of a barren background on children's school achievement and particularly in relation to word meaning or vocabulary.

Aware of such possibilities arising from disparity of backgrounds of children entering school, many authorities (3, 5, 17, 18, 27, 28, 31) stress experience in beginning reading, recommending that the entire first year be spent in readiness and exercises which enlarge the child's vocabulary. Also, words in primary grades are rarely presented out of context, which limits children in learning to recognize and associate meanings with words perhaps already in their speaking vocabulary which might be encountered in a

vocabulary test. The possibility of such training in the academic backgrounds of the children in this study might have a bearing on their less than significant performance in word meaning. At the same time, it might account in part for the much better gain in paragraph meaning, presuming that they had been conditioned to use context as an aid to comprehension of words they read.

The spuriously high gain in IQ obviously does not indicate a gain in innate intelligence, but may be partially attributed to fuller comprehension ensuing from increased facility in reading due to the intensive phonics drills. Further, habits of concentration and attention may have been established or aided by the phonics drills, thus enabling the children in the experimental group to attend more alertly to the group instructions given orally for each of the sub-tests in the administration of the Kuhlmann-Anderson Intelligence Test.

It appears that an audio-visual device in the form of recorded phonics drills, supplemented by pupil charts and repeated on a regular schedule, has a definite positive remedial value for children in the intermediate grades in increasing their mastery of the mechanics of reading as well as their comprehension of what they read.

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APPROVAL SHEET

The thesis submitted by Eileen Evalyn Stanton has been read and approved by a board of three members of the Department of Psychology.

The final copies have been examined by the director of the thesis and the signature which appears below verifies the fact that any necessary changes have been incorporated, and that the thesis is now given final approval with reference to content, form, and mechanical accuracy.

The thesis is therefore accepted in partial fulfillment of the requirements for the Degree of Master of Arts.

January 9, 1961
Date

Charles T. Davis
Signature of Adviser