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A PILOT STUDY TO DEVELOP AND DETERMINE THE FEASIBILITY OF A PACKAGED MATERIALS PROGRAM FOR TEACHING READING AND THE GENERAL DEVELOPMENT AREA OF ADULT BASIC EDUCATION. FINAL REPORT.

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THE OBJECTIVES OF THIS PROJECT WERE TO PREPARE AND FIELD TEST INSTRUCTIONAL MATERIALS FOR USE WITH ADULTS READING BELOW THE SEVENTH GRADE LEVEL. TWO STUDIES WERE MADE IN NORTHERN FLORIDA IN 1967 OF GAINS IN READING VOCABULARY AND COMPREHENSION BY STUDENTS USING TRADITIONAL MATERIALS. THE HIGH DROPOUT RATE IN THE FIRST STUDY PRECLUDED USEFUL GENERALIZATIONS, BUT THE SECOND GAIN STUDY SHOWED SIGNIFICANT DIFFERENCES BETWEEN THE PRETEST AND POSTTEST SCORES OF BOTH GROUPS IN BOTH SKILLS. THERE WAS SOME EVIDENCE THAT THE NEW MATERIALS WERE TEACHING BOTH SKILLS BETTER THAN THE USUAL ONES. THE STUDENTS RATED THE NEW MATERIALS AS MORE INTERESTING THAN SOME TRADITIONAL MATERIALS AND JUST AS INTERESTING AS THE BEST OF THEM. IN THE FIRST OF TWO STUDIES ON TEACHER ACCEPTANCE, THE NEWER MATERIALS WERE THE ONES BEST RECEIVED BY THE TEACHERS. MOREOVER, INTENSIVELY TRAINED ADULT BASIC EDUCATION TEACHERS AND EXPERTS IN THE FIELD COMPARED THE EXPERIMENTAL EDITION WITH EXISTING SYSTEMS, AND BOTH GAVE IT AN OVERALL RATING HIGHER THAN THAT OF THE FIVE BEST TRADITIONAL MATERIALS THEN AVAILABLE. THUS, THE NEW MATERIALS SEEM EFFECTIVE AND WELL ACCEPTED BY BOTH STUDENTS AND TEACHERS. (THE DOCUMENT INCLUDES 19 TABLES, 44 REFERENCES, APPENDIXES, AND A REVIEW OF THE LITERATURE.) (LY)

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The Florida State University

Tallahassee, Florida

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INTRODUCTION

Statement of the Problem

The purpose of this project was to develop and determine the effectiveness of a reading kit for use in developing the reading ability of adults whose reading level is below the seventh grade readability level.

Need for the Study

Although there are many reports on literacy education there is little experimental research literature on the development and use of literacy materials and the present researchers found no research literature on the effectiveness of the kit or reading laboratory approach for teaching reading to functional illiterates. Kits developed for use with children are quite popular with the teachers of adult basic education classes. However, much of the content of such kits is inappropriate for use with adults.

Brice, et al., point out the need for research in adult basic education materials when they state that, "The need for research is urgent and pressing in terms of discovering new methods of teaching adults how to read, of trying [sic] to develop the type of course content this material should have" (9). They go on to point out the immediate need for newly developed materials when they state that, "The need for adults [sic] basic education materials is urgent . . ." (9).

Significance of the Problem

Despite the war on poverty (15) and the thousands of adult basic education classes in the United States,* it is only since the fall of 1965 that a very

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*There were over 200 classes operating in Florida alone in the academic year 1966-1967, according to an interim report of the Florida State Department of Education. Interview with Dr. W. G. Bradtmueller, Adult Basic Education Section, Florida State Department of Education, March 1, 1967.

few well-designed sets of adult basic education materials have been published (8,9,10,11,16,21,23,42). Furthermore, the content of much of the published literacy materials emphasizes only the most basic skills of reading, writing, and arithmetic (13), and much of it appears to be more appropriate for children than it is for adults.

Literacy education has commonly been concerned with teaching only basic skills. Much of the teaching has been done using elementary school materials with an elementary school teacher presiding. This concept is reflected in the now seldom used title "elementary education for adults" (9,10).

The adult functional illiterate needs to acquire a command of the basic communication and learning skills, as well as much basic information about the society that surrounds him (19,27,41). He needs the knowledge and skills that are basic to the adult world. Thus he needs not an elementary education program but an adult basic education program and the materials used to teach reading in this program should contain information in such areas as: occupational orientation, use of leisure time, law for the layman, consumer education, family and civic responsibilities, and basic science concepts (18,19,28, 42). Such essential materials appropriate for adult basic education are relatively unavailable, and where available are widely scattered (15).

One consideration for an optimal adult basic education program is that the content of the curriculum should be integrated into a whole rather than being taught as separate segments (43) and a method of integrating the curriculum is to use the general knowledge area content while teaching the basic skills of reading, writing, and arithmetic. Such an adult oriented content should be of high interest and of immediate usefulness to the adult student (3,14).

Another consideration in material development for adult basic education is the organizational format of the material. Individual differences in learning rates must be taken into account for the adult basic education students tend to be failure oriented (6) and they tend to drop out of classes that do not meet their needs as they see them (7). Thus an instructional approach that allows each student to succeed immediately and that allows continual success by permitting the student to progress at his own rate is necessary to keep the attendance of the student, and his progress, at a maximum (28).

Homogeneous grouping by ability or by academic level is one approach to the problem of individual differences. However, it has been shown that such grouping does not actually provide truly homogeneous groups (1) and that under good teaching the range widens within a few weeks.

A review of the materials now available to the adult basic educator reveals a paucity of reading materials designed to systematically teach the facts and concepts of the general knowledge area of adult basic education. It also indicates that not one of these materials also makes adequate provision for individual learning rates* (9,11).

The purpose of this study was to produce and test for effectiveness a kit of instructional materials designed for use with adults who are reading below the seventh grade readability level. The kit was to be at the adult interest level with the content coming from the general knowledge area of adult basic education. The kit was to be designed to take into account individual differences in learning ability. The study attempts to determine (a) the effectiveness of the kit in teaching reading and (b) the appropriateness of the kit for adult basic education.

Review of the Literature

Historical Perspective

In the introduction to Ward's bibliography, Ambrose Caliver states that, "The first intensive efforts to implement organized learning for illiterate adults in this country came with the establishment of the famous 'Moonlight Schools' of Kentucky . . ." (12).

These first moonlight schools began in September, 1911 (40). The content of vehicles for teaching the literacy skills centered around ". . . history . . . civics, English, health and sanitation, geography, home economics, agriculture, horticulture, and good roads" (40). But, "There were no readers in print for adult illiterates, so a little weekly newspaper was published as a reading text" (40). The development of this newspaper was seen as necessary for the use with adults as

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*A review of over 300 materials, critiques, and reviews of materials revealed no material meeting these criteria.

basal readers designed for children was even then considered inappropriate (40). With the spread of the literacy movement from one small community throughout the commonwealth and the establishment of an illiteracy commission for the commonwealth in 1914, it was recognized that more general instructional materials were needed. A series of readers for the adult, the COUNTRY LIFE READERS, were published (40). The style of the readers bore a strong resemblence to the McGuffy readers that had been so popular for use with children during the years 1896 to 1907 (39). The content followed the general curriculum as specified above.

The literacy movement began to spread to other states. However, the materials in use did not spread. Berg reports the materials used by one teacher who joined the literacy education movement in South Carolina in 1914 as ". . . the calendar and . . . the basic spelling list for farmers . . ." (3). Thus it can be seen that Kentucky was indeed making great strieds in leading the production of literacy materials.

The coming of the draft during World War I caused a change in the content of the published materials. "New text books were written . . . The Soldier's First Book and Soldier's Tablet were the names given to . . . [the new] readers and writing books" (40). The content pertained to life in the armed forces, but even these materials were used only in one locality and little training in literacy skills was available in the nation as a whole. Stewart probably overstated the problem when she wrote, "Nowhere else in America were illiterate registrants being taught" (40).

The necessity for literacy training began to be recognized by the federal government, and in 1917 the requirement of literacy for naturalization was enacted (24). In 1918, "The Soldier's First Book was revised and contributed to the Y.M.C.A., the educational arm of the Government [sic] for publication . . ." However, the armistice of 1918 changed these plans ". . . and the Government sent 50,000 Country Life Readers overseas for illiterate soldiers detained on foreign soil" (40). This was the first wide-scale distribution of literacy materials. Following World War I, the topics of instruction in literacy classes began to include sanitation, health, good roads, thrift, better speech, and better citizenship (40). Thus it can be seen that even a half century ago some educators recognized the necessity of using adult content in teaching adults to read. However, this

realization was founded on logic and not experimental evidence, for only one piece of research during this period has come to light. It was Stewart's report of historical research she undertook on the literacy movement: she states that ". . . nothing was to be found save a few statistical reports . . ." (40) on the extent of illiteracy.

Interest in the native illiterate dropped off after World War I and was not revived until the Great Depression. One agency used to attack the problem was the Civilian Conservation Corps which came into existence in March, 1933. Some "Purposes of CCC Education were . . . 1. Removal of illiteracy. 2. Correction of deficiencies in elementary school subjects . . ." (30). Materials used in the CCC camps included ". . . special manuals published by the corps area educational offices . . . advertisements, road signs, cartoons in newspapers, and camp signs bearing words of common usage . . ." (30).

During this period, Bond, as well as Hill and Cherry, reported on the use of literacy education teachers who were paid by the Works Progress Administration (5,22); but such programs appear to have been scattered and ununified.

World War II again brought the federal government face to face with the problem of illiteracy. As the need for manpower grew, the illiterate was drafted and taught to read (44). The army's task was without precedent (34). It ". . . could find no materials suitable for the purpose . . ." (10) so it developed its own materials including filmstrips for the introduction of new words, a reader, some supplementary bulletins, a monthly magazine, and a weekly newspaper. Most of the content, of course, directly pertained to the war (44).

In their comprehensive survey of the materials available for use in adult basic education, Smith et al., review three materials published in the 1940's. They consider only one adequate, in the broadest sense, for use in the introductory stage, and they suggest it only as a supplementary material. The three materials were published in the years 1948 and 1949. The three comprise a total of only 282 pages (37).

J. Smith in Books for New Readers, A Bibliography reports no materials at the introductory stage with a publication date reported in the 1940's (38),

and N. B. Smith, in her comprehensive review of the history of reading instruction, mentions the 1950's as a period when ". . . adults began coming to reading centers for . . . instruction. These people usually were not . . . illiterate" (39).

Smith, et al., review two materials of this period that they consider adequate for teaching reading in the introductory stage. One set of simplified classics appears more adequate for teaching English as a second language than for teaching the native born illiterate, and the other is a reading kit written for children which, today, would not be considered adequate for use with adults (37). Of the two materials mentioned as adequate, the content of the first was short articles chiefly concerned with men at war, history, and heroes while the contents of the other concerned occupations. These materials were published in 1954 and 1959 respectively. J. Smith reports one additional material for use in teaching reading at the introductory stage published in 1955 that is suggested as "helpful" (38).

The lack of materials adequate for adult basic education instruction during the years 1900 to 1959 is evidenced by N. B. Smith's statement, speaking of literacy education, "New materials need to be developed . . ." (39). Further evidence is given by the fact that, although N. B. Smith's review of materials for teaching reading during this period is excellent, she does not review a single material intended for use in adult basic education classes (39).

The Manpower Development Training Act of 1962 was amended in December 1963 to make provision for adult basic education. In the 1960's, but prior to this amendment, two materials were published for use with native born adult illiterates in introductory stage classes. One was intended to be used in accompanyment with a television course of instruction, the other was an occupationally oriented series. The materials were published in 1962 and 1963, respectively. Smith, et al., considered both of them "adequate"; they also considered adequate six materials published for children. One material for children they considered more than adequate, and three are considered inadequate. Also considered inadequate for use with native born adults are two materials written for the teaching of the foreign born (37). J. Smith reports eight additional books published during this period. All are intended as supplementary reading (38).

With the passage of the December, 1963 amendment, publishers began to bring out ". . . the newest adult literacy materials [which] reflect the crash program behind them and are so poorly designed and executed as to be almost useless to the teacher who has even minimally realistic standards. As of the fall of 1965, there is no set of materials, regardless of publishers' claims to the contrary, which provides a sound basis for an adult program . . ." (11).

Smith, et al., list ten materials of this period as inadequate, seven as adequate, and two as more than adequate (37). Burnett may have excluded any or all of these and other materials, published before his review, as not meeting his criteria for any one or more of the following reasons: (1) material is of too little extent to raise the user in reading ability at the same rate the material progresses, (2) material introduces new words extremely rapidly--a fault of most material of the "linguistic" approach, (3) material is of an interest level more appropriate for children than for adults, or is of low interest level altogether, (4) material does not allow enough flexibility to allow each student to work at his optimum rate, (5) material is published on paper and in a type font* inappropriate for the beginning reader, (6) readability of the material is not carefully controlled, (7) material needs to be supplemented by large amounts of material or is itself intended as a supplementary material, (8) the content of the material is not appropriate to adult basic education.

Since the publication of Smith, et al.'s, annotated bibliography, the Florida State University Fundamental Education Materials Center has reviewed three materials intended for use in teaching reading at the introductory stage of adult basic education. One of these materials is considered an adequate supplementary material; one is adequate, but has the faults of a "linguistically oriented" program; and the third is inadequate (17). J. Smith reports one additional "helpful book" published during this period (38).

Of the material intended for the introductory stage and for the native born adult illiterate as reviewed by Smith, et al., J. Smith, and Geeslin only one

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*Type font refers to the style of characters used.

material was designed to account for individual differences in both learning ability and reading stage. It is founded on the "linguistic" approach and has the fault of a too rapid word introduction rate, nor does it stress the content previously shown to be necessary for adult basic education (17,37).

It can be seen that few materials are actually available, as compared to the materials available for use with children. "If adults requiring adult basic education training are to be truly served, instructional systems must be made available which go far beyond the materials of limited usefulness which now exist" (9).

Pertinent Research

If materials suitable for adult basic education are scarce, adequately reliable research on them is rare. A review of this research is given by Barnes who states that he includes ". . . the bulk of the research conducted and reported in this field" (2). He reviews only four studies on instructional materials published prior to the 1965 date of publication of his review. His critical analysis points out such a lack of controls that he enumerates each piece of research as either unreliable or of such a nature as to prevent generalizations being drawn from the results (2). He concludes, "The reviews of field testing that have been completed and reported point up a need for sound design strategy for future field testing of instructional materials" (2).

The lack of adequate research, as pointed out by Barnes, may be exemplified by a study published just three months after his review. An article entitled "The Unifon System" reported on a study having no control groups and an experimental mortality rate of 75 per cent. The conclusion drawn from the study was that the teaching of reading in the introductory stage could be founded upon the "proven adequate" Unifon System (26).

Other reports on systems or programs are mainly anecdotal. Two such reports on materials for use in adult basic education are Caliver's and Neff's. Caliver describes a project intended to develop an adequate material for literacy instruction. The materials were described as prepared and published (12). No field test reports on the material have been discovered.

Neff reports on Systems for Success, Words in Color, Laubach System, Learning Laboratory, Steck System, Reading in High Gear, Unifon System, Operation Alphabet, and the Read and Write Series. He states that ". . . none of . . . [these] systems provided a wholly satisfactory program . . . [needed are] materials that focus on consumer education, health, social studies, homemaking, and human relations" (29). No research results nor criteria for determining the adequacy of materials was reported.

One isolated experimental research study has been discovered. Laubach reports a study which used adequate controls; however, the material used in the study was not intended as instructional material and is not commercially available (25).

The fact that Laubach's study is indeed an isolated piece of experimental research can be seen in the fact that Harris, et al., report no research dealing with illiterate adults from July 1, 1964 to June 30, 1965 (20). Further, of four articles pertaining to literacy education reported in The Reading Teacher in October, 1965, and one in November, 1965, none reported research (32,33).

The Journal of Reading, a companion journal to The Reading Teacher, also carried a report on a literacy program. The anacedotal report was by Rosner and Scaty. They report no data nor statistics on the population; and they used no controls what-so-ever (35).

A similar report is made by Pope. Again, no controls were used. However, it is reported that, "Semi-programmed material available in reading laboratories was of greatest help . . ." (31).

Thus it can be seen that even the reports carried by respected journals are mainly anecdotal. Such reports are to be found as the body of the literature on materials for adult basic education.

It can be seen that a field tested kit, adequate for teaching reading to the native born adult illiterate at the introductory stage, will be a step in the direction of using research rather than opinion in determining the value of adult basic education materials.

Objectives

The major objectives of this project were:

1. To design and prepare the experimental edition of a material for teaching reading to functionally illiterate adults.

a. the material was to be extensive enough to raise the reading ability of the user at a rate greater than or equal to the rate of increasing difficulty of the material itself.

b. the material was to be of high interest to adult students.

c. the material was to include exercises for developing the reading skills of word attack, comprehension, and critical reading.

d. the material was to be organized in a manner that would allow provision for individual differences in learning rates through individualized instruction.

e. the readability of the material was to be carefully controlled through the use of a readability formula.

f. the content of the material was to be that shown to be necessary in adult basic education.

2. To field test the material to determine:

a. expert opinion

b. teacher acceptance

c. student acceptance

d. if any significant differences in reading gain would be found between classes using the experimental edition of the material to be prepared and classes using traditional materials.

ORGANIZATION

The organization of this final report follows the recommendations in Instructions for Preparing Substantive

Reports Based on Research Projects Supported by the Office of Education, Bureau of Research. However, this report encompasses three completely different topics (the experimental material, the gain studies, and the rating studies), with several related studies composing each of the latter two topics. For this reason; the hypotheses, method, results, discussion, and conclusions will be contained within the presentation of each topic or study as well as an overall presentation of results, discussion, and conclusions being contained at the end of the report and preceeding the summary of the entire report.

PART I

A DESCRIPTION OF THE EXPERIMENTAL MATERIAL

As originally proposed, the experimental material was to consist of two core packages containing material from readability level one through readability level 3.9, and from readability level 4.0 through 6.9, respectively. The division was to have been into three "grade levels" per package. Each level was to have contained one lesson in each of five content areas, or a total of five lessons per level, fifteen lessons per package, and a total of thirty lessons. However, it was soon decided that such a material would not be extensive enough to raise a student's ability as rapidly as the material's difficulty increased. The result would have been the production of a material that would have required great amounts of supplementary material and this would have been adequate for only minor supplementary use. Therefore, it was decided to greatly extend the project and the following amount of content was arbitrarily decided upon:

1. Package One was designed to contain five subject areas with three lessons per area for level one and six lessons per area for levels two and three for a total of 75 lessons (5) (3 + 6 + 6) = 75. Later, two extra lessons at level two and an additional lesson on critical thinking were added, making a total of 78.

2. Package Two was designed to contain five subject areas, four lessons per area on three levels for a total of 60 lessons (5) (4) (3) = 60. Later, two additional lessons on level six and an additional lesson on critical thinking were added, making a total of 63.

3. The total experimental material consisted of 140 lessons and a teacher's manual. Since each lesson contained approximately 600 running words, the entire material was quite extensive. It contained approximately 84,000 running words.

The content of the lessons was taken and rewritten from uncopyrighted sources, principly from documents published by Federal and State agencies. Since the changes and additions made were great and since sometimes the intent of the author was changed, no credit was given.

Each lesson was compiled individually into a pamphlet. The pamphlets were color-coded in one of six colors to designate their grade levels. Finer discrimination in readability level was achieved by ordering the lessons within each content area and by showing the rank, from easiest to hardest, on the cover. The cover also bore a design to distinguish the various content areas.

This organization of the material allowed the student to begin at his reading ability level and progress upward. For example: one student might begin at grade level two. Working within the second level, by selecting the appropriate color of cover, he would read each of the rank "1" booklets (lessons). There were five of these, one in each content area. When he finished, he would read those booklets marked with the rank "2". In this manner, the student would read five lessons before the difficulty of the material moved up an approximate two-tenths of a grade level. This quantity of material (approximately 3,000 running words) should have enabled all but the slowest students to read enough material to progress in ability at a rate at least equal to the rate at which the material gained in difficulty.

Many students would not need nor want to read all of the material at any one level before they begin reading at the next higher level, so the material was designed to allow individualized instruction which would permit the teacher to move the students as rapidly as their reading abilities increased. No student has to read all of the lessons. Each reads only as much as he needs in order to progress.

The experimental edition was run on a mimeograph machine and the print was poor. This factor was noted by some of the experimental subjects.

PART II

THE GAIN STUDIES

Study One

In the early spring (March and April), the experimental studies were begun. They were to determine if there would be any significant difference between the gains made by classes using traditional materials as compared to classes using the experimental material.

Method

Selection of Population

With the aid of Dr. Weldon Bradtmueller of the Florida State Department of Education, fifteen adult basic education classes were obtained for the study. The classes had an enrollment of approximately twenty students per class. The classes were distributed into experimental or control treatment groups according to the teachers' stated preference. All classes were located in northern Florida.

The results of the distribution yielded nine classes in the experimental group and six classes in the control group. In each locality, there was one control group to insure that students of the same region were being compared. Three localities had more than two classes. For this reason nine experimental classes were used while only six control classes were used. In each area, at least one teacher had no preference, and was, therefore, assigned to the treatment group so that the distribution yielded one control class per area. The remaining classes were experimental.

The procedures used should have yielded a total population of approximately 180 experimental subjects and 120 control subjects. However, it was found that the lengthening days, approaching farming season, and inadequate funding were causing the enrollment to drop. When the pre-tests were given, only 54 experimental subjects were enrolled and only 28 control subjects were enrolled. At this time, it was found that the classes would soon end due to lack of funds and that no time would be available for the selection of additional classes to increase the size of the population.

Procedure

The pre-test administered was the "Reading: Vocabulary: and "Reading: Comprehension" subtests of the Gray-Votaw-Rogers General Achievement Test, Form B, Primary, 1961 Edition.

The experimental teachers then introduced the experimental material to their classes as just "some new material," but used it as the core of their reading program with recreational reading both permitted and encouraged. The teaching techniques used were those the teachers preferred as long as they supplemented the suggestions given in the teacher's manual.

The control teachers continued to teach with the traditional materials supplied by the county. The techniques they used were the ones they preferred.

The instructional period was for three hours each night, two nights each week for six weeks, or a total of thirty-six hours of instruction. At the end of this time, Form A of the above test was given as a post-test.

Selection of the Sample

At the end of the period of instruction, 35 students remained in the experimental classes. Thirteen students remained in the control classes. Those students who had non-regressing scores, who began at a level below 6.9, and for whom the teachers had administered valid tests were selected for the final sample.

Analysis of the Data

The test scores for the two skills were analyzed separately. The raw scores were converted into grade level scores. The differences between each student's pre-test and post-test scores were obtained and are the gain scores analyzed.

The assumption of normal distribution necessary for the Student's t analysis of the data were accepted. The following formula for analyzing differences between means was used:

$$t = \frac{M_1 - M_2}{\sqrt{\frac{\sigma_1^2}{N_1} + \frac{\sigma_2^2}{N_2}}}$$

The formula used for analyzing the difference between a mean gain and zero was:

$$\underline{t} = \frac{M\sqrt{N}}{\sigma}$$

In both of the above, the standard deviation was accepted as the true parameter. The formula for determining $\underline{z}$ in the examination of the drop-outs was:

$$\underline{z} = \frac{N_2 n_1 - N_1 n_2}{\sqrt{\frac{N_1 N_2 n (N-n)}{N}}}$$

where N_1 was equal to the number in the experimental sample; N_2 was equal to the number in the control sample; N was equal to the sum of N_1 and N_2; n_1 was equal to the number of pre-test to post-test drop-outs in the experimental group; n_2 was equal to the number of pre-test to post-test drop-outs in the control group; and, n was equal to the sum of n_1 and n_2.

The level of significance used was a = .10 a one-tailed test.

Hypotheses

1. Ho: There is a significant difference between the mean gain in vocabulary made by the experimental group and the mean gain in vocabulary made by the control group.

Ha: The mean gain in vocabulary made by the experimental group is greater than the mean gain in vocabulary made by the control group.

2. Ho: There is no significant difference between the mean gain in comprehension made by the experimental group and the mean gain in comprehension made by the control group.

Ha: The mean gain in comprehension made by the experimental group is greater than the mean gain in comprehension made by the control group.

3. Ho: There is no significant difference between the mean gain in vocabulary made by the experimental group and a mean gain of zero.

Ha: The mean gain in vocabulary made by the experimental group is greater than zero.

4. Ho: There is no significant difference between the mean gain in vocabulary made by the control group and a mean gain of zero.

Ha: The mean gain in vocabulary made by the control group is greater than zero.

5. Ho: There is no significant difference between the mean gain in comprehension made by the experimental group and a mean gain of zero.

Ha The mean gain in comprehension made by the experimental group is greater than zero.

6. Ho: There is no significant difference between the mean gain in comprehension made by the control group and a mean gain of zero.

Ha: The mean gain in comprehension made by the control group is greater than zero.

7. Ho: There is no significant difference between the drop-out rate in the experimental group and the drop-out rate in the control group.

Ha: The drop-out rate in the control group is greater than the drop-out rate in the experimental group.

Results

The following tables show the results given in grade levels.

TABLE 1

RESULT OF TREATMENT ON GRADE PLACEMENT IN VOCABULARY

Group	Mean Gain	Standard Deviation of Gains	Number of Valid Scores
Experimental	1.55	1.17	22
Control	.89	.20	8

TABLE 2

RESULT OF TREATMENT ON GRADE PLACEMENT IN COMPREHENSION

Group	Mean Gain	Standard Deviation of Gains	Number of Valid Scores
Experimental	.67	.85	17
Control	1.39	1.47	7

TABLE 3

VALUE OF STUDENT'S t FOR THE COMPARISON OF THE GRADE LEVEL GAINS FOR THE GROUPS IN COLUMNS AS GREATER THAN THE GROUPS IN ROWS

Group	Vocabulary		Comprehension	
	Experimental Group	Control Group	Experimental Group	Control Group
Experimental				1.21
Control	1.98*			
Greater than zero	6.21*	1.28	3.25*	2.51*

*Significant at α = .10 on a one-tailed test.

TABLE 4

DROP-OUT RATES

Group	Per Cent of Sample Dropping Out
Experimental	35%*
Control	54%*

*Value of z when the percentage of drop-outs is expected to be equal within the two groups $z = 1.61$ (z is significant at the $\alpha = .0537$ level on a one-tailed test).

From the data, the following tests of hypotheses obtain:

Null hypothesis 1: There is no significant difference between the mean gain in vocabulary made by the experimental group and the mean gain in vocabulary made by the control group.

Alternate hypothesis: The mean gain in vocabulary made by the experimental group is greater than the mean gain in vocabulary made by the control group.

The difference between the mean vocabulary gains was .66 grade levels, a difference significant above the $\alpha = .05$ level on a one-tailed test. On this basis, the null hypothesis may be rejected and the alternate hypothesis accepted.

Null hypothesis 2: There is no significant difference between the mean gain in comprehension made by the experimental group and the mean gain in comprehension made by the control group.

Alternate hypothesis: The mean gain in comprehension made by the experimental group is greater than the mean gain in comprehension made by the control group.

Due to the nature of the data, the alternate hypothesis may be restated as: The mean gain in comprehension made by the control group is greater than the gain made by the experimental group.

The difference between the mean comprehension gains was .72 grade levels, a difference not significant above the $\alpha = .10$ level on a one-tailed test. On this basis, the null hypothesis may be accepted.

Null hypothesis 3: There is no significant difference between the mean gain in vocabulary made by the experimental group and a mean gain of zero.

Alternate hypothesis: The mean gain in vocabulary made by the experimental group is greater than zero.

The mean gain in vocabulary for the experimental group was 1.55 grade levels, a mean gain significantly greater than zero above the $\alpha = .005$ level on a one-tailed test. On this basis, the null hypothesis may be rejected and the alternate hypothesis accepted.

Null hypothesis 4: There is no significant difference between the mean gain in vocabulary made by the control group and a mean gain of zero.

Alternate hypothesis: The mean gain in vocabulary made by the control group is greater than zero.

The mean gain in vocabulary for the control group was .89 grade levels, a mean gain not significantly greater than zero at the $\alpha = .10$ level on a one-tailed test. On this basis, the null hypothesis is accepted.

Null hypothesis 5: There is no significant difference between the mean gain in comprehension made by the experimental group and a mean gain of zero.

Alternate hypothesis: The mean gain in comprehension made by the experimental group is greater than zero.

The mean gain in comprehension made by the experimental group was .67 grade levels, a mean gain significantly greater than zero above the $\alpha = .05$ level on a one-tailed test. On this basis, the null hypothesis may be rejected and the alternate hypothesis accepted.

Null hypothesis 6: There is no significant difference between the mean gain in comprehension made by the control and a mean gain of zero.

Alternate hypothesis: The mean gain in comprehension made by the control group is greater than zero.

The mean comprehension gain made by the experimental group was 1.39 grade levels, a mean gain significantly greater than zero above the α = .05 level on a one-tailed test. On this basis, the null hypothesis may be rejected and the alternate hypothesis accepted.

Null hypothesis 7: There is no significant difference between the drop-out rate in the experimental group and the drop-out rate in the control group.

Alternate hypothesis: The drop-out rate in the control group is greater than the drop-out rate in the experimental group.

The z ordinate was 1.61, a value significant at the α = .054 level on a one-tailed test. On this basis, the null hypothesis may be rejected and the alternate hypothesis accepted.

Discussion

From the results reported above, it may be seen that the experimental group gained over one and one-half grade levels in vocabulary with thirty-six hours of instruction. It is difficult to believe that this much gain took place without a like gain being made in comprehension as seen in Table 2. It is further hard to put faith in the gains shown by the control group because of the disparity of gains in vocabulary and comprehension. Also, the raw data contained several regressing scores and scores for some students that were invalidated because the teacher failed to end the test at the appropriate time. This indicates that the test results must be interpreted with caution.

Table 4 shows that the experimental group lost 35% of the students between the pre-test and the post-test, while during the same period the control group lost 54% of its students. It may be that the subject mortality of the two groups was not necessarily for the same reasons.

Conclusions and Recommendations

Although the hypotheses may be tested for the data gathered, and although this may give an indication

of the results that may be expected from such a teacher-pupil population, it is recommended that no generalizations about the relative worth of the materials or programs be drawn from this data. It was concluded that the gain study should be replicated.

Study Two

During the summer of 1967, the first study was replicated with a much larger population.

Method

Selection of Population

With the aid of Dr. Weldon Bradtmueller and others in the Florida State Department of Education, the investigator was able to obtain twenty classes to act as experimental population for the replication of the gain study.

The study took place in central and southern Florida as an incidental part of the Migrant and Seasonal Workers Project. The experimental classes were chosen from the total population of classes of that project by randomly distributing the experimental materials to teachers who had expressed a desire to use them and whose administrators had no objection to the experimentation. At least one experimental class was obtained in all except one of the counties participating in the Project. The remaining population of classes acted as control population.

Selection of Sample

The control groups reported are a random sample stratified to the extent that classes were drawn from each county from which valid experimental data was obtained. The entire population of experimental subjects on whom valid data was obtained is reported.

There were several criteria used to determine the validity of cases for consideration. They were: (1) taking at least one class of students from each of the counties participating in the project, (2) foreign born students who were learning to read a new language were excluded from the experimental and the control populations, (3) all cases were required to have all

test data complete before being considered valid, (4) scores initially above the difficulty level of the experimental material were discarded.

In both the experimental and control populations, the sample was first drawn, then invalid pairs of pre-test and post-test scores were discarded. This yielded unequal sample sizes for all groups except the combined experimental group.

Procedure

The teachers of all classes gave one week's instruction to familiarize the students with their new surroundings before the pre-test was administered. The pre-test consisted of the "Word Recognition" and "Reading Comprehension" sections of the Adult Basic Education Student Survey--Form A.

Classes were held for a total of 420 hours of instruction, an equivalent amount of that time being used for reading instruction in both the experimental and control classes. At the end of the instructional period, Form B of the above test was administered as a post-test.

The experimental materials were used as the core of the reading program, and the methods used by the experimental teachers and the methods and materials used in the control classes were as described for Study One.

Analysis of the Data

The data was sub-divided for analysis in the following manner.

1. Those cases having an initial ability in either skill below the level at which the first package of experimental material ends (3.9) were placed in the low initial ability group for that skill.

2. Those cases having an initial ability in either skill above the level at which the second package of experimental material begins (4.0) were placed in the high initial ability group for that skill.

3. The two above groups were jointly analyzed as a combined group.

An examination of the raw data showed several regressing scores in every group. These cases were removed for the respective skill and the data re-analyzed.

Those cases having an initial ability in either skill below the level at which the first package of experimental material begins (1.75) were removed from the low initial ability group and the data from that group was re-analyzed.

The test scores for the two skills were analyzed separately. The assumptions necessary for the Student's t analysis of the data were accepted. The following formula for analyzing the difference between means was used:

$$t = \frac{M_1 - M_2}{\sqrt{\frac{\sigma_1^2}{N_1} + \frac{\sigma_2^2}{N_2}}}$$

The standard deviations were accepted as the true parameters.

The level of significance used was α = .10 on a one-tailed test.

Hypotheses

1. Ho: There is no significant difference between the mean post-test vocabulary grade level of the experimental group and the mean post-test vocabulary grade level of the control group.

Ha: The mean post-test vocabulary grade level of the experimental group is greater than the mean post-test vocabulary grade level of the control group.

2. Ho: There is no significant difference between the mean post-test vocabulary grade level of the experimental group and the mean pre-test vocabulary grade level of the experimental group.

Ha: The mean post-test vocabulary grade level of the experimental group is greater than the mean pre-test vocabulary grade level of that group.

3. Ho: There is no significant difference between the mean post-test vocabulary grade level of the control

group and the mean pre-test vocabulary grade level of the control group.

Ha: The mean post-test vocabulary grade level of the control group is greater than the mean pre-test vocabulary grade level of that group.

4. Ho: There is no significant difference between the mean post-test comprehension grade level of the experimental group and the mean post-test comprehension grade level of the control group.

Ha: The mean post-test comprehension grade level of the experimental group is greater than the mean post-test comprehension grade level of the control group.

5. Ho: There is no significant difference between the mean post-test comprehension grade level of the experimental group and the mean pre-test comprehension grade level of the experimental group.

Ha: The mean post-test comprehension grade level of the experimental group is greater than the mean pre-test comprehension grade level of that group.

6. Ho: There is no significant difference between the mean post-test comprehension grade level of the control group and the mean pre-test comprehension grade level of the control group.

Ha: The mean post-test comprehension grade level of the control group is greater than the mean pre-test comprehension grade level of that group.

Since all students received a stipend for attending classes, any affect of interest of material on drop-out rate would be reduced to an insignificant value by the contaminating monetary factor. For this reason, the drop-out rates of the experimental and control groups are not considered in this study.

Results

The following tables show the results given in grade levels.

TABLE 5

PRE-TEST AND POST-TEST RESULTS GIVEN IN GRADE LEVELS FOR ALL VALID CASES

Groups	Vocabulary			Comprehension		
	Pre-test Mean	Post-test Mean	N	Pre-test Mean	Post-test Mean	N
Experimental						
Low Initial Ability	2.73	3.27	22	2.58	3.57	46
High Initial Ability	5.37	6.02	64	5.18	6.33	40
Combined Groups	4.70	5.31	86	3.79	4.85	86
Control						
Low Initial Ability	2.67	3.65	31	2.27	3.50	84
High Initial Ability	5.33	5.57	88	5.09	6.17	61
Combined Groups	4.64	5.07	119	3.45	4.62	145

TABLE 6

VALUE OF STUDENT'S t FOR THE COMPARISON OF SCORES IN ROWS AS GREATER THAN SCORES IN COLUMNS--ALL VALID VOCABULARY SCORES

Groups	Experimental Group	Control Group	
	Pre-test	Post-test	Pre-test
Experimental			
Low Initial Ability			
Pre-test			.24
Post-test	1.64*	-.87	
High Initial Ability			
Pre-test			.33
Post-test	3.76*	2.23*	
Combined			
Pre-test			.35
Post-test	2.98*	1.96*	
Control			
Low Initial Ability			
Post-test			5.16*
High Initial Ability			
Post-test			1.49*
Combined			
Post-test			2.15*

*Values significant at the a = .10 level on a one-tailed test.

TABLE 7

VALUES OF STUDENT'S t FOR THE COMPARISON OF SCORES IN ROWS AS GREATER THAN SCORES IN COLUMNS--ALL VALID COMPREHENSION SCORES

Groups	Experimental Group		Control Group	
	Pre-test		Post-test	Pre-test
Experimental				
Low Initial Ability				
Pre-test				2.39*
Post-test	3.74*		.23	
High Initial Ability				
Pre-test				.44
Post-test	6.65*		.93	
Combined				
Pre-test				1.64*
Post-test	4.03*		.88	
Control				
Low Initial Ability				
Post-test				6.31*
High Initial Ability				
Post-test				7.30*
Combined				
Post-test				5.71*

*Values significant at the a = .10 level on a one-tailed test.

TABLE 8

PRE-TEST AND POST-TEST RESULTS GIVEN IN GRADE LEVELS FOR VALID CASES AFTER THE REMOVAL OF REGRESSING SCORES

Groups	Vocabulary			Comprehension		
	Pre-test Mean	Post-test Mean	N	Pre-test Mean	Post-test Mean	N
Experimental						
Low Initial Ability	2.73	3.97	15	2.55	4.09	34
High Initial Ability	5.37	6.51	48	4.98	6.65	31
Combined Groups	4.74	5.90	63	3.71	5.31	65
Control						
Low Initial Ability	2.73	4.15	25	2.29	3.78	72
High Initial Ability	5.21	6.12	57	5.05	6.57	49
Combined Groups	4.45	5.52	82	3.41	4.91	121

TABLE 9

VALUE OF STUDENT'S t FOR THE COMPARISON OF SCORES IN ROWS AS GREATER THAN SCORES IN COLUMNS--VALID VOCABULARY SCORES AFTER THE REMOVAL OF REGRESSING SCORES

Groups	Experimental Group Pre-test	Control Group Post-test	Control Group Pre-test
Experimental			
Low Initial Ability			
Pre-test			.00
Post-test	3.84*	-.41	
High Initial Ability			
Pre-test			.99
Post-test	6.48*	1.93*	
Combined			
Pre-test			1.22
Post-test	4.44*	1.50*	
Control			
Low Initial Ability			
Post-test			4.30*
High Initial Ability			
Post-test			5.00*
Combined			
Post-test			4.69*

*Values significant at the a = .10 level on a one-tailed test.

TABLE 10

VALUE OF STUDENT'S t FOR THE COMPARISON OF SCORES IN ROWS AS GREATER THAN SCORES IN COLUMNS--VALID COMPREHENSION SCORES AFTER THE REMOVAL OF REGRESSING SCORES

Groups	Experimental Group	Control Group	
	Pre-test	Post-test	Pre-test
Experimental			
Low Initial Ability			
Pre-test			1.59*
Post-test	5.13*	1.01	
High Initial Ability			
Pre-test			-.46
Post-test	7.63*	.37	
Combined			
Pre-test			1.28
Post-test	5.56*	1.39*	
Control			
Low Initial Ability			
Post-test			8.32*
High Initial Ability			
Post-test			10.48*
Combined			
Post-test			6.70*

*Values significant at the a = .10 level on a one-tailed test.

TABLE 11

PRE-TEST AND POST-TEST RESULTS GIVEN IN GRADE LEVELS FOR VALID CASES AFTER THE REMOVAL OF REGRESSING SCORES AND LOW INITIAL ABILITY GROUP SCORES BEGINNING BELOW THE LEVEL OF THE EXPERIMENTAL MATERIAL

Groups	Vocabulary			Comprehension		
	Pre-test Mean	Post-test Mean	N	Pre-test Mean	Post-test Mean	N
Experimental						
Low Initial Ability	3.09	4.40	12	2.73	4.21	29
Control						
Low Initial Ability	3.24	4.25	18	2.90	4.58	42

TABLE 12

VALUE OF STUDENT'S t FOR THE COMPARISON OF SCORES IN ROWS AS GREATER THAN SCORES IN COLUMNS--VALID SCORES AFTER THE REMOVAL OF REGRESSING SCORES AND LOW INITIAL ABILITY GROUP SCORES BEGINNING BELOW THE LEVEL OF THE EXPERIMENTAL MATERIAL

Groups	Experimental Group	Control Group	
	Pre-test	Post-test	Pre-test
Vocabulary			
Experimental			
Low Initial Ability			
Pre-test			-.60
Post-test	3.62*	.48	
Control			
Low Initial Ability			
Post-test		3.21*	
Comprehension			
Experimental			
Low Initial Ability			
Pre-test			-1.12
Post-test	4.70*	-1.01	
Control			
Low Initial Ability			
Post-test		7.03*	

*Values significant at the a = .10 level on a one-tailed test.

From the data, the following tests of hypotheses obtain:

Null hypothesis 1: There is no significant difference between the mean post-test vocabulary grade level of the experimental group and the mean post-test vocabulary grade level of the control group.

Alternate hypothesis: The mean post-test vocabulary grade level of the experimental group is greater than the mean post-test vocabulary grade level of the control group.

Low initial ability group: The control group obtained a mean post-test vocabulary grade level .38 levels higher than that obtained by the experimental group. This difference is not significant at the a = .10 level on a one-tailed test. On this basis, the null hypothesis may be accepted.

High initial ability group: The experimental group obtained a mean post-test vocabulary grade level .45 levels higher than that obtained by the control group. This difference is significant above the a = .025 level on a one-tailed test. On this basis, the null hypothesis may be rejected and the alternate hypothesis accepted.

Combined groups: The experimental group obtained a mean post-test vocabulary grade level .24 levels higher than that obtained by the control group. This difference is significant above the a = .05 level on a one-tailed test. On this basis, the null hypothesis may be rejected and the alternate hypothesis accepted.

After Removing Regressing Scores

Low initial ability group: The control group obtained a mean post-test vocabulary grade level .08 levels higher than that obtained by the experimental group. This difference is not significant at the a = .10 level on a one-tailed test. On this basis the null hypothesis may be accepted.

High initial ability group: The experimental group obtained a mean post-test vocabulary grade level .39 levels higher than that obtained by the control group. This difference is not significant above the a = .10 level on a one-tailed test. On this basis, the null hypothesis may be accepted.

Combined groups: The experimental group obtained a mean post-test vocabulary grade level .38 levels higher than that obtained by the control group. This difference is not significant at the a = .10 level on a one-tailed test. On this basis, the null hypothesis may be accepted.

After Removing Both Regressing Scores and Initial Scores Below the Beginning Level of the Experimental Material

Low initial ability group: The experimental group obtained a mean post-test vocabulary grade level .15 levels above that obtained by the control group. This difference is not significant above the a = .10 level on a one-tailed test. On this basis, the null hypothesis may be accepted.

Null hypothesis 2: There is no significant difference between the mean post-test vocabulary grade level of the experimental group and the mean pre-test vocabulary grade level of the experimental group.

Alternate hypothesis: The mean post-test vocabulary grade level of the experimental group is greater than the mean pre-test vocabulary grade level of that group.

Low initial ability group: In the experimental group, the low initial ability group obtained a mean post-test vocabulary grade level .54 levels higher than that obtained on the pre-test. This difference is significant above the a = .10 level on a one-tailed test. On this basis, the null hypothesis may be rejected and the alternate hypothesis accepted.

High initial ability group: In the experimental group, the high initial ability group obtained a mean post-test vocabulary grade level .65 levels higher than that obtained on the pre-test. This difference is significant above the a = .0005 level on a one-tailed test. On this basis, the null hypothesis may be rejected and the alternate hypothesis accepted.

Combined groups: In the experimental group, the combined ability groups obtained a mean post-test vocabulary grade level .61 levels higher than that obtained on the pre-test. This difference is significant above the a = .005 level on a one-tailed test. On this basis, the null hypothesis may be rejected and the alternate hypothesis accepted.

After Removing Regressing Scores

Low initial ability group: In the experimental group, the low initial ability group obtained a mean post-test vocabulary grade level 1.24 levels higher than that obtained on the pre-test. This difference is significant above the a = .005 level on a one-tailed test. On this basis, the null hypothesis may be rejected and the alternate hypothesis accepted.

High initial ability group: In the experimental group, the high initial ability group obtained a mean post-test vocabulary grade level 1.14 levels higher than that obtained on the pre-test. This difference is significant above the a = .0005 level on a one-tailed test. On this basis, the null hypothesis may be rejected and the alternate hypothesis accepted.

Combined group: In the experimental group, the combined ability groups obtained a mean post-test vocabulary grade level 1.16 levels higher than that obtained on the pre-test. This difference is significant above the a = .0005 level on a one-tailed test. On this basis, the null hypothesis may be rejected and the alternate hypothesis accepted.

After Removing Both Regressing Scores and Initial Scores Below the Beginning Level of the Experimental Material

Low initial ability group: In the experimental group, the low initial ability group obtained a mean post-test vocabulary grade level 1.31 levels higher than that obtained on the pre-test. This difference is significant above the a = .005 level on a one-tailed test. On this basis, the null hypothesis may be rejected and the alternate hypothesis accepted.

Null hypothesis 3: There is no significant difference between the mean post-test vocabulary grade level of the control group and the mean pre-test vocabulary grade level of the control group.

Alternate hypothesis: The mean post-test vocabulary grade level of the control group is greater than the mean pre-test vocabulary grade level of that group.

Low initial ability group: In the control group, the low initial ability group obtained a mean post-test

vocabulary grade level .98 levels higher than that obtained on the pre-test. This difference is significant above the a = .0005 level on a one-tailed test. On this basis, the null hypothesis may be rejected and the alternate hypothesis accepted.

High initial ability group: In the control group, the high initial ability group obtained a mean vocabulary grade level .24 levels higher than that obtained on the pre-test. This difference is significant above the a = .10 level on a one-tailed test. On this basis, the null hypothesis may be rejected and the alternate hypothesis accepted.

Combined groups: In the control group, the combined ability groups obtained a mean post-test vocabulary grade level .43 levels higher than that obtained on the pre-test. This difference is significant above the a = .025 level on a one-tailed test. On this basis, the null hypothesis may be rejected and the alternate hypothesis accepted.

After Removing Regressing Scores

Low initial ability group: In the control group, the low initial ability group obtained a mean post-test vocabulary grade level 1.42 levels higher than that obtained on the pre-test. This difference is significant above the a = .0005 level on a one-tailed test. On this basis, the null hypothesis may be rejected and the alternate hypothesis accepted.

High initial ability group: In the control group, the high initial ability group obtained a mean post-test vocabulary grade level .91 levels higher than that obtained on the pre-test. This difference is significant above the a = .0005 level on a one-tailed test. On this basis, the null hypothesis may be rejected and the alternate hypothesis accepted.

After Removing Both Regressing Scores and Initial Scores Falling Below the Beginning Level of the Experimental Material.

Low initial ability group: In the control group, the low initial ability group obtained a mean post-test vocabulary grade level 1.01 levels higher than that obtained

on the pre-test. This difference is significant above the a = .0005 level on a one-tailed test. On this basis, the null hypothesis may be rejected and the alternate hypothesis accepted.

Null hypothesis 4: There is no significant difference between the mean post-test comprehension grade level of the experimental group and the mean post-test comprehension grade level of the control group.

Alternate hypothesis: The mean post-test comprehension grade level of the experimental group is greater than the mean post-test comprehension grade level of the control group.

Low initial ability group: The experimental group obtained a mean post-test comprehension grade level .07 levels higher than that obtained by the control group. This difference is not significant at the a = .10 level on a one-tailed test. On this basis, the null hypothesis may be accepted.

High initial ability group: The experimental group obtained a mean post-test comprehension grade level .14 levels higher than that obtained by the control group. This difference is not significant at the a = .10 level on a one-tailed test. On this basis, the null hypothesis may be rejected.

Combined groups: The experimental group obtained a post-test comprehension grade level .23 levels higher than that obtained by the control group. This difference is not significant at the a = .10 level on a one-tailed test. On this basis, the null hypothesis may be accepted.

After Removing Regressing Scores

Low initial ability group: The experimental group obtained a mean post-test comprehension grade level .31 levels higher than that obtained by the control group. This difference is not significant at the a = .10 level on a one-tailed test. On this basis, the null hypothesis may be accepted.

High initial ability group: The experimental group obtained a mean post-test comprehension grade level .08 levels higher than that obtained by the control group. This difference is not significant at the a = .10

level on a one-tailed test. On this basis, the null hypothesis may be accepted.

Combined groups: The experimental group obtained a post-test comprehension grade level .40 levels higher than that obtained by the control group. This difference is significant above the a = .10 level on a one-tailed test. On this basis, the null hypothesis may be rejected and the alternate hypothesis accepted.

After Removing Regressing Scores and Initial Scores Falling Below the Beginning Level of the Experimental Material.

Low initial ability group: The control group obtained a mean post-test comprehension grade level .37 levels higher than that obtained by the experimental group. This difference is not significant at the a = .10 level on a one-tailed test. On this basis the null hypothesis may be accepted.

Null hypothesis 5: There is no significant difference between the mean post-test comprehension grade level of the experimental group and the mean pre-test comprehension grade level of the experimental group.

Alternate hypothesis: The mean post-test comprehension grade level of the experimental group is greater than the mean pre-test comprehension grade level of that group.

Low initial ability group: In the experimental group, the low initial ability group obtained a mean post-test comprehension grade level .99 levels higher than that obtained on the pre-test. This difference is significant above the a = .0005 level on a one-tailed test. On this basis, the null hypothesis may be rejected and the alternate hypothesis accepted.

High initial ability group: In the experimental group, the high initial ability group obtained a mean post-test comprehension grade level 1.15 levels higher than that obtained on the pre-test. This difference is significant above the a = .0005 level on a one-tailed test. On this basis, the null hypothesis may be rejected and the alternate hypothesis accepted.

Combined groups: In the experimental group, the combined ability groups obtained a mean post-test

comprehension grade level 1.06 levels higher than that obtained on the pre-test. This difference is significant above the a = .0005 level on a one-tailed test. On this basis, the null hypothesis may be rejected and the alternate hypothesis accepted.

After Removing Regressing Scores

Low initial ability group: In the experimental group, the low initial ability group obtained a mean post-test comprehension grade level 1.54 levels above that obtained on the pre-test. This difference is significant above the a = .0005 level on a one-tailed test. On this basis, the null hypothesis may be rejected and the alternate hypothesis accepted.

High initial ability group: In the experimental group, the high initial ability group obtained a mean post-test comprehension grade level 1.67 levels higher than that obtained on the pre-test. This difference is significant above the a = .0005 level on a one-tailed test. On this basis, the null hypothesis may be rejected and the alternate hypothesis accepted.

Combined groups: In the experimental group, the combined ability groups obtained a mean post-test comprehension grade level 1.60 levels higher than that obtained on the pre-test. This difference is significant above the a = .0005 level on a one-tailed test. On this basis, the null hypothesis may be rejected and the alternate hypothesis accepted.

After Removing Both Regressing Scores and Initial Scores Falling Below the Beginning Level of the Experimental Material

Low initial ability group: In the experimental group, the low initial ability group obtained a mean post-test comprehension grade level 1.48 levels higher than that obtained on the pre-test. This difference is significant above the a = .005 level on a one-tailed test. On this basis, the null hypothesis may be rejected and the alternate hypothesis accepted.

Null hypothesis 6: There is no significant difference between the mean post-test comprehension grade level of the control group and the mean pre-test comprehension grade level of the control group.

Alternate hypothesis: The mean post-test comprehension grade level of the control group is greater than the mean pre-test comprehension grade level of that group.

Low initial ability group: In the control group, the low initial ability group obtained a mean post-test comprehension grade level 1.13 levels higher than that obtained on the pre-test. This difference is significant above the a = .0005 level on a one-tailed test. On this basis, the null hypothesis may be rejected and the alternate hypothesis accepted.

High initial ability group: In the control group, the high initial ability group obtained a mean post-test comprehension grade level 1.08 levels higher than that obtained on the pre-test. This difference is significant at the a = .0005 level on a one-tailed test. On this basis, the null hypothesis may be rejected and the alternate hypothesis accepted.

Combined groups: In the control group, the combined ability group obtained a mean post-test comprehension grade level 1.17 levels higher than that obtained on the pre-test. This difference is significant above the a = .0005 level on a one-tailed test. On this basis, the null hypothesis may be rejected and the alternate hypothesis accepted.

After Removing Regressing Scores

Low initial ability group: In the control group, the low initial ability group obtained a mean post-test comprehension grade level 1.49 levels higher than that obtained on the pre-test. This difference is significant above the a = .005 level on a one-tailed test. On this basis, the null hypothesis may be rejected and the alternate hypothesis accepted.

High initial ability group: In the control group, the high initial ability group obtained a mean post-test comprehension grade level 1.52 levels higher than that obtained on the pre-test. This difference is significant above the a = .0005 level on a one-tailed test. On this basis, the null hypothesis may be rejected and the alternate hypothesis accepted.

Combined groups: In the control group, the combined initial ability groups obtained a mean post-test comprehension grade level 1.50 levels higher than that obtained on the pre-test. This difference is significant above the a = .0005 level on a one-tailed test. On this basis, the null hypothesis may be rejected and the alternate hypothesis accepted.

After Removing Both Regressing Scores and Initial Scores Falling Below the Beginning Level of the Experimental Material

Low initial ability group: In the control group, the low initial ability group obtained a mean post-test comprehension grade level 1.68 levels higher than that obtained on the pre-test. This difference is significant above the a = .0005 level on a one-tailed test. On this basis, the null hypothesis may be rejected and the alternate hypothesis accepted.

Discussion

The county records were to clearly show all students participating in the experimental condition. It is unfortunate that this obvious condition was not met by all counties and that much valuable data was lost through the exclusion of these counties. For this reason, several experimental classes had to be discarded, and the control population from these counties could not be sampled.

Two factors added variability to the data. The first is the fact that there was major rioting during the time the post-tests were given. It was not known if this factor influenced both experimental and control groups equally. Further, it was not known if the influence would increase or decrease the mean post-test grade levels.

The second factor is the fact that afternoon thundershowers were occurring at the time of many post-tests. Teachers reported that the student population was highly superstitious and felt that paper would "draw" lightning. For this reason, many of the students were reported as being very fearful during the post-testing. It was assumed that the post-test scores of both the experimental and control groups were lowered equally by this phenomina.

From the results reported above, it can be seen that all groups showed significant post-test over pre-test levels. It may also be noted that the experimental group had post-test grade levels significantly higher than those of the control group in vocabulary for the high initial ability and combined ability groups for all valid scores, for the same scores after the removal of regressing scores, and in comprehension for the combined ability groups after removing regressing scores. However, it should be noted that the mean pre-test scores in comprehension of the combined ability groups after removing regressing scores were near significance in difference.

Conclusions

These authors concluded from the results of this study that: (1) both the experimental and traditional materials provided for significant growth in the skills tested, and (2) the experimental material showed significant superiority over the traditional materials. when correction was made for regressing scores.

Since the experimental material was of an experimental edition, without the benefit of professional printing and editing it is probable that the experimental material, if published, would prove to be a significantly better material than those traditional materials available at the time of these studies.

PART III

THE ACCEPTANCE STUDIES

Study One--The Student Acceptance Study

Method

Selection of the Sample

The northern Florida gain study experimental students were used as the sample for the student acceptance study.

Procedure

Following the post-test, the subjects were asked to compare the experimental material with other materials they had used and to rate the experimental material on a three point scale.

Expressed Interest

The ratings made by the students on the first half of "A Provisional Scale for Pupil Evaluation of Adult Basic Education Training Materials" (copy in Appendix A) constituted a measure of their expressed interest level in the experimental material.

Relative Interest

The comparisons made by the students on the second half of the above instrument constituted a measure of the relative interest values of the materials compared.

Analysis of the Data

Expressed Interest

The mean, median, and modal ratings have been reported. The X^2 (chi square) statistical test for significant difference between the obtained distribution and the theoretical random distribution has been used. The formula for the one sample test of X^2 used was:

$$\chi^2 = \sum_{i=1}^{k} \frac{(O_i - E_i)^2}{E_i}$$

where O_i equaled the observed number of cases categorized in the ith category; E_i equaled the expected number of cases in the ith category under Ho; and Σ was the direction to sum over all (k) categories i=1

Relative Interest

The number of responses in each category, the mean, median, and modal responses, and the X^2 statistic (when the expected frequency was greater than five) have been reported. The formula used for X^2 was as reported above.

Hypotheses

1. Ho: The expressed interest ratings obtained from the students do not differ significantly from a random distribution on a three point scale.

Ha: The expressed interest ratings obtained from the students are not all equal.

2. Ho: The relative interest ratings obtained from the students for each comparison do not differ significantly from a random distribution on a three point scale.

Ha: The relative interest ratings obtained from the students are not all the same, within each comparison.

Results

Expressed Interest

A total of 38 valid responses were obtained on the expressed interest scale. The median and modal ratings were both 1 and the mean rating was 1.08. A rating of 1 was "good," 2 was "all right," and 3 was "bad."

Having assumed a random distribution of the ratings would result if the scale were completed by a population completely unfamiliar with the material justified the use of the X^2 statistical test of significance. For the obtained distribution, X^2 was greater than 57. This value is significant above the a=.001 level. On this basis, null hypothesis one, above, may be rejected and the alternate hypothesis accepted.

Relative Interest

A total of 116 valid responses were obtained on the relative interest scale. The results are presented in Table 13. From Table 13 the following tests of hypothesis two obtain:

Null hypothesis 2: The relative interest ratings obtained from the students for each comparison do not differ significantly from a random distribution on a three point scale.

Alternate hypothesis: The relative interest ratings obtained from the students are not all the same within each comparison.

For Life On Our Earth, We Are What We Eat, Adult Reader, I Want to Read and Write, the S.R.A. Reading Laboratories, The New Practice Readers, and the combined Follett program the sample sizes were not large enough for the X^2 test of significance and the null hypothesis could not be tested.

For My Country, the X^2 value was 1.6. This value is not significant at the a = .10 level. On this basis, the null hypothesis may be accepted for the comparison of this material to the experimental material.

For the combined Steck program, the X^2 value was 13.1. This value is significant above the a = .01 level. On this basis, the null hypothesis may be rejected and the alternate hypothesis accepted for the comparison of this material to the experimental material.

For the combined Reader's Digest program, the X^2 value was 3.3. This value is significant above the a = .01 level. On this basis, the null hypothesis may be rejected and the alternate hypothesis accepted for the comparison of this material to the experimental material.

For the teacher-made materials, the X^2 value was 4.3. This value is not significant at the a = .10 level. On this basis, the null hypothesis may be accepted for the comparison of this material to the experimental material.

For the combination of all materials, the X^2 value was 20.4. This value is significant above the a = .001 level. On this basis, the null hypothesis may be rejected and the alternate hypothesis accepted.

TABLE 13

STUDENT RELATIVE INTEREST RESPONSES AND MODE, MEDIAN, MEAN, χ^2, AND SIGNIFICANCE LEVEL OF χ^2

Comparison Material	Number of Responses 1	2	3	Total	Measures of Central Tendency Mode	Median	Mean	χ^2	Significance Level of χ^2
1. Life on Our Earth	1	3	2	6	2	2	2.17	*	
2. We Are What We Eat	2	4	0	6	2	2	1.67	*	
3. Adult Reader	1	8	1	10	2	2	2.00	*	
4. I Want to Read and Write	5	8	1	14	2	2	1.71	*	
5. My Country	7	5	3	15	1	2	1.73	1.6	$.50 < \chi^2 < .30$
6. Above Combined (Steck Program)	16	28	7	51	2	2	1.82	13.1	$.01 < \chi^2 < .001$
7. Reader's Digest Program (Combined)	19	12	2	33	1	1	1.48	13.3	$.01 < \chi^2 < .001$
8. S.R.A. Reading Laboratories	3	2	0	5	1	1	1.40	*	
9. The New Practice Readers	3	1	0	4	1	1	1.25	*	
10. Follett Program (Combined)	2	1	2	5	None	2	2.00	*	
11. Teacher Made	10	3	5	18	1	1	1.72	4.3	$.20 < \chi^2 < .10$
12. All Materials Combined	53	47	16	116	1	2	1.61	20.4	$.001 < \chi^2$

*Sample size too small for χ^2.

Discussion

The expressed interest ratings showed that the students sampled considered the experimental material interesting. The relative interest ratings showed none of the traditional materials or programs to have been significantly more interesting than the experimental material. If the "more interesting" material were to be defined as that material having had a distribution on the relative interest scale significantly different from a random distribution at the a=.10 level and having been the material of that comparison that had the greater number of responses lying on its respective side of the median of the scale, then the following would be obtained:

No material tested under the X^2 statistic was considered more interesting than the experimental material, and the experimental material was considered more interesting than the Reader's Digest combined program. If the definition were to be extended to include combined rating distributions, then the experimental material was considered more interesting than any of the materials combined into the Steck program.

Those materials with sample sizes too small to be tested under the X^2 statistic were inspected to show trends. None of the materials had two of the three measures of central tendancy greater than 2. However, two of the materials--the S.R.A. Reading Laboratories and The New Practice Readers--had all of the three measures of central tendancy less than 2. This indicated that none of the materials not tested under the X^2 statistic were considered more interesting than the experimental material, and that the experimental material was considered more interesting than the two materials specified above.

Conclusions

It may be concluded from the above that none of the materials used by the experimental students prior to the introduction of the experimental material or in use concurrently as recreational reading material was considered more interesting than the experimental material, and that the experimental material was considered more interesting than some of the comparison materials.

Study Two--The Teacher Acceptance Study

Method

Selection of the Sample

The teachers who participated in the northern Florida gain study as experimental teachers were used as the sample for the teacher acceptance study.

Procedure

The teachers were asked to compare the experimental material to other materials they had used. This comparison was made, at the time of the post-testing, by the teachers' completion of "A Provisional Scale for Teacher Evaluation of Adult Basic Education Materials" (copy in Appendix A). The scale was completed by the teachers for each program of materials they had previously used.

Analysis of the Data

The mean, median, and modal ratings given by the teachers for each comparison have been given for inspection.

Objectives

The objective of this study was descriptive: to have determined whether or not the teachers accepted the experimental material as an adequate teaching tool.

Results

Each material or program that was rated by more than two teachers has been included in Table 14.

Discussion

Of the eight materials or programs rated, only four were rated by more than two teachers. One of these, My Country, was authored by the Principal Investigator of this study. This shed some doubt as to the validity of the ratings of that material.

An examination of the median and modal ratings tended to show that the experimental material was

TABLE 14

A SUMMARY OF RESPONSES MADE BY TEACHERS TO EACH QUESTION ON THE SCALE

Program or Material	Mean Rating	Median Rating	Modal Rating	Number of Respondents
Question 1: How useful do you feel the material is as a teaching tool?				
Experimental	9.5	10	10	8
My Country	9.7	10	10	3
Reader's Digest	8.8	9	9	4
Steck program	9.0	9.5	10	4
Question 2: How easy do you feel it is to use the material?				
Experimental	9.5	10	10	8
My Country	9.7	10	10	3
Reader's Digest	7.8	6	6	4
Steck program	8.8	8.5	8	4
Question 3: Would you like to use the material as a core of your reading program?				
Experimental	9.5	10	10	8
My Country	10.0	10	10	3
Reader's Digest	7.0	5	5	4
Steck program	8.8	8.5	8	4
Question 4: How much interest did most of your students show in the material?				
Experimental	9.8	10	10	8
My Country	10.0	10	10	3
Reader's Digest	8.7	9.0	9.0	4

TABLE 14--Continued

Program or Material	Mean Rating	Median Rating	Modal Rating	Number of Respondents
Steck program	9.5	9.5	none	4
Question 5: Do you think the material is appropriate for use in ABE classes?				
Experimental	9.6	10	10	8
My Country	8.0	9	9	3
Reader's Digest	7.8	7	7	4
Steck program	9.5	9.5	none	4
Question 6: If the material was modestly priced would you recommend that it be bought for your adult program?				
Experimental	9.9	10	10	8
My Country	10.0	10	10	3
Reader's Digest	9.5	10	10	4
Steck program	9.8	10	10	4

accepted as an equally or a more adequate teaching tool than the other materials used by these teachers.

Conclusions and Recommendations

The data tended to show acceptance of the experimental material. However, the small sample size led the investigators to conclude that an additional study with defined programs of materials should be undertaken using a larger sample.

Study Three--The Institute Trainee Acceptance Study

Method

Selection of the Sample

The teachers attending the Region IV Adult Basic Education Teacher Training Institute held in Tallahassee, Florida were asked to rate six programs of materials intended for use in teaching reading to adult basic education students according to several attributes or qualities of such materials.

Procedure

The rating was conducted by having the teachers complete "A Scale for Evaluation of Adult Basic Education Instructional Materials" (copy in Appendix A). The teachers completed the ratings three different times. The first rating was made prior to instruction concerning materials, the second was made following one week's instruction about the examination of materials, and the third was made following an additional week's examination of materials and one day's exhibition of materials by publishers' representatives (the experimental material was not displayed). Only the third of these ratings, made after the entire period of instruction and following the two "trial" runs to familiarize the teachers with the process, was considered in this study.

The teachers rated their own familiarity with the various materials. Data from those teachers whose familiarity rating for any material was greater than the mid-point of the scale was used.

Analysis of the Data

The rank order obtained from the mean ratings and the mean ratings have been presented for each quality of the materials rated in Table 15. A combined rank order obtained by ranking by the sum of the previous ranks for each material for each quality (other than the rater's familiarity and recommended purchase) has been presented in Table 16 on page

Objectives

The objective of this study was descriptive: To have determined the acceptance of the experimental

material by a group of intensively trained adult basic education teachers using their acceptance of five traditional programs of materials as a standard of comparison.

Results

Results of the rating are given in Tables 15 and 16. The following abbreviations are used: Exp. = experimental material; Fol = Follett program; Mot = Mott program; RD = Reader's Digest program; SRA = Reading Laboratories by Science Research Associates; Stk = Steck program.

Discussion

The rank obtained by ranking by the sum of the previous ranks was interpreted as the best estimate of the "true" rank of the programs of materials for all qualities. This necessitated the interpretation of the results as having shown more favorable acceptance of the experimental material than of any of the comparative programs of materials.

Conclusion

The teachers participating in the Region IV Adult Basic Education Teacher Training Institute more favorably accepted the experimental material than they did the five traditional programs of materials rated.

TABLE 15

RANK ORDER OF MATERIALS ACCORDING TO EACH OF TEN QUESTIONS FOR WHICH THEY WERE RATED

Program	Rank	Mean	Number
Question 2: How familiar are you with this material?			
Stk	1	8.7	57
SRA	2	8.6	55
RD	3	8.5	45
Fol	4	8.2	42
Exp	5	7.9	21
Mot	6	7.7	36
Question 3: Does the material contribute to the teaching of those values necessary for the ABE student's becoming a productive member of society?			
RD	1	8.8	45
Stk	2	8.7	57
Exp	3	8.5	20
SRA	4	8.4	54
Fol	5.5	7.7	42
Mot	5.5	7.7	35
Question 4: Does the content of the material contribute to the teaching of those general concepts necessary for the ABE student's becoming a productive member of society?			
RD	1.5	8.5	45
Exp	1.5	8.5	21
Stk	3	8.4	57
SRA	4	8.3	55
Fol	5	7.8	42
Mot	6	7.5	36
Question 5: Does the content of the material conform to the areas in which your experience has shown the ABE student to have an interest?			
Exp	1	8.9	21
RD	2	8.7	45
Stk	3	8.5	57
SRA	4	8.3	54

TABLE 15--Continued

Program	Rank	Mean	Number
Fol	5	8.0	42
Mot	6	7.8	36
Question 6: Is the format of the material adult in appearance?			
RD	1.5	8.8	45
Exp	1.5	8.8	20
Stk	3	8.5	57
Fol	4.5	8.4	42
Mot	4.5	8.4	14
SRA	6	7.9	54
Question 7: Does the material provide for teaching word attack skills?			
SRA	1	8.8	53
Exp	2	8.6	20
RD	3.5	8.3	45
Mot	3.5	8.3	36
Stk	5	8.1	56
Fol	6	7.7	41
Question 8: Does the material provide for the teaching of comprehension skills?			
RD	1	9.1	45
SRA	2	8.9	55
Exp	3	8.8	21
Stk	4	8.3	57
Mot	5	8.1	36
Fol	6	7.8	42
Question 9: Does the material adequately take into account individual differences in learning rates?			
Exp	1	8.9	21
SRA	2	8.8	55
RD	3	8.6	44
Stk	4.5	8.0	56
Fol	4.5	8.0	41
Mot	6	7.7	36

Table 15--Continued

Program	Rank	Mean	Number
Question 10: How easy do you feel it would be to use the material?			
Exp	1	9.4	21
Stk	2.5	8.9	57
RD	2.5	8.9	45
SRA	4	8.7	55
Mot	5	8.3	36
Fol	6	8.2	42
Question 11: If the material were modestly priced, would you recommend that it be bought for your ABE program?			
RD	1.5	9.0	45
Exp	1.5	9.0	21
Stk	3	8.9	57
SRA	4	8.8	54
Fol	5	8.4	42
Mot	6	8.1	36

TABLE 16

COMBINED RANK FROM QUESTIONS 3 THROUGH 10 IN TABLE 15

Program	Rank	Sum of Previous Ranks
Exp	1	15.5
RD	2	17.5
Stk	3	30.0
SRA	4	31.0
Mot	5.5	47.5
Fol	5.5	47.5

Study Four--Expert Evaluation

Method

Selection of Sample

The experts were selected principally on occupational criteria. Professors of Adult Education who have been active in adult basic education, consultants in adult basic education who work at or above the regional level, and supervisors and co-ordinators of large county adult basic education programs were considered experts in the field.

The following experts were asked to rate the experimental material and the five "traditional" materials:

1. Dr. George F. Aker, Professor and Head of Adult Education, Florida State University.

2. Dr. Weldon G. Bradtmueller, Consultant in Adult Basic Education for the State of Florida, Florida State Department of Education.

3. Mr. Henry G. Brady, University Resource Specialist for Adult Basic Education, Florida State University.

4. Dr. Irwin R. Jahns, Assistant Professor of Adult Education, Florida State University.

5. Mr. C. W. Lamb, Adult Basic Education Coordinator for Duvall County, Florida.

6. Mr. W. W. Miley, Consultant in Adult Basic Education of the State of Florida, Florida State Department of Education.

7. Mr. Robert E. Palmer, Consultant in Adult Basic Education for the State of Florida, Florida State Department of Education.

8. Mrs. Nell Peerson, Supervisor of Adult Basic Education, Lauderdale County, Alabama.

9. Mr. Robert D. Reid, Coordinator of Adult Basic Education, Pinellas County, Florida.

10. Mrs. Harriet Smith, Supervisor of Adult Basic Education, Hollywood County, Tennessee.

11. Dr. Curtis Ulmer, Coordinator of Adult Basic Education for the State of Florida, Florida State Department of Education.

Procedure

Fifteen experts were asked to examine the experimental material and were asked to complete "A Provisional Scale for Subjective Evaluation of Adult Basic Education Training Materials" (copy in Appendix A). Two of the experts returned the forms completed. Upon completion of the Institute rating study, a second attempt was made to obtain ratings from those experts who had not responded to the first request and from two additional experts. The experts were asked to evaluate the experimental material and were asked to complete a revision of the form first supplied. The second ratings were made on "A Scale for the Evaluation of Adult Basic Education Instructional Materials," the same scale used by the Institute participants. Nine additional ratings were obtained.

The two scales used were roughly equivalent, with the exception of a question concerning "apparent ease of use" having been included in the second form but not in the first, and the question concerning deopment of reading skills on the first form having been divided into two specific questions concerning the teaching of word attack and comprehension on the second form.

Analysis of the Data

Rank orders were obtained by ranking the mean rating. The rank orders were obtained for each of the questions on the scale. These rank orders have been presented in Table 17, page 59. A final rank order was obtained by ranking the sum of the previous rank orders for questions three through ten (those not pertaining to familiarity or recommended purchase). This rank has been presented in Table 18.

Objectives

The objective of this study was descriptive: to have determined the subjective evaluation of the experimental material by experts in the field using the evaluation of five "traditional" materials as a standard of comparison.

Results

The results of the rating showed the experimental material to have the highest rank by mean rating for each of the attributes rated except on the attribute of appearance.

The results of the experts' ratings have been given in rank orders in Tables 17 and 18, pages 59 and 61.

Discussion

The ratings obtained from the first form were equated to and combined with the ratings on the second form in the following manner: Questions 1, 2, 3, and 4 on the first form were equated to Questions 3, 4, 5, and 6, respectively, on the second form; Question 5 on the first form was equated to and included with both Questions 7 and 8 on the second form; and Questions 6 and 7 from the first form were equated to Questions 9 and 11, respectively, on the second form.

All ten of the responding experts did not rate all of the qualities of all of the materials. The experts were asked to complete only those ratings which they felt qualified, as experts, to evaluate.

The rank obtained from the sum of the previous ranks had been interpreted as the best estimate of the "true" rank of materials for all questions.

Conclusions

It has been concluded from the results that the experts sampled rated the experimental material, overall, a better material than any of the comparative programs of material.

TABLE 17

RANK ORDER BY MEAN RATING FOR EACH ATTRIBUTE OF THE PROGRAMS OF MATERIALS AS RATED BY ELEVEN EXPERTS

Programs in Rank Order	Rank
Question 3: Does the material contribute to the teaching of those values necessary for the ABE student's becoming a productive member of society?	
Experimental	1
Reader's Digest	2.5
Steck	2.5
Mott	4
S.R.A. Laboratories	5.5
Follett	5.5
Question 4: Does the content of the material contribute to the teaching of those general concepts necessary for the ABE student's becoming a productive member of society?	
Experimental	1
Reader's Digest	2
Steck	3
S.R.A. Laboratories	4
Follett	5
Mott	6
Question 5: Does the content of the material conform to the areas in which your experience has shown the ABE student to have an interest?	
Experimental	1
Reader's Digest	2
Steck	3
Follett	4
S.R.A. Laboratories	5
Mott	6
Question 6: Is the format of the material adult in appearance:	
Reader's Digest	1
Experimental	2
Follett	3.5

TABLE 17--Continued

Programs in Rank Order	Rank
Mott	3.5
Steck	5
S.R.A. Laboratories	6
Question 7: Does the material provide for teaching word attack skills?	
Experimental	1
S.R.A. Laboratories	2
Reader's Digest	4
Follett	4
Mott	4
Steck	6
Question 8: Does the material provide for teaching comprehension skills?	
Experimental	1
Reader's Digest	2
S.R.A. Laboratories	3
Follett	4.5
Mott	4.5
Steck	6
Question 9: Does the material adequately take into account individual differences in learning rates?	
Experimental	1
S.R.A. Laboratories	2
Steck	3.5
Mott	3.5
Reader's Digest	5
Follett	6
Question 10: How easy do you feel it would be to use the material?	
Experimental	1
Steck	2
Reader's Digest	3
Follett	4
Mott	5
S.R.A. Laboratories	6

TABLE 17--Continued

Programs in Rank Order	Rank
Question 11: If the material were modestly priced, would you recommend that it be bought for your ABE program?	
Experimental	1
Reader's Digest	2
S.R.A. Laboratories	3
Follett	4
Mott	5
Steck	6

TABLE 18

RANK ORDER OBTAINED FROM SUMS OF RANKS IN TABLE 17

Rank Order	Rank
Experimental	1
Reader's Digest	2
Steck	3
S.R.A. Laboratories	4
Mott	5
Follett	6

PART IV

SOME COMPARISONS BETWEEN THE STUDIES

The Kendall rank correlation coefficient was used as a measure of the association between two sets of ranks. It has been measured for significance. Table 19 gives the measure of the coefficient (tau) and its level of significance for the ranks by means of the materials as rated by the teachers participating in the Institute and those rated by the experts.

TABLE 19

CORRELATIONS BETWEEN INSTITUTE PARTICIPANT RANK ORDERS OF PROGRAMS OF MATERIALS AND RANK ORDERS OBTAINED FROM EXPERT MEAN RATINGS FOR EACH QUALITY RATED

Question (concerning)	tau	Significance Level for Normal Distribution	Significance Interval from Friedman's Table 36
3 (teaching values)	.36	.159	s = .235
4 (teaching general concepts)	.93	.004	.008 < s < .001
5 (areas of interest)	.87	.007	s = .008
6 (format)	.66	.032	.068 < s < .028
7 (teaching word attack)	.66	.032	.068 < s < .028
8 (teaching comprehension)	.40	.131	.235 < s < .136
9 (accounting for individual differences)	.57	.055	.136 < s < .068
10 (ease of use)	.57	.055	.136 < s < .068
11 (recommended purchase	.57	.055	.136 < s < .068
Combined ranks	.93	.004	.008 < s < .001

Table 19 has shown that the only qualities of the materials for which the experts and the institute participants did not agree at a level of significance of a = .10 level for a normal distribution were questions 3 and 8. The rank of ratings institute participants' previously reported have shown that the experimental material was ranked third on question 3 (the teaching of values), and was again ranked third on question 8 (the teaching of comprehension). No reason for the lower ranks assigned by the teachers has been hypothesized.

For more evidence concerning the teaching of comprehension skills attributes, one might examine the gain studies and find that the experimental material was provided for significant gain in these skills at the a = .0005 level on a one-tailed test.

It should be noted that the experts and institute participants were in very close agreement on the best approximation of the "true" rank of the programs of materials obtained from the sum of all qualities.

RESULTS OF THE PROJECT

The following are the results of the project:

1. An experimental edition of an extensive new material for use in teaching reading and the general knowledge content appropriate to adult basic education was developed.

2. The project was the first attempt to use the scientific method properly in determining whether or not a new material will adequately teach reading. In the first study attempted, the only firm result was the finding that an experimental mortality rate of approximately 50% may be expected in the spring of the year in non-stipend, rural adult basic education classes in Northern Florida.

3. The project found that both traditional adult basic education materials and the experimental material yielded post-test scores significantly greater than pre-test scores for both reading skills measured.

4. The students in the experimental classes felt that the experimental material was as interesting as the best of the traditional materials they had used.

5. The project found that the teachers in the experimental classes thought the experimental material to be as good as the best traditional material they had used.

6. The project found that adult basic education teachers who had received intensive instruction concerning materials and materials' evaluation thought the experimental material, overall, to be a better material than the best traditional material.

7. The project found that the experts thought the experimental material, overall, to be a better material than the best traditional material.

8. The project found a significant agreement between the intensively trained teachers and the experts on overall rating of materials.

DISCUSSION

The materials compared during this project were the best materials available for use in adult basic education when the project was begun in November, 1966. Since that time, other materials have become available that represent a much more sophisticated approach than some of the traditional materials used in the various studies of this project. Therefore, generalizations from this report should be limited to those materials available prior to November, 1966.

The experimental material used in this project was of a rough or "draft" form. It was written and reproduced in time to be used in the experimental studies in the spring of 1967. Therefore, generalizations from this report should be limited to the experimental edition of the experimental material.

Because of the time limit imposed upon this project, another important aspect of the experimental material could not be tested: its contribution to the teaching of critical reading. Since no test of critical

reading ability of adult basic education students was available, this aspect of materials comparisons was postponed until such a test has been developed.

Because of the reduced sample sizes in the first gain study, no attempt to measure the gain in content knowledge of the areas covered by the experimental material was made. Because of the highly structured nature of the second gain study, no measurement of gain in content knowledge was possible. For these reasons, another aspect of materials' comparison was not studied: their respective contribution to the teaching of incidental content.

CONCLUSIONS

Both traditional materials and the experimental edition of the material prepared during this project significantly contributed to the teaching of reading vocabulary and reading comprehension.

The experimental edition of the material prepared during this project was considered interesting by the students who used it, and was rated as conforming to the areas of interest of adult basic education students by the teachers who used it and by intensively trained teachers and experts in the field who thoroughly examined it.

Both intensively trained teachers and experts in the field of adult basic education considered the experimental edition of the material prepared during this project to be, overall, a better material for use in teaching reading to adult basic education students than the five traditional programs of materials rated.

An incidental conclusion was that intensive training such as that received by the teachers participating in the Rebion IV Institute equipped the teachers who became more familiar with the materials than the mid-point of the scale with enough information to rank adult basic education materials on overall quality, equally to the ranks given by experts in the field.

Implications

Since the ratings of all materials used by the teachers of the experimental classes and examined by intensively trained teachers and experts in the field of adult basic education were above the mid-point of the scale used, it appears that the best adult basic education materials have not been as worthless as some authors have stated.

Since only an experimental edition of the material prepared during this project were examined in any of the studies, it is suggested that a revised and professionally produced edition would better teach the skills involved and would be better accepted by both teachers and experts than the experimental edition.

Recommendations

It is recommended that a professional edition of the material prepared during this project be made available to adult basic educators.

It is also recommended that a group of studies similar to the ones reported here be carried out using the best adult basic education materials available. Such a set of studies would include tests of subject matter content and critical reading ability as well as reading vocabulary and reading comprehension. Such a set of studies would also compare the gains in each of the skills between classes using each of the materials, rather than combining all traditional materials in comparison to the material prepared during this project.

It is recommended that teacher training institutes such as that used in Part III of this project be continued.

It is recommended that funds be made available, to other projects having the purposes of preparing and field testing new materials, to have experimental editions of such new materials professionally produced before field testing.

SUMMARY

This project had the purposes of:

1. Preparing a new material for teaching reading to adult basic education students.

2. Field testing this material.

3. Obtaining evaluations of the material.

The material was prepared and an experimental edition reproduced.

Two studies were made of the gains in reading vocabulary and reading comprehension made by adult basic education students using the experimental edition of the new material and students using traditional materials.

The experimental mortality rate of the first gain study was so great that generalizations from the data are not recommended.

The second gain study showed significant difference between post-test versus pre-test means for both skills for both experimental and control groups. There was some evidence that the experimental edition of the new material was teaching the two skills better than the traditional materials, although the difference was not always statistically significant.

A study of student acceptance of the new material was made. The students rated the material as interesting; then, in comparison to traditional materials they had used, the students rated the new material as more interesting than some of the traditional materials and just as interesting as the best of the traditional materials.

Two studies of teacher acceptance of the new material were made. In the first study, the adult basic education teachers who used the new material in the first gain study rated it according to several attributes or qualities possessed by adult basic education materials. They also rated the traditional materials they had used. No traditional material was better accepted than the experimental edition of the new material.

The second study of teacher acceptance was made with the rating population composed of the teachers participating in the Region IV Adult Basic Education Teacher Training Institute who had received intensive instruction about adult basic education materials. They rated the experimental edition of the new material and five of the best traditional materials available at that time. Overall, they rated the experimental edition of the new material as a better material than any of the traditional materials rated. The implication being that a professional edition of the new material would have been rated as even better than existing materials.

An expert evaluation study of the new material was made. Eleven experts in the field of adult basic education evaluated the experimental edition of the new material and five popular traditional materials available at that time. The experts' evaluations showed that the experimental edition of the new material, overall, was a better material than any of the five popular traditional materials rated. The implications being that a professionally produced edition of the new material would have been rated as even better than existing materials.

An incidental finding was that the teachers participating in the Region IV Institute who became familiar with the materials considered in this study made ratings whose combined rank order did not differ from the combined rank order of the materials as rated by the eleven experts. This agreement was significant above the $a = .005$ level.

It would appear, from this study, that reading materials dealing with the content areas of adult basic education are well accepted by both students and teachers and that the kit approach with its stress on individualized learning is an effective method for teaching adult basic education students.

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APPENDIX A

THE RATING FORMS USED

1. A Provisional Scale for Pupil Evaluation of Adult Basic Education Training Materials.

2. A Provisional Scale for Teacher Evaluation of Adult Basic Education Training Materials.

3. A Provisional Scale for Subjective Evaluation of Adult Basic Education Training Materials.

4. A Scale for Evaluation of Adult Basic Education Instructional Materials.

A PROVISIONAL SCALE FOR PUPIL EVALUATION OF ADULT BASIC EDUCATION TRAINING MATERIALS

Examiner's Copy

PART I

Directions: Pass out answer forms. Then read: "You have read some of the articles in the FACT KIT. We would like to know how well you liked them. We want you to grade them."

"Look at the top part of the paper. There you will find the words good, all right, and bad. If you thought the articles were very interesting draw a circle around good. If you thought they were not too interesting but not bad then draw a circle around all right. If you thought the articles were not interesting at all draw a circle around bad."

A PROVISIONAL SCALE FOR PUPIL EVALUATION OF ADULT BASIC EDUCATION TRAINING MATERIALS

Examiner's Copy

PART II

Directions: (If not following Part I): Pass out answer forms.

(Read orally:) You have all used some materials besides the FACT KIT in this class. We would like to know how the kit compares with those other materials. On the bottom half of the page you will see the letters A, B, C, D, and E. Under each of these is a 1, a 2, and a 3. Has everyone found them?

Very good, now this is what we are going to do:

I am going to hold up a material, like this. Some of you may have used it, some of you may not. If you haven't used it, you don't have to do anything this time.

If you have used this material, I want to know how the FACT KIT compares with it. If the kit is more interesting, circle the 1 under the (A, B, C, etc.). If the kit has about the same interest as this material, circle the 2 under the (A, B, C etc.). If the kit is less interesting, circle the 3 under the (A, B, & C's).

Now let's do the same thing with this material. If you haven't used it, you don't have to do anything this time.

(Repeat instructions.)

A PROVISIONAL SCALE FOR PUPIL EVALUATION OF ADULT BASIC EDUCATION TRAINING MATERIALS

Student's Copy

Name_____

The kit was:

1. good
2. all right
3. bad

The kit was:

	A	B	C	D	E
more interesting	1	1	1	1	1
about the same	2	2	2	2	2
less interesting	3	3	3	3	3

A PROVISIONAL SCALE FOR TEACHER EVALUATION OF ADULT BASIC EDUCATION TRAINING MATERIALS

Directions: Put a check in the space which you feel represents the quality of the material for the attribute being rated. 10 is a perfect material; 1 is a completely inadequate material.

Material: _____

Evaluator: _____

1. How useful do you feel the material is as a teaching tool?

   1 2 3 4 5 6 7 8 9 10

2. How easy do you feel it is to use the material?

   1 2 3 4 5 6 7 8 9 10

3. Would you like to use the material as a core of your reading program?

   1 2 3 4 5 6 7 8 9 10

4. How much interest did most of your students show in the material?

   1 2 3 4 5 6 7 8 9 10

5. Do you think the material is appropriate for use in ABE classes?

   1 2 3 4 5 6 7 8 9 10

6. If the material was modestly priced would you recommend that it be bought for your adult program?

   1 2 3 4 5 6 7 8 9 10

A PROVISIONAL SCALE FOR SUBJECTIVE EVALUATION OF ADULT BASIC EDUCATION TRAINING MATERIALS

Directions: Put a check in the space which you feel represents the quality of the material for the attribute being rated. 10 is a perfect material; 1 is a completely inadequate material.

Material: _____

Evaluator: _____

1. Do the materials significantly contribute to teaching those concepts and values necessary for the ABE student's becoming a productive social being?

   1 2 3 4 5 6 7 8 9 10

2. Are contents of the material appropriate to teaching the general knowledge necessary for the ABE student's becoming a productive social being?

   1 2 3 4 5 6 7 8 9 10

3. Does the content of the material conform to the areas in which your experience with the ABE student has shown him to have interest?

   1 2 3 4 5 6 7 8 9 10

4. Is the format of the material appropriate for use with adults?

   1 2 3 4 5 6 7 8 9 10

5. Does the material provide for adequate development of reading skills?

   1 2 3 4 5 6 7 8 9 10

6. Does the material adequately take into account individual differences in learning rates and interest?

   1 2 3 4 5 6 7 8 9 10

7. How do you rate the material for all the above attributes combined?

   1 2 3 4 5 6 7 8 9 10

A SCALE FOR EVALUATION OF ADULT BASIC EDUCATION INSTRUCTIONAL MATERIALS

DIRECTIONS

The next three pages are identical. They contain questions about ABE materials. Please help us to evaluate these materials by rating them honestly. Please give your own opinions about the material, and try not to be influenced by what others may think of the materials.

You have three pages, and below you will find that you are asked to rate six different materials. This means you will have to rate two materials on each page. You will find this easiest if you use the symbols below, and this will also help us keep the correct ratings for the material you intended.

Symbols	Material	Page
S	S.R.A. Kits	first
M	Mott Program	first
F	Follett Program	second
T	Steck Program	second
R	Reader's Digest Program. .	third
A	Fact Kits	third

Materials MAY be rated on the same space. If you feel the two materials you are rating are equal, you may put both symbols on the same space. For example M This would say that you feel both materials should _ S _ be rated on this same space.

Please rate all of the materials with which you are familiar, whether you have used them all or not. If you find a material with which you are not at all familiar, you may not want to rate it. If this is the case, please rate at least your familiarity with the material (question 2) so that we will know that you did not just leave it out.

Please put your name on each of the pages. Feel free to use the back of the pages for any additional comments you wish to make.

A SCALE FOR EVALUATION OF ADULT BASIC EDUCATION INSTRUCTIONAL MATERIALS

Evaluator:_____ Material(s):_____

My position in ABE is: Administrator, Supervisor, Full-time teacher, Part-time teacher, other_____

Directions: Please put the symbol for the material you are rating in the space you feel represents the quality of the material for the attribute mentioned in the question. A rating of 10 would be for a perfect material, and a rating of one would be for a completely inadequate material.

1. Have you used this material? Yes_____ No_____

2. How familiar are you with this material?

1 2 3 4 5 6 7 8 9 10

3. Do the materials contribute to the teaching of those values necessary for the ABE student's becoming a productive member of society?

1 2 3 4 5 6 7 8 9 10

4. Does the content of the material contribute to the teaching of those general concepts necessary for the ABE student's becoming a productive member of society?

1 2 3 4 5 6 7 8 9 10

5. Does the content of the material conform to the areas in which your experience has shown the ABE student to have an interest?

1 2 3 4 5 6 7 8 9 10

6. Is the format of the material adult in appearance?

1 2 3 4 5 6 7 8 9 10

7. Does the material provide for the teaching of word attack skills?

1 2 3 4 5 6 7 8 9 10

8. Does the material provide for the teaching of <u>comprehension</u> skills?

1 2 3 4 5 6 7 8 9 10

9. Does the material adequately take into account <u>individual differences</u> in learning rates?

1 2 3 4 5 6 7 8 9 10

10. How easy do you feel it would be to use the material?

1 2 3 4 5 6 7 8 9 10

11. If the material were modestly priced, would you recommend that it be bought for your ABE program?

1 2 3 4 5 6 7 8 9 10

You may put any additional comments on the back of this page.

A SCALE FOR EVALUATION OF ADULT BASIC EDUCATION INSTRUCTIONAL MATERIALS

Evaluator:_____ Material(s):_____

My position in ABE is: Administrator, Supervisor, Full-time teacher, Part-time teacher, other_____

Directions: Please put the symbol for the material you are rating in the space you feel represents the quality of the material for the attribute mentioned in the question. A rating of 10 would be for a perfect material, and a rating of one would be for a completely inadequate material.

1. Have you used this material? Yes_____ No_____

2. How familiar are you with this material?

1 2 3 4 5 6 7 8 9 10

3. Do the materials contribute to the teaching of those values necessary for the ABE student's becoming a productive member of society?

1 2 3 4 5 6 7 8 9 10

4. Does the content of the material contribute to the teaching of those general concepts necessary for the ABE student's becoming a productive member of society?

1 2 3 4 5 6 7 8 9 10

5. Does the content of the material conform to the areas in which your experience has shown the ABE student to have an interest?

1 2 3 4 5 6 7 8 9 10

6. Is the format of the material adult in appearance?

1 2 3 4 5 6 7 8 9 10

7. Does the material provide for the teaching of word attack skills?

1 2 3 4 5 6 7 8 9 10

8. Does the material provide for the teaching of <u>comprehension</u> skills?

1 2 3 4 5 6 7 8 9 10

9. Does the material adequately take into account <u>individual</u> <u>differences</u> in learning rates?

1 2 3 4 5 6 7 8 9 10

10. How easy do you feel it would be to use the material?

1 2 3 4 5 6 7 8 9 10

11. If the material were modestly priced, would you recommend that it be bought for your ABE program?

1 2 3 4 5 6 7 8 9 10

You may put any additional comments on the back of this page.

A SCALE FOR EVALUATION OF ADULT BASIC EDUCATION INSTRUCTIONAL MATERIALS

Evaluator:_____ Material(s):_____

My position in ABE is: Administrator, Supervisor, Full-time teacher, Part-time teacher, other_____

Directions: Please put the symbol for the material you are rating in the space you feel represents the quality of the material for the attribute mentioned in the question. A rating of 10 would be for a perfect material, and a rating of one would be for a completely inadequate material.

1. Have you used this material? Yes_____ No_____

2. How familiar are you with this material?

1 2 3 4 5 6 7 8 9 10

3. Do the materials contribute to the teaching of those values necessary for the ABE student's becoming a productive member of society?

1 2 3 4 5 6 7 8 9 10

4. Does the content of the material contribute to the teaching of those general concepts necessary for the ABE student's becoming a productive member of society?

1 2 3 4 5 6 7 8 9 10

5. Does the content of the material conform to the areas in which your experience has shown the ABE student to have an interest?

1 2 3 4 5 6 7 8 9 10

6. Is the format of the material adult in appearance?

1 2 3 4 5 6 7 8 9 10

7. Does the material provide for the teaching of word attack skills?

1 2 3 4 5 6 7 8 9 10

8. Does the material provide for the teaching of <u>comprehension</u> skills?

1 2 3 4 5 6 7 8 9 10

9. Does the material adequately take into account <u>individual differences</u> in learning rates?

1 2 3 4 5 6 7 8 9 10

10. How easy do you feel it would be to use the material?

1 2 3 4 5 6 7 8 9 10

11. If the material were modestly priced, would you recommend that it be bought for your ABE program?

1 2 3 4 5 6 7 8 9 10

You may put any additional comments on the back of this page.

OE 6000 (9-65) DEPARTMENT OF HEALTH, EDUCATION, AND WELFARE
OFFICE OF EDUCATION
WASHINGTON 25, D.C.

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16. RETRIEVAL TERMS (Continue on reverse)

	Adult basic education		Drop-out rates
	Reading		Reading Kits
	Materials		History of ABE reading material
	Reading comprehension		Review of ABE reading research
	Reading vocabulary		Rationale behind individualization
	Gain in reading ability		Comparisons of materials
	Evaluation		
	Experts		
	Intensively Trained teachers		

17. IDENTIFIERS

FACTS: Reading Kit 1	S.R.A. Kits, Mott program, Steck program	
Facts: Reading Kit 2	Reader's Digest program	
Follett program		

Figure 3. ERIC Document Resume