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EVALUATION OF THE BASIC READING DEMONSTRATION PROJECT 1966-67.

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A study was conducted to determine the effectiveness of six approaches to beginning reading instruction (basal, linguistic, phonic, programed reading, i/t/a, and unifon) in schools serving educationally disadvantaged children and to determine the effectiveness of lay aides in project classrooms. Subjects were approximately 4,000 pupils in primary one and two classes of 19 inner city Detroit public schools. The means and standard deviations of achievement and aptitude test scores were computed for each experimental treatment group. Teacher evaluations of lay aides' services were analyzed by response frequency distributions. Test results indicated that, with few exceptions, the reading achievement means for all treatment groups were below grade level in terms of national norms. With primary two pupils, i/t/a followed by the basal approach to reading instruction produced the highest mean achievement scores. Teachers' responses indicated that lay aides provided valuable classroom assistance. No conclusions regarding the relative effectiveness of the various methods of reading instruction can be drawn until June 1968 achievement test scores are available. Brief descriptions of the six teaching methods used in the experiment are included in an appendix. (BS)

Detroit Public Schools

SUMMARY OF PROJECT EVALUATION (ESEA, TITLE I)

Research and Development April, 1968

Title Evaluation of the Basic Reading Demonstration Project (BRDP)

Purpose To determine the effectiveness of 6 different approaches to beginning reading instruction in schools serving educationally disadvantaged children, and to determine the benefits to be derived from the use of lay aides in project classrooms.

Investigator Research and Development Department, Program Evaluation Section, Paul T. Rankin, Jr., Project Evaluator

Period September, 1966 through June, 1967

Participants Approximately 4000 pupils in Primary 1 and Primary 2 classes in 19 inner-city public schools.

Procedures Pupils' reading achievements were measured using the Stanford Achievement Test which was administered in all project classrooms in June, 1967. Measures of the pupils' scholastic aptitudes were obtained from their scores on the Primary Mental Abilities test. Lay aides' services were evaluated by means of teacher questionnaires and classroom observations.

Analysis The means and standard deviations of the achievement and aptitude test scores were computed for each experimental treatment group of pupils, both in Primary 1 and Primary 2. Each Primary 2 treatment group was divided into sub-groups of low and normal aptitude pupils, and means of achievement test scores were computed for these sub-groups, also. Treating the data for the two aptitude levels separately, t tests were applied, comparing each treatment group with every other treatment group, to determine which differences between means were statistically significant. Questionnaire data were analyzed by means of a study of the frequency distributions of responses. Data obtained from classroom observations were analyzed to determine the distributions of lay aides' and teachers' time to various types of activities.

Findings With very few exceptions, the means of the reading achievement test scores for the different treatment groups were considerably below grade level in terms of national norms.

With Primary 2 pupils at both low and normal scholastic aptitude levels, one of the experimental approaches to reading instruction (ITA followed by Basal) resulted in significantly higher mean reading achievement test scores than resulted from any of the other treatment methods.

Teachers' responses to a questionnaire indicated that lay aides gave much valuable assistance in project classrooms in helping individual pupils, in guiding group learning activities, and in the performance of many non-instructional tasks.

Classroom observation data provided evidence that, with the combined efforts of teachers and lay aides, BRDP pupils received more individual help and more small group instruction than is possible in classrooms without lay aide service.

Conclusions

Although there were rather large differences among the experimental treatment groups with respect to means of reading achievement test scores, the available evidence does not warrant any broad generalizations as to the superiority or inferiority of any of the methods of reading instruction tested. No conclusions can be drawn regarding the relative effectiveness of the various methods until the results of June, 1968 achievement tests are in.

The evidence strongly supports a conclusion that classroom lay aides can provide valuable assistance to teachers and pupils in primary unit classrooms.

EVALUATION OF THE

B A S I C R E A D I N G D E M O N S T R A T I O N P R O J E C T

1966-67

Research and Development Department
Program Evaluation Section
Detroit Public Schools
April, 1968

EVALUATION OF THE BASIC READING DEMONSTRATION PROJECT, 1966-67[1]

Background of the Project

The Problem

Large numbers of disadvantaged children in Detroit schools are severely retarded in reading achievement. Their lack of competence in basic reading skills depresses their scholastic achievement in all areas of academic learning, and they frequently meet frustration and failure in their school work. Often they seem unable to profit from the type of developmental reading program which is relatively effective with most beginning readers from middle class homes. On the assumption that the method of beginning reading instruction is one important determinant of reading achievement, it would seem necessary to examine the effectiveness of a variety of approaches to teaching beginning reading to disadvantaged children.

Purposes of the Basic Reading Demonstration Project

The ultimate goal of the Basic Reading Demonstration Project (BRDP) is to discover more effective methods of beginning reading instruction, especially for disadvantaged children. Toward this end six different approaches to beginning reading instruction are being tried out on an experimental basis in 19 inner city elementary schools. The general objectives of the project are:

1. to teach the children in the experimental classrooms to become skillful readers,
2. to measure the effectiveness of 6 different approaches for teaching the beginning reader, and
3. to investigate and measure the benefits to be derived from use of lay aides in project classrooms.

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[1]Funded under the Elementary and Secondary Education Act, Title 1

The Operation of the Project

The BRDP began operations on November 29, 1965, when experimental instruction was initiated in 68 primary 1 (1st grade) classrooms at 18 inner city public schools. Each of the 6 methods of beginning reading instruction was implemented at 3 schools. The names of the 6 methods and the publishers of the instructional materials used with each were as follows:

Method of Instruction	Publisher of Instructional Materials
Basal	Ginn
Linguistic	Harper-Row
Phonic	Lippincott
Programmed Reading	McGraw-Hill
ITA	Initial Teaching Alphabet Publications
Unifon	Whitman-Western

Brief descriptions of the 6 methods are given in the appendix at the end of this report.

Classroom lay aide service was provided in all project classrooms. The aides performed many kinds of non-instructional tasks and also assisted with instruction under the direct supervision of the classroom teachers. Each teacher was given half-time service by a lay aide.

Throughout the school year major emphasis was placed on inservice education for BRDP teachers. Before experimental instruction was started, all project teachers attended a two-day workshop which provided an orientation to the project and instruction in the use of the methods and materials to be employed. Two additional one-day workshops for all project teachers were held, one at the end of the first semester and one early in July. During the second semester each group of teachers using the same method of reading instruction attended 5 after-school meetings for purposes of sharing ideas, improving teaching techniques, and evaluating progress. Representatives from the publishers of the instructional

materials for each method served as consultants at all project-wide workshops and at some of the after-school meetings.

In September, 1966, when the project began its second year of operation, the number of classes involved was approximately doubled. At each participating school the Primary 1 pupils began their first year of experimental instruction (by the method used at the school during the school year 1965-66), and the Primary 2 pupils started their second year of experimental treatment. During the school year 1966-67, classroom lay aide service was again provided in all BRDP classrooms. Several inservice training meetings for the lay aides were conducted, and the emphasis on inservice education for project teachers was continued.

The Evaluation Plan

The general plan for the evaluation of the BRDP for the school year 1966-67 was based on the following major purposes:

1. to measure and to compare the reading achievements of pupils taught by the different methods of beginning reading instruction employed in the project,

2. to investigate the benefits to be derived from lay aides' services in project classrooms, and

3. to identify specific strengths and weaknesses in various aspects of the BRDP program for guidance in the improvement of project operations.

Standardized achievement tests were used to measure pupils' reading achievements. The services of the lay aides were evaluated by means of teacher questionnaires and classroom observations. Teacher questionnaires were also used to determine strengths and weaknesses in project operations.

Reading Achievements of Pupils Taught by the Six Methods of Beginning Reading Instruction

Measurement of Reading Achievements

The reading achievements of BRDP pupils were measured using the Stanford Achievement Test, Primary I and Primary II Batteries. The Primary I Battery subtests on Word Reading, Paragraph Meaning, Vocabulary, Spelling, and Word Study Skills were administered to all Primary 1 pupils in project classes at the ends of the school years 1965-66 and 1966-67. The Primary II Battery subtests on Word Meaning, Paragraph Meaning, Spelling, and Word Study Skills were administered to all Primary 2 pupils at the end of the 1966-67 school year.

Interpretation of Scholastic Aptitude Data

The scholastic aptitude test score means for the different treatment groups should be given due consideration in any appraisal of achievement test results reported in the tables which follow. These aptitude means are based on pupils' scores on the Primary Mental Abilities (PMA) test which is administered to all Primary 1 children in Detroit's public schools.

The means of the BRDP pupils' PMA scores are reported in terms of stanine units. Each stanine is equivalent to one of the letter ratings which are commonly used as measures of scholastic aptitude in Detroit. Relationships among IQ points, letter ratings, stanines, and percentile ranges in terms of national norms are shown below to aid in the interpretation of aptitude means reported in the tables.

Aptitude Level	IQ Range	Percentile Range	Letter Rating	Stanine
	129+	96-99	A*A**	9
High	121-128	89-95	A	8
	113-120	77-88	B	7
	105-112	60-76	C+	6
Normal	96-104	40-59	C	5
	88-95	23-39	C-	4
	80-87	11-22	D	3
Low	72-79	4-10	E	2
	-71	0-3	E-	1

To cite a specific example, in Table 1 the mean of the PMA scores for the Phonic treatment group of first grade pupils is 2.8 in stanine units, or a little below a D mental rating.

Achievement Test Results for All Children in BRDP Classes

Table 1 gives a summary of the results of the achievement tests given in June, 1967, for all Primary 1 pupils enrolled in BRDP classes at the time of the testing. It will be noted that results are given separately for two ITA groups. Since children taught by the ITA approach do not make the transition to reading traditional orthography until they are in Primary 2, six of the ITA classes were tested on a special edition of the test printed in ITA orthography. It will be noted, also, that results are given separately for treatment methods labeled Unifon-Basal, Unifon-Phonic, and Unifon-Linguistic. The reason for this is that, before completing the first grade, every class taught initially by the Unifon approach made a transition to one of the other treatment methods employing traditional orthography. Thus, the Unifon-Basal treatment group made a transition to the Basal approach, the Unifon-Phonic group to the Phonic approach, and the Unifon-Linguistic group to the Linguistic approach.

An examination of Table 1 reveals that all treatment groups' mean GE scores[1] on all achievement subtests are below the children's actual grade level (1.9) at the time of the testing, and that, in general, the differences among treatment groups with respect to GE score means are relatively small. It will be noted that the mean aptitude level of the total group of Primary 1 pupils is 3.3 in stanine units, or a little above D in terms of letter rating.

Table 2 gives a summary of the June, 1967, achievement test results for all Primary 2 pupils enrolled in BRDP classes at the time of the testing. The names

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[1]See note at bottom of Table 1.

TABLE 1

Means and Standard Deviations of Scholastic Aptitude and Achievement Test Scores of Pupils in the Different Treatment Groups, Grade 1, 1966-67

Treatment Method	PMA Test[1] Scores in Stanine Units			Means of Subtest Scores on the Stanford Achievement Test, Primary I Battery																
				No. Tested	Word Reading			Paragraph Meaning			Vocabulary			Spelling			Word Study Skills		
	No. Tested	Mean	SD		Raw Score Mean	SD	GE	Raw Score Mean	SD	GE	Raw Score Mean	SD	GE	Raw Score Mean	SD	GE	Raw Score Mean	SD	GE
Basal	197	3.5	1.5	239	16.1	6.6	1.6	14.4	6.5	1.6	17.9	6.3	1.5	8.1	4.8	1.7	29.2	11.2	1.5
Phonic	233	2.8	1.5	290	16.0	8.9	1.6	13.9	7.7	1.6	16.9	5.6	1.5	8.4	6.4	1.7	25.9	11.7	1.4
Linguistic	331	3.3	1.6	390	10.7	4.5	1.3	9.9	3.6	1.5	17.0	5.2	1.5	4.1	3.3	1.4	24.7	8.7	1.4
Programmed	353	3.6	1.7	431	15.7	7.6	1.6	14.5	8.3	1.6	18.1	5.6	1.5	7.3	5.6	1.6	28.6	11.9	1.5
ITA (to)	202	3.2	1.6	221	15.0	6.7	1.5	13.0	7.1	1.6	17.5	4.9	1.5	9.7	5.5	1.8	28.8	8.6	1.5
ITA (ita)	144	3.2	1.5	174	18.5	9.0	1.7	12.3	8.8	1.6	16.5	5.7	1.4	8.3	7.1	1.7	30.7	12.8	1.6
Unifon-Ling.	53	3.7	1.7	81	14.5	6.3	1.5	15.0	7.4	1.6	17.6	6.1	1.5	7.3	4.5	1.6	27.8	11.0	1.5
Unifon-Basal	95	3.4	1.5	106	15.1	6.3	1.5	13.5	6.4	1.6	18.4	4.9	1.5	7.9	5.5	1.7	27.1	11.8	1.4
Unifon-Phonic	61	3.0	1.6	64	12.3	6.4	1.4	11.8	6.6	1.6	17.7	5.4	1.5	6.8	4.9	1.6	28.8	10.2	1.5
Total	1669	3.3	1.6	1996	14.8	7.4	1.5	13.0	7.2	1.6	17.5	5.6	1.5	7.4	5.7	1.6	27.6	11.0	1.5

[1] Primary Mental Abilities test

Note All GE (grade equivalent) scores reported in this table are the grade equivalent scores corresponding to raw score means.

TABLE 2

Means and Standard Deviations of Scholastic Aptitude and Achievement Test Scores of Pupils in the Different Treatment Groups, Grade 2, 1966-67

Treatment Method	PMA Test[1] Scores in Stanine Units			Means of Scores on the Stanford Achievement Test, Primary II Battery											
					Word Meaning			Paragraph Meaning			Spelling			Word Study Skills		
	No. Tested	Mean	SD	No. Tested	Raw Score Mean	SD	GE	Raw Score Mean	SD	GE	Raw Score Mean	SD	GE	Raw Score Mean	SD	GE
Basal	288	3.8	1.6	258	11.2	6.2	2.0	19.5	9.7	2.1	7.9	6.0	2.4	25.6	9.8	2.0
Phonic	248	3.1	1.4	263	13.4	7.4	2.4	20.0	9.6	2.1	10.6	8.6	2.7	26.1	10.5	2.0
Linguistic	341	3.6	1.5	379	10.5	5.1	1.9	18.7	8.1	2.1	7.1	6.1	2.3	23.4	8.1	1.7
Programmed	289	3.5	1.5	340	10.8	5.3	2.0	17.6	8.8	2.0	6.9	5.8	2.3	23.1	8.8	1.7
ITA-Ling.	92	3.5	1.4	93	11.5	5.9	2.1	20.3	9.3	2.1	7.9	6.5	2.4	26.5	10.3	2.0
ITA-Basal	96	3.8	1.7	100	19.6	6.6	3.0	31.1	10.9	2.9	15.2	9.2	3.2	34.1	14.5	2.6
ITA-Phonic	217	3.6	1.6	224	11.2	5.8	2.0	18.0	9.1	2.0	7.3	7.0	2.3	24.8	9.5	1.9
Unifon-Ling.	82	3.6	1.2	93	9.8	4.9	1.9	14.1	7.6	1.8	6.0	5.7	2.2	23.1	10.3	1.7
Unifon-Basal	99	3.6	1.3	109	9.5	4.6	1.8	16.3	7.6	1.9	5.5	4.3	2.1	22.9	7.1	1.7
Unifon-Phonic	70	3.5	1.4	75	13.4	6.9	2.4	20.0	10.2	2.1	8.7	6.5	2.5	28.1	12.2	2.1
Total	1762	3.5	1.5	1934	11.7	6.3	2.1	19.1	9.5	2.1	8.1	7.0	2.4	25.0	10.0	1.9

[1]Primary Mental Abilities test

Note — All GE (grade equivalent) scores reported in this table are the grade equivalent scores corresponding to raw score means.

given the 3 ITA treatment methods (ITA-Linguistic, ITA-Basal, and ITA-Phonic) indicate the methods to which 3 different ITA groups of pupils made a transition during the second grade. In the same manner Unifon-Linguistic, Unifon-Basal, and Unifon-Phonic indicate the transitions made by 3 different groups of classes taught initially by the Unifon approach.

The data in Table 2 show that all treatment groups, except the ITA-Basal group, attained mean GE scores on all subtests which are below the children's grade level (2.9) when the tests were taken. The mean aptitude levels of the different treatment groups range from 3.1 to 3.8 in stanine units or from about D to C- in terms of aptitude letter ratings.

Achievement Test Results for Pupils Enrolled in BRDP Classes for the Full Treatment Period

Tables 3 and 4 summarize June, 1967 achievement test results exclusively for pupils enrolled in BRDP classes for the full period of experimental treatment. Table 3 gives results for Primary 1 pupils who were enrolled in BRDP classes at their school through the entire school year 1966-67. Table 4 presents results for the Primary 2 pupils enrolled in project classes continuously from December, 1966 (beginning of BRDP operation) through June, 1967.

Comparisons of the data reported in Table 3 with corresponding data in Table 1 reveal that in most instances the GE score means for full treatment groups are identical with the GE means for corresponding groups consisting of all Primary 1 pupils enrolled at the time of testing. Exceptions to this generalization are indicated by asterisks in Table 3. Each asterisk signifies that the GE mean indicated for the full treatment group is higher than the GE mean for the corresponding every-pupil group. In the same manner, asterisks in Table 4 indicate instances where the mean achievement scores (in GE units) for full treatment groups of Primary 2 pupils exceeded those reported in Table 2 for corresponding every-pupil groups.

TABLE 3

Means and Standard Deviations of Scholastic Aptitude and Achievement Test Scores of Pupils in the Different Treatment Groups for One Full School Year Grade 1, 1966-67

Treatment Method	PMA Test[1] Scores in Stanine Units			Means of Subtest Scores on the Stanford Achievement Test, Primary I Battery																
					Word Reading			Paragraph Meaning			Vocabulary			Spelling			Word Study Skills		
	No. Tested	Mean	SD	No. Tested	Raw Score		GE	Raw Score		GE	Raw Score		GE	Raw Score		GE	Raw Score		GE
					Mean	SD		Mean	SD		Mean	SD		Mean	SD		Mean	SD	
Basal	190	3.5	1.6	224	16.0	6.7	1.6	14.4	6.5	1.6	18.0	6.4	1.5	8.0	4.8	1.7	29.1	11.2	1.5
Phonic	193	2.9	1.5	230	16.5	8.9	1.6	14.3	7.8	1.6	17.3	5.8	1.5	8.7	6.5	1.7	26.9	11.5	1.4
Linguistic	282	3.4	1.5	305	10.8	4.6	1.3	9.9	3.6	1.5	17.4	5.3	1.5	4.2	3.4	1.4	25.3	8.8	1.4
Programmed	302	3.6	1.7	322	16.1	7.5	1.6	14.6	8.0	1.6	18.0	5.4	1.5	7.5	5.5	1.7*	29.3	11.6	1.5
ITA (to)	191	3.2	1.6	196	15.0	6.6	1.5	12.9	7.1	1.6	17.5	4.9	1.5	9.9	5.4	1.8	28.8	8.6	1.5
ITA (ita)	137	3.2	1.5	146	19.7	9.0	1.7	13.2	9.0	1.6	16.7	5.6	1.5*	9.3	7.0	1.7	31.6	13.2	1.6
Unifon-Ling.	49	3.7	1.7	66	14.6	6.2	1.5	14.9	6.9	1.6	17.6	6.4	1.5	7.3	4.3	1.6	28.1	11.5	1.5
Unifon-Basal	81	3.5	1.5	86	15.8	6.5	1.6*	14.1	6.6	1.6	18.8	4.8	1.6*	8.2	5.6	1.7	28.4	12.0	1.5*
Unifon-Phonic	54	3.2	1.5	55	12.6	6.6	1.4	12.1	7.1	1.6	18.4	5.1	1.5	7.0	5.0	1.6	29.7	10.5	1.5
Total	1479	3.3	1.6	1630	15.1	7.5	1.5	13.2	7.2	1.6	17.7	5.6	1.5	7.7	5.7	1.7*	28.2	11.0	1.5

[1] Primary Mental Abilities test

*Each asterisk indicates that the GE mean reported for the full treatment group is higher than the GE mean for the corresponding every-pupil group (reported in Table 1).

Note — All GE (grade equivalent) scores reported in this table are the grade equivalent scores corresponding to raw score means.

TABLE 4

Means and Standard Deviations of Scholastic Aptitude and Achievement Test Scores of Pupils in the Different Treatment Groups for the Full Two Year Period of BRDP Instruction, Grade 2, 1966-67

Treatment Method	PMA Test[1] Scores in Stanine Units			Means of Scores on the Stanford Reading Test, Primary II Battery											
					Word Reading			Paragraph Meaning			Spelling			Word Study Skills		
					Raw Score			Raw Score			Raw Score			Raw Score		
	No. Tested	Mean	SD	No. Tested	Mean	SD	GE	Mean	SD	GE	Mean	SD	GE	Mean	SD	GE
Basal	186	3.8	1.5	202	11.2	6.2	2.0	19.2	9.6	2.1	7.8	5.8	2.4	25.3	9.8	1.9
Phonic	195	3.1	1.4	198	14.2	7.8	2.5*	20.8	9.9	2.2*	11.7	9.0	2.9*	26.9	11.0	2.0
Linguistic	245	3.6	1.5	253	10.6	4.8	2.0*	18.2	8.0	2.0	6.5	5.6	2.2	23.0	8.3	1.7
Programmed	179	3.7	1.5	195	11.5	5.2	2.1*	18.2	8.6	2.0	7.7	5.9	2.4*	23.7	9.0	1.8*
ITA-Ling.	81	3.5	1.4	81	11.8	6.0	2.1	20.7	9.5	2.2*	8.5	6.6	2.4	27.2	10.5	2.0
ITA-Basal	94	3.9	1.7	98	19.5	6.7	3.0	31.1	11.0	2.9	15.4	9.2	3.2	34.2	14.6	2.6
ITA-Phonic	147	3.8	1.6	148	12.0	6.2	2.1*	19.2	9.1	2.1*	8.5	7.9	2.5*	25.1	10.1	1.9
Unifon-Ling.	53	3.7	1.1	53	10.5	5.3	2.0*	15.8	7.8	1.9*	7.3	6.4	2.3*	26.0	10.6	2.0*
Unifon-Basal	70	3.7	1.3	72	9.7	5.0	1.9*	16.1	7.8	1.9	5.9	4.7	2.2*	22.5	6.4	1.7
Unifon-Phonic	69	3.5	1.4	72	13.6	6.9	2.4	20.1	10.4	2.1	8.7	6.5	2.5	28.5	12.3	2.2*
Total	1319	3.6	1.5	1372	12.3	6.5	2.2*	19.8	9.7	2.1	8.7	7.3	2.5*	25.7	10.5	2.0*

[1]Primary Mental Abilities test

*Each asterisk indicates that the GE mean reported for the full treatment group is higher than the GE mean for the corresponding every-pupil group (reported in Table 2).

Note — All GE (grade equivalent) scores reported in this table are the grade equivalent scores corresponding to raw score means.

An inspection of the data in Table 3 (for full-treatment Primary 1 pupils only) suggests the following comments:

1. All treatment groups' GE score means on all achievement subtests are below the pupil's grade level (1.9) at the time of testing.

2. While differences in means of achievement test scores among the treatment groups are apparent, no single treatment shows consistent superiority in achievement on all subtests.

3. On the Paragraph Meaning subtest, perhaps the best single measure of reading achievement, 8 of the 9 treatment groups attained the same mean GE score (1.6).

An examination of the data in Table 4 (for full-treatment Primary 2 pupils only) suggests the following comments:

1. With few exceptions the GE score means for the various treatments and achievement subtests are well below the pupils' grade level (2.9) when the tests were administered.

2. There are relatively large differences among the 10 treatment groups with respect to GE score means on each of the achievement subtests.

3. The ITA-Basal treatment group attained higher mean GE scores on all achievement subtests than were attained by any other treatment group. The ITA-Basal group's mean GE scores were equal to or greater than the pupil's grade level (2.9) on the Word Meaning, Paragraph Meaning, and Spelling subtests.

4. It is noteworthy that the Phonic treatment group attained relatively high mean GE scores on all achievement tests in spite of having the lowest average scholastic aptitude level.

The data presented in Tables 3 and 4 show the average levels of reading achievement attained by pupils taught by the different methods of reading instruction for the full treatment period. The evident differences among the treatment groups with respect to mean achievement scores may, of course, be partially attributable to aptitude differences or to other factors not controlled in this study.

Achievement Test Results for Low and Normal Aptitude Grade 2 Pupils in the Different Treatment Groups

The final step in the analysis of the Stanford Achievement Test results involved comparisons among means of subtest scores attained by full-treatment

Primary 2 pupils at two different aptitude levels. Almost all of the pupils' scores on the Primary Mental Abilities (PMA) test were in the range from stanines 1 through 6 in terms of national norms, or from E- to C+ in terms of aptitude letter ratings. For purposes of the analysis, these pupils were stratified at two levels, a low aptitude level which included those whose PMA scores were in stanines 1 through 3 (E-, E, and D letter ratings), and a normal aptitude level which consisted of those whose PMA scores were in stanines 4 through 6 (C-, C, and C+ letter ratings).

Table 5 presents the achievement test results for the low aptitude pupils in the different treatment groups, and Table 6 gives the results for the normal aptitude pupils.

Examinations of the data in both Tables 5 and 6 reveal rather large differences among the treatment groups with respect to means of scores on each of the achievement subtests. An analysis was made to determine which differences were statistically significant. Treating the data for low and normal aptitude pupils separately, each treatment group was compared with every other treatment group with respect to means of raw scores on each of the subtests. T tests were applied to determine which comparisons yielded differences significant at the .01 level of confidence. The results of this analysis of the low aptitude pupil data are presented in Table 7. Results for the normal aptitude pupils are reported in Table 8.

The major findings revealed by the data for the low aptitude pupils (see Table 7) are as follows:

1. The ITA-Basal treatment group attained a significantly higher mean achievement level on the Word Meaning test than did every other treatment group except the Phonic group, and a significantly higher mean on the Paragraph Meaning test than all other treatment groups except the Unifon-Phonic group.

2. The Phonic treatment group attained a significantly higher Spelling achievement level than was attained by 5 of the other 9 treatment groups, and a significantly higher Word Meaning achievement level than did 2 of the other treatment groups.

TABLE 5

Means and Standard Deviations of Achievement Test Scores of Low Scholastic Aptitude Pupils[1] in the Different Treatment Groups for the Full Two Year Period of BRDP Instruction, Grade 2, 1966-67

Treatment Method	Means of Subtest Scores on the Stanford Reading Test, Primary II Battery															
	Word Meaning				Paragraph Meaning				Spelling				Word Study Skills			
	No. Tested	Raw Score Mean	SD	GE	No. Tested	Raw Score Mean	SD	GE	No. Tested	Raw Score Mean	SD	GE	No. Tested	Raw Score Mean	SD	GE
Basal	77	9.3	4.3	1.8	77	14.9	5.8	1.9	66	5.0	3.8	2.0	80	20.2	8.2	1.6
Phonic	125	11.9	7.0	2.1	125	17.5	8.2	2.0	109	8.9	8.0	2.5	126	22.7	9.0	1.7
Linguistic	109	9.0	3.9	1.8	109	16.0	6.3	1.9	87	4.5	4.4	2.0	113	20.8	5.4	1.6
Programmed	75	10.0	4.0	1.9	71	15.2	6.2	1.9	52	5.6	4.8	2.2	76	20.5	7.1	1.6
ITA-Ling.	37	9.2	5.6	1.8	37	15.9	7.8	1.9	32	5.3	5.0	2.0	38	22.0	7.8	1.7
ITA-Basal	31	15.1	5.5	2.6	30	22.5	9.9	2.3	18	8.0	7.7	2.4	33	22.4	11.9	1.7
ITA-Phonic	59	9.4	5.1	1.8	56	15.1	7.2	1.9	41	4.5	5.8	1.9	59	20.7	9.4	1.6
Unifon-Ling.	27	9.4	3.7	1.8	26	12.9	6.1	1.8	18	5.6	5.7	2.2	27	21.5	7.1	1.7
Unifon-Basal	30	8.8	3.6	1.8	28	15.0	6.5	1.9	24	4.3	3.1	1.9	30	21.6	6.7	1.7
Unifon-Phonic	31	10.8	5.2	2.0	30	18.4	9.4	2.0	23	7.1	6.6	2.3	31	24.5	10.4	1.8
Total	601	10.2	5.3	1.9	589	16.3	7.4	1.9	470	6.1	6.0	2.2	613	21.5	8.2	1.6

[1]Pupils whose aptitude test scores were in stanines 1, 2, and 3 according to national norms

Note All GE (grade equivalent) scores reported in this table are the grade equivalent scores corresponding to raw score means.

TABLE 6

Means and Standard Deviations of Achievement Test Scores of Normal Scholastic Aptitude Pupils[1] in the Different Treatment Groups for the Full Two Year Period of BRDP Instruction, Grade 2, 1966-67

Treatment Method	Means of Subtest Scores on the Stanford Reading Test, Primary II Battery															
	Word Meaning				Paragraph Meaning				Spelling				Word Study Skills			
	No. Tested	Raw Score Mean	SD	GE	No. Tested	Raw Score Mean	SD	GE	No. Tested	Raw Score Mean	SD	GE	No. Tested	Raw Score Mean	SD	GE
Basal	97	12.3	6.4	2.2	95	22.6	9.7	2.4	96	9.3	5.7	2.5	100	28.8	8.4	2.2
Phonic	69	18.6	7.3	2.9	69	26.7	10.2	2.6	68	16.5	8.6	3.3	69	34.7	10.2	2.7
Linguistic	128	12.2	5.0	2.1	128	20.2	9.0	2.1	115	8.2	6.0	2.4	130	25.2	9.6	1.9
Programmed	96	12.7	5.4	2.2	97	20.1	8.7	2.1	93	8.7	5.6	2.5	97	26.4	8.7	2.0
ITA-Ling.	41	13.9	5.6	2.5	42	24.7	8.9	2.5	40	11.1	6.8	2.8	42	31.8	10.6	2.4
ITA-Basal	59	21.6	5.7	3.2	57	35.1	8.8	3.1	57	17.5	8.4	3.4	59	40.6	11.7	3.4
ITA-Phonic	84	13.9	6.4	2.5	85	21.9	9.4	2.3	73	10.8	8.1	2.8	86	28.2	9.6	2.1
Unifon-Ling.	26	11.7	6.5	2.1	26	18.8	8.3	2.1	22	8.7	6.6	2.5	26	30.6	11.6	2.4
Unifon-Basal	38	10.6	5.9	2.0	39	17.0	8.9	2.0	32	7.2	5.5	2.3	39	23.1	6.3	1.7
Unifon-Phonic	37	15.8	7.1	2.7	37	21.2	11.4	2.2	36	9.6	6.0	2.6	37	31.8	12.0	2.4
Total	675	14.2	6.7	2.5	675	22.7	10.3	2.4	632	10.7	7.5	2.8	685	29.4	10.7	2.2

[1]Pupils whose aptitude test scores were in stanines 4, 5, and 6 according to national norms

Note — All GE (grade equivalent) scores reported in this table are the grade equivalent scores corresponding to raw score means.

TABLE 7

Statistically Significant Differences Among Stanford Achievement Test Scores Means for the Different Treatment Groups--Low Aptitude Grade 2 Pupils Enrolled for the Full Treatment Period

Treatment Method	Basal	Phonic	Ling.	Prog.	ITA Ling.	ITA Basal	ITA Phonic	Unifon Ling.	Unifon Basal	Unifon Phonic
Basal	--	W S				WP				
Phonic		--				P				
Linguistic		W S	--			WPS				X
Programmed		S		--		WP				
ITA-Linguistic					--	WP				
ITA-Basal						--				
ITA-Phonic	S					WP	--			
Unifon-Linguistic	P					WP		--		
Unifon-Basal	S					WP			--	
Unifon-Phonic						W				--

Interpretation of Table 7

The code letters W, P, S, and X represent the subtests in the Stanford Achievement Test, Primary II Battery:

W = Word Meaning P = Paragraph Meaning S = Spelling X = Word Study Skills

Each code letter in the table indicates a statistically significant difference, at the .01 level, between the means of test scores of two different treatment groups. In every instance the treatment group specified at the top of the column (above the code letter) attained a significantly higher raw score mean than did the treatment group specified at the left end of the horizontal line in which the code letter appears. The table is read as follows--the Phonic treatment group attained significantly higher raw score means on the Word Meaning (W) and Spelling (S) subtests than did the Basal or Linguistic group. Other code letters in the table are interpreted in the same manner.

TABLE 8

Statistically Significant Differences Among Stanford Achievement Test Score Means for the Different Treatment Groups--Normal Aptitude Grade 2 Pupils Enrolled for the Full Treatment Period

Treatment Method	Basal	Phonic	Ling.	Prog.	ITA Ling.	ITA Basal	ITA Phonic	Unifon Ling.	Unifon Basal	Unifon Phonic
Basal	--	W SX				WPSX				W
Phonic		--				P X				
Linguistic	X	WPSX	--		P X	WPSX				W X
Programmed		WPSX		--	P X	WPSX				W X
ITA-Linguistic		W S			--	WPSX				
ITA-Basal						--				
ITA-Phonic		WPSX				WPSX	--			
Unifon-Linguistic		WPS			P	WPSX		--		
Unifon-Basal	P X	WPSX			P X	WPSX	WP X	X	--	W X
Unifon-Phonic		S				WPSX				--

Interpretation of Table 8

The code letters W, P, S, and X represent the subtests in the Stanford Achievement Test, Primary II Battery:

W = Word Meaning P = Paragraph Meaning S = Spelling X = Word Study Skills

The table is interpreted in the same manner as described for Table 7. In every instance the treatment group specified at the top of the column (above the code letter) attained a significantly higher mean score than did the treatment group specified for the row in which the code letter appears.

The major findings revealed by the data for the normal aptitude pupils (see Table 8) are as follows:

1. The ITA-Basal treatment group attained significantly higher means of scores on the Paragraph Meaning and Word Study Skills tests than all other treatment groups, and significantly higher means on the Word Meaning and Spelling tests than all other treatment groups except the Phonic group.

2. The Phonic treatment group attained a significantly higher mean achievement level--

   on the Word Meaning test than 7 other treatment groups,
   on the Paragraph Meaning test than 5 other treatment groups,
   on the Spelling test than 8 other treatment groups, and
   on the Word Study Skills test than 5 other treatment groups.

3. The ITA-Linguistic treatment group attained a significantly higher mean achievement level--

   on the Paragraph Meaning test than 4 other treatment groups, and
   on the Word Study Skills test than 3 other treatment groups.

4. The Unifon-Phonic treatment group attained a significantly higher mean achievement level--

   on the Word Meaning test than 4 other treatment groups, and
   on the Word Study Skills test than 3 other treatment groups.

Taken at face value these findings clearly support a conclusion that the ITA-Basal treatment was the most effective of all the approaches to beginning reading instruction used in the project, for both low and normal aptitude pupils. The evidence also seems to support a conclusion that for pupils of normal scholastic aptitude the Phonic treatment was the second most effective approach. However, it is important to recognize that the available evidence does not warrant broad generalizations concerning the superiority or inferiority of any of the experimental methods of beginning reading instruction.

Differences among the treatment methods with respect to average levels of reading achievement may be largely due to differences among teachers. There were substantial differences in subtest score means among classes within each of the treatment groups as well as among the different treatment groups. In many instances the differences in achievement among classes within treatment groups

cannot be attributed to class differences in average scholastic aptitude level. In this connection it should be noted that the ITA-Basal treatment group consisted of only 4 classes, and that the other ITA and Unifon treatment groups also consisted of relatively small numbers of classes. Since all BRDP children at each participating school were taught by the same treatment method, it is very possible that differences among schools contributed to differences among treatment methods with respect to achievement test results. Finally it is important to consider the fact that many more rigorous research studies have yielded conflicting evidence concerning the relative effectiveness of various methods of beginning reading instruction. A good example is the Cooperative Research Program in First-Grade Reading Instruction (funded by the United States Office of Education). Involved in this large scale program were 27 individual experimental projects which employed a variety of approaches to beginning reading instruction. A recent report on the study included the following statements in its conclusions:

> Reading programs are not equally effective in all situations. Evidently, factors other than method, within a particular learning situation, influence pupil success in reading.
>
> ...No one approach is so distinctly better in all situations and respects than the others that it should be considered the one best method and the one to be used exclusively.[1]

In the light of these considerations, it is clear that the findings reported above do not provide conclusive evidence that any one of the BRDP treatment methods would be most effective generally in Detroit's inner-city schools.

In June, 1968, the Stanford Achievement Test, Primary II Battery will be administered to all primary 2 and 3rd grade pupils in all BRDP classes, and to appropriate control groups of pupils attending schools not involved in the project.

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[1]Guy L. Bond and Robert Dykstra, "The Cooperative Research Program in First-Grade Instruction," Reading Research Quarterly, II (Summer, 1967), pp. 122-123.

At this time many of the 3rd graders in BRDP classes will be completing 27 months of experimental instruction, and many of the Primary 2 level pupils will be completing 20 months in project classes. Results of the analysis of the June, 1968 test scores will permit much more valid conclusions concerning the relative effectiveness of the different BRDP approaches to beginning reading instruction than are possible at the present time.

Comparison of Average Reading Achievements of Selected BRDP and Non-BRDP Classes

In November, 1967 the Department of Early Childhood Education conducted a study of the reading achievements of a large sample of Primary 2 pupils in Detroit's public schools. Participating in the study were 109 schools representing all areas of the city. One class was randomly selected in each school to take the California Reading Test, Lower Primary Level.

Since the sample included 11 BRDP classes and many other classes from inner-city schools not involved in the project, this study provided an opportunity to compare reading achievement test results for a sample of BRDP classes with test results for comparable non-project classes.

The distribution of the 11 BRDP classes by treatment method was as follows:

BRDP Treatment Method	Number of Classes Tested
Basal	1
Phonic	2
Linguistic	3
Programmed Reading	1
ITA-Basal	1
ITA-Linguistic	1
Unifon-Phonic	1
Unifon-Linguistic	1

The selection of a comparison group sample of 15 non-BRDP classes was done in a manner to ensure that these classes would be approximately equal to the BRDP classes with respect to average scholastic aptitude level and socio-economic status level.

Results of the analysis of the California Reading Test scores and aptitude test score data for pupils in the 11 BRDP classes and the 15 non-BRDP classes are presented in Table 9.

Table 9

Means of Scholastic Aptitude and Reading Achievement Test Scores of BRDP and Non-Project Pupils

Group	No. of Pupils Tested	PMA Test Score Mean	California Reading Test Total Reading Score Mean
BRDP Pupils	302	3.37 stanine units	1.6 GE units
Non-Project Pupils	392	3.38 stanine units	1.6 GE units

The data show that there was no difference between the group of BRDP pupils and the sample of non-BRDP pupils with respect to mean reading achievement level. It will be also noted that the two groups were very nearly equal with respect to average level of scholastic aptitude.

These findings do not justify a blanket conclusion that BRDP instruction makes no difference in pupils' reading achievements. The mean of the reading test scores of the BRDP pupils is the average of the combined results for 11 classes representing 8 different treatment methods. Data presented earlier in this report provide evidence of substantial differences among the treatment groups with respect to reading achievement. Also to be considered is the fact that the BRDP pupils had completed only two months of the second year of experimental instruction when the California Reading Test was administered.

It was mentioned earlier in this report that all BRDP classes and an appropriate control group of non-project classes will take the Stanford Achievement Test in June, 1968. Only when the results of this testing are in will it be possible to validly determine which, if any, BRDP treatment methods produce significantly higher reading achievements with disadvantaged children than does Detroit's regular program of beginning reading instruction.

Evaluation Findings Concerning Classroom Lay Aide Services

Teacher Reports on Lay Aide Services

In May, 1967, all BRDP teachers were asked to fill out a "Lay Aide Service Evaluation Questionnaire." The major purposes of the questionnaire were (1) to measure the frequency and quality of performance of specific types of service activities by lay aides, and (2) to appraise the value of the various activities as contributions to the improvement of instruction in BRDP classrooms. The questionnaire provided for teachers' appraisals of the performance of 34 specific activities by their lay aides during the school year 1966-67. Of the 112 teachers in the project, 111 returned completed questionnaires. The distributions of their responses regarding value and frequency of performance of the activities and some comments on the findings are presented below.

The first section of the questionnaire concerned activities involving direct assistance in teaching individual children. Response frequencies are reported in Table 10.

TABLE 10

Teacher Ratings of Lay Aide Performance of Activities Involving Direct Assistance in Teaching Individual Children

Activity	Value				Frequency			
	Much	Some	Little	No Resp.	Often	Some-times	Seldom or Never	No Resp.
Helping a child understand and carry out a seatwork assignment	69	25	8	9	70	27	3	11
Teaching a child a specific skill or concept	53	36	11	11	45	35	19	12
Listening to a child read	66	38	6	1	55	32	11	13
Checking a child's work	71	23	8	9	66	26	7	12
Encouraging a child to improve his behavior or effort	67	26	9	9	64	30	8	9
Helping a child practice a skill	80	28		3	61	29	7	14

The data in Table 10 show that relatively large numbers of teachers reported that their lay aides assisted often in the performance of every one of the listed activities. All of the activities except one (teaching a child a specific skill or concept) were judged by most teachers to have much value as contributions to the improvment of instruction in HRDP classrooms.

The second group of items in the questionnaire concerned activities involving direct assistance in teaching and supervising groups of children. The distribution of teachers' responses to these items is presented in Table 11.

TABLE 11

Teacher Ratings of Lay Aide Performance of Activities
Involving Direct Assistance in Teaching and Supervising Groups of Children

Activity	Value				Frequency			
	Much	Some	Little	No Resp.	Often	Some-times	Seldom or Never	No Resp.
Leading a group discussion	30	40	23	18	23	37	36	15
Supervising activity of one or more groups while the teacher works with another group	66	27	7	11	56	32	12	11
Leading a game (reading, arithmetic, Physical education, etc.)	38	35	21	17	24	37	35	15
Reading a story to a group	42	37	19	13	29	43	27	12
Teaching or demonstrating a skill or technique to a group	34	31	27	19	30	23	40	18
Taking a group to the lavatory or to other places	62	20	11	18	57	20	14	20
Supervising children during recess periods, bell periods, etc.	60	31	11	9	57	29	14	11
Assisting the teacher in supervising group or total class learning activities	63	31	6	11	52	35	12	12
Assisting with the administration of tests	61	22	15	13	33	37	30	11

The data in Table 11 indicate that according to teachers' reports those of the listed activities performed most often by lay aides involved general supervision of groups of children. It will be noted that the activities involving assistance in the conduct of learning experiences (leading a group discussion, leading a game, reading a story to a group, and teaching or demonstrating a skill to a group) were performed less often by lay aides according to teachers' reports. With respect to value of the various activities in general, teachers ascribed higher value to the activities involving general supervision than to those more directly concerned with the conduct of specific learning experiences.

Five of the listed activities are in the general category of preparation of instructional materials. Frequencies of teachers' responses concerning these activities are presented in Table 12.

TABLE 12

Teachers Ratings of Lay Aide Performance of Activities Involving Preparation of Instructional Materials

Activity	Value				Frequency			
	Much	Some	Little	No Resp.	Often	Some-times	Seldom or Never	No Resp.
Preparing pupil materials for lessons in reading, art, arithmetic, writing, science, etc.	70	26	6	9	72	19	13	7
Making teaching aides such as charts, models, exhibits, and bulletin board materials	70	22	10	9	57	27	13	14
Setting up of audio-visual equipment (motion picture projector, tape recorder, etc.)	50	28	15	18	35	22	36	18
Writing assignments, directions, lists, etc., on the chalkboard	25	38	27	21	11	32	50	18
Posting materials on the bulletin board	59	23	12	17	48	23	24	16

The data in Table 12 show that, among the listed activities of lay aides, those reported to have been performed most often were preparing pupils materials for lessons, making teaching aides, and posting materials on bulletin boards. It will be noted, too, that each of these activities was regarded as having much value by the majority of the teachers.

Table 13 presents the frequencies of teachers' responses to several questionnaire items concerning clerical and record keeping activities of lay aides.

TABLE 13

Teachers Ratings of Lay Aide Performance of Clerical and Record Keeping Activities

Activity	Value				Frequency			
	Much	Some	Little	No Resp.	Often	Sometimes	Seldom or Never	No Resp.
Taking and recording attendance	56	22	13	20	48	24	24	15
Taking inventories of equipment, supplies, and materials	61	23	13	14	40	35	21	15
Filling out or transcribing records of attendance, marks, test scores, etc.	79	20	4	8	63	32	6	10
Collection of money (for trips, milk, lunches, etc.)	48	24	17	22	40	27	29	15
Checking pupils' papers, workbooks, or other work	74	21	7	9	69	28	7	7
Scoring tests	69	17	8	17	52	23	21	15
Filing	47	23	19	22	43	28	23	17
Typing	51	9	26	25	40	20	34	17
Making hectograph or mimeograph stencils	75	14	5	17	69	19	12	11
Duplicating materials (seat work, supplementary learning materials, etc.)	81	12	7	11	89	7	4	11

The data in Table 13 show that, according to teachers' reports every one of the listed activities was performed often or sometimes in the majority of project classrooms. The activities performed most often were filling out or transcribing records; checking pupils' papers, workbooks, or other work; making hectograph or mimeograph stencils; and duplicating materials. Each of these activities was regarded as having much value by at least two-thirds of all BRDP teachers.

The distributions of teachers' responses concerning four housekeeping and miscellaneous activities are presented in Table 14.

TABLE 14

Teachers' Ratings of Lay Aide Performance
of Housekeeping and Miscellaneous Activities

Activity	Value				Frequency			
	Much	Some	Little	No Resp.	Often	Some-times	Seldom or Never	No Resp.
Helping with storage and care of equipment, materials, and supplies	74	16	8	13	65	26	10	10
Caring for plants and animals	37	21	26	27	26	19	40	26
Operation of audio-visual equipment	43	22	20	26	39	23	36	13
Pasing out and collecting lesson materials	58	22	10	21	53	27	18	13

The data in Table 14 reveal that according to teachers' reports, lay aides often assisted with storage and care of equipment, materials, and supplies in most BRDP classrooms; and that nearly one-half of the teachers reported that their aides often passed out and collected lesson materials. Each of these high frequency activities was considered of much value by the majority of the teachers.

In summary, the questionnaire data indicate that, according to teachers' reports, the lay aides provided a wide variety of useful services in support of the instructional program in BRDP classrooms. Some of the services involved direct

assistance in teaching individual children and in guiding group learning experiences. Other services included general supervision of children, preparation of instructional materials, and the performance of various clerical and record-keeping tasks.

The analysis of the questionnaire responses also revealed that, in general, teachers rated their aides relatively high on quality of performance of all specific activities evaluated. All data relative to the quality-of-performance findings were reported to the project director for guidance in planning improved inservice training for the lay aides.

Classroom Observations of Lay Aide and Teacher Activities

During the months of May and June, 1967, the project evaluator observed classroom activities in 14 randomly selected BRDP classrooms and in 8 comparable non-project classrooms. The latter comprised a random sample of inner-city Primary 2 and Grade 3 classrooms not involved in the BRDP. In each of the project and non-project classrooms activities were observed for a period of one hour. In the BRDP classrooms the specific behaviors of both teachers and lay aides were recorded at three minute intervals. In the non-project rooms the specific activities of the teachers were recorded in same manner.

The first step in the analysis of the data obtained in the 14 BRDP classrooms was to catagorize all recorded observations of lay aide activities according to the general character of these activities. Following this, the number and percent of observations falling in each category were determined. The findings were as follows:

Category of Lay Aide Activities	Observations	
	Number	Percent
Direct assistance in teaching individual children	106	38
Direct assistance in teaching groups	72	26
Supervision of groups	45	16
Preparation of teaching materials	24	8
Clerical and record-keeping activities	7	3
Housekeeping activities	26	9
	280	100

These findings indicate that the most frequently observed activities of lay aides were in the general categories of direct assistance in teaching individual children (38 percent of all observations) and direct assistance in teaching groups (26 percent of the observations). Assuming that the 280 observations obtained in 14 classrooms provide a representative sample of the classroom activities of all BRDP lay aides, the findings support a conclusion that lay aides generally spent more than half of their time in directly assisting with the instruction of individuals and groups.

The second step in the treatment of the observation data obtained in the BRDP classrooms was an analysis of the relationships between lay aides' activities and teachers' activities which were performed simultaneously. Each of the 280 pairs of observations of the simultaneous activities of lay aides and teachers was placed in one of the following categories:

1. Both teacher and lay aide performing individual or group instruction activities.

2. Teacher giving individual or group instruction while lay aide was performing a non-instructional service.

3. Lay aide assisting with individual or group instruction while teacher was involved in a non-instructional activity.

4. Both teacher and lay aide performing non-instructional activities.

The numbers of pairs of simultaneous observations (teacher and lay aide activities) which fell in the four different categories are presented below.

		Lay Aide Activities		
		Instructional	Non Instructional	
Teacher Activities	Instructional	157 (56%)	53 (19%)	210 (75%)
	Non Instructional	21 (8%)	49 (17%)	70 (25%)
		178 (64%)	102 (36%)	280 (100%)

The data reveal: (1) that both teacher and lay aide were performing instructional activities during 56 percent of the observations; (2) that during 19 percent of the observations the aide was performing non-instructional tasks while the teacher was involved in instructional activities; (3) that during 8 percent of the observations the aide was assisting with instruction while the teacher was engaged in non-instructional tasks; and (4) that at the times of 17 percent of the observations both the teacher and the lay aide were performing non-instructional tasks.

The marginal totals at the right side of the table show that BRDP teachers were involved in instructional activities during 75 percent of all observations, and that they were performing non-instructional tasks during 25 percent of the observations. The totals for lay aides activities (at the bottom of the table) show that aides were assisting with instruction during 64 percent of the observations, and that during 36 percent of the observations they were performing non-instructional services.

It will be noted that the total of the percentages of teacher and lay aide observations classified as "instructional" is 139 percent (75 percent for teachers plus 64 percent for lay aides). Assuming that the percentages of observations classified as instructional are fairly accurate measures of the amounts of time actually devoted to instructional activities, it is clear that, with the combined efforts of teachers and lay aides, BRDP children received more individual help and small group instruction than would be possible in classrooms without lay aide service.

The observations of teacher activities in the 8 non-project classrooms were conducted and recorded in the same manner as they were in the BRDP classrooms. All recorded observations were classified as either instructional or non-instructional activities, and the number and percent of observations falling in each category were determined. The findings together with the corresponding findings from the study of BRDP teacher activities, were as follows.

Teacher Group	Observations of Teacher Activities		
	Instructional	Non-Instructional	Total
Non-Project Teachers	108 (68%)	52 (32%)	160 (100%)
BRDP Teachers	210 (75%)	70 (25%)	280 (100%)

The data show that the 8 non-project teachers were involved in instructional activities at the times of 68 percent of all observations made in their classrooms, and that the 14 BRDP teachers (with lay aide assistance) were engaged in instructional activities during 75 percent of all observations recorded in project classrooms. Although the evidence is not conclusive, these findings support a generalization that, in Primary 2 and Grade 3 classrooms, teachers assisted by lay aides are able to devote more time to activities involving direct instruction to children than are teachers without lay aide service. Further investigation, involving observation in larger numbers of classrooms with and without lay aide service, is required before firm conclusions can be drawn relative to the effects of classroom lay aide service upon the distribution of teachers' time to various instructional and non-instructional activities.

The very noticeable benefit of lay aides' services, which is not fully reflected in the reported data, was that the BRDP teachers were not interrupted in their work with groups of children nearly as often as were the non-project teachers. In most of the non-project classrooms the teacher frequently was diverted from group teaching activities by the need to attend to a variety of problems encountered by children working independently. In the BRDP classrooms the lay aide was usually able to handle such problems without assistance from the teacher.

After completing 14 hours of observation in 14 BRDP classrooms, the evaluator concluded that the most valuable contribution of the lay aides was their provision of additional individual attention and assistance to the pupils.

Process Evaluation of the BRDP

One of the purposes of the evalution of the BRDP was to identify specific strengths and weaknesses in various aspects of project operations. Toward this end a process evalution questionnaire was sent to all BRDP teachers in the spring of 1967. The questionnaire was designed to obtain the teachers' opinions, criticisms, and suggestions concerning several facets of the BRDP program. Included among the areas covered were lay aide services, preservice and inservice training for teachers and aides, project leadership and administration, instructional materials, and evaluation procedures. Most of the teachers returned completed questionnaires and their responses included many constructive criticisms and suggestions for the improvement of project operations. A complete list of all responses to all questions was given to the project director for guidance in planning improvements in the BRDP program for the school year 1967-68.

Summary and Conclusions

The major findings of the evaluation of the BRDP for the 1966-67 year of operation can be summarized as follows:

Reading Achievements of BRDP Pupils

1. With very few exceptions the means of the reading achievement test scores of Primary 1 and Primary 2 pupils in the different treatment-method groups were well below grade level in terms of national norms.

2. The group of Primary 2 pupils taught by the ITA approach followed by the Basal method was the only treatment group which attained mean reading achievement test scores equal to or above grade level.

3. With Primary 2 pupils at both low and normal scholastic aptitude levels, the ITA-Basal treatment resulted in significantly higher mean reading achievement test scores than were attained by any other treatment group.

4. With Primary 2 pupils at the normal scholastic aptitude level, the Phonic approach resulted in significantly higher mean reading achievement scores than were attained by most of the other treatment groups.

5. An analysis of reading achievement test scores obtained by Primary 2 pupils in November, 1967, showed no difference between the mean of the total reading scores attained by pupils in 11 BRDP classes and the mean of the scores of pupils in 15 comparable non-project classes.

Findings Concerning Classroom Lay Aide Services

1. In their responses to a questionnaire, BRDP teachers reported that lay aides performed a wide variety of useful services in support of the instructional program in project classrooms. Some of the services involved direct assistance in teaching individual children and in guiding group learning experiences. Other services included general supervision of children; preparation of instructional materials; and the performance of various clerical, record-keeping, and housekeeping tasks. In general, the teachers rated their aides relatively high on quality of performance of all specific services evaluated.

2. During 14 hours of observation in 14 randomly selected BRDP classrooms (one hour per classroom), the lay aides spent 64 percent of their time giving direct assistance in the instruction of individual pupils and groups, and 36 percent of their time in the performance of non-instructional services. With the combined efforts of teachers and lay aides, the pupils received more individual help and small group instruction than would be possible in classrooms without lay aide service.

Conclusions

The evidence obtained during the second year of operation of the project appears to indicate that the ITA-Basal treatment was the most effective of all the BRDP approaches to beginning reading instruction, and that the Phonic method was the second most effective approach. However, for several good reasons (discussed on pages 18 and 19 of this report) the evidence available at this time does not warrant any firm conclusions as to which of the experimental methods would be most effective generally in Detroit's inner-city schools.

In June, 1968, when many pupils will be completing their third year of experimental instruction, the Stanford Achievement Test, Primary II Battery, will be administered to all BRDP pupils and to an appropriate control group of non-project pupils. Results of this testing will permit much more valid conclusions concerning the relative effectiveness of the different BRDP methods of reading instruction than are possible at the present time.

The evidence concerning the services of lay aides in BRDP classrooms strongly supports a conclusion that lay aides can provide valuable assistance to teachers of Primary 1 and Primary 2 classes. The most important benefit of the services of classroom lay aides appears to be their contribution of additional individual assistance and attention to children.

APPENDIX

Experimental Approaches to Beginning Reading Instruction in the Basic Reading Demonstration Project

1. Basal Approach

The Basal Approach was developed by David H. Russell and Odille Ousley, as chief writers for Ginn and Company. This approach is claimed by the publishers to offer materials which develop basic habits and skills in reading. The task of teaching reading is assumed to be to develop a complex process which helps the child to (1) recognize printed words, (2) understand words, sentences, and processes, (3) interpret meaning and (4) use printed materials.

Children learn (1) to read pictures, (2) to read simple stories in which the pictures carry the plot and a few high frequency words are introduced as sight words. Word recognition and comprehension are stressed. Configuration of words and the use of meaning clues are taught. Structural and phonetic analysis are based on known sight words.

2. Linguistic Approach

The Linguistic Approach was developed by Clara G. Stratemeyer, Henry Lee Smith, Jr., Jack E. Richardson, Jr., and Bernard J. Weiss, as chief writers for Harper and Row. This approach establishes the basic relationship between language as spoken and the representation of spoken language in the writing system. It provides a basis for developing independent word-attack skills faster than would otherwise be possible. Letters do not have sounds; they represent the sounds of the language. Children are taught to react to groups of letters by furnishing the utterances for which the letters stand.

Whole words are presented. Then the children are familiarized with the initial consonants involved. Children learn the structure of the word-terminals as sets of letter-signaling speech units. By the process of substitution, children are led to discover new words not in their basic reading vocabulary. The uses of these linguistic skills are incorporated in the stories presented in the readers.

3. Phonic Approach

The Phonic Approach was developed by Glenn McCracken and Charles Walcutt, as chief writers for J. B. Lippincott Company. This method is a phonetic approach to teaching reading. The task of teaching reading is first of all, and essentially, teaching the mechanical skill of decoding, of turning the printed symbols into the sounds which are language. It is claimed by the publisher to help children to learn to read at a faster rate than is fostered in the "developmental" method.

The best approach to the teaching is to begin with these sounds which are regular while at the same time introducing words in which sounds are used (in our spelling system 85 to 90 percent of the words are regular) and then taking up the exceptions. Names, shapes, and sounds of letters

are taught. The first sounds taught are those of the short vowels. This is one of the differences between the "linguistic" and "developmental" methods and this particular "phonics" method. The sounds of letters and groups of letters are taught. Words involving these letters and groups of letters are used in reader stories.

4. Programmed Reading Approach

The Programmed Reading Approach was developed by Cynthia D. Buchanan and M. W. Sullivan, as chief writers for McGraw-Hill Book Company. The task of teaching reading is based on the assumptions that (1) most of the sounds in the English language are consistently represented by certain letters or combination of letters and (2) there are numerous exceptions. In Programmed Reading the phonetically regular sound-symbol groups are classified and organized for effective learning sequence.

Programmed Reading helps children learn to read at their individual rates. Therefore, the program can be geared to the child rather than the child to the program. Children deal with a few letters and learn to associate the sound for each letter. Sound values classified as regular are first taught. Each sound is developed in a gradual sequence until the children can generalize their knowledge with confidence.

5. ITA Approach

The ITA Approach was developed by A. J. Mazurkiewicz and H. J. Tanyzer, as chief writers for ITA Publications, Inc. The Initial Teaching Alphabet (ITA) is a means of teaching which makes the initial stages in learning to read easier than those methods which involve the use of materials printed in the traditional alphabet.

The ITA consists of 44 symbol-sounds which are more systematically related to the phonemes of spoken English than are the 26 letters of the traditional alphabet.

The learning task is simplified by reducing the many different spellings for the phonemes in English in traditional orthography. The transfer from reading material printed in the traditional alphabet is easy because the ITA symbols resemble the traditional letters. Therefore, the configurations of whole words are much the same.

6. Unifon

The Unifon Approach was developed by John R. Malone, as chief writer for the Whitman-Western Publishing Company. This approach is a means of teaching which makes the initial stages of learning to read easier than those methods which involve the use of materials printed in the traditional alphabet. UNIFON is a completely isomorphic 40-letter Roman-like alphabet with one sound for each letter and one letter for each sound. The learning task is simplified by reducing the many different spellings for the phonemes in English in traditional orthography.

The transfer from reading material printed in UNIFON to material printed in the traditional alphabet is made easy through the use of special transitional readers in which the content is printed both in Unifon and in traditional orthography.