DOCUMENT RESUME

ED 045 689 TM 000 117

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TITLE Evaluation of Instructional Teams, 1968-69.

INSTITUTION Atlanta Public Schools, Ga.

SPONS AGENCY Office of Education (DHEW), Washington, D.C.
REPORT NO RDR-3-1
PUB DATE Sep 69
NOTE 39p.

EDRS PRICE EDRS Price MF-$0.25 HC-$2.05
DESCRIPTORS Academic Achievement, Comparative Analysis, Cost Effectiveness, Elementary Education, *Experimental Programs, Grade 1, Grade 7, *Instructional Innovation, Instructional Programs, Program Effectiveness, *Program Evaluation, Self Contained Classrooms, *Teaching Techniques, *Team Teaching

ABSTRACT

The effectiveness of the instructional team approach as opposed to the self-contained classroom approach was investigated by the Atlanta Public School system from 1966-1969 (under a funding by Title I, Public Law 89-10). The achievement levels of first grade and seventh grade pupils were evaluated, using both techniques at each level. The instructional team was the experimental unit and the self-contained classroom was the control unit. Eleven questions were posed to test the hypothesis that the experimental unit would make as much progress or more than the control unit. Staff activities of the instructional team, cost effectiveness of both techniques, the testing procedures, and the data analyses are discussed and each question is considered in terms of the amassed statistical data. Results showed the control group to have had an advantage during the first year, although a combination of circumstances may have influenced the results. During the second year, the position was reversed and the team teaching technique had the advantage. In the third year, however, neither approach was superior in achievement, but the experimental group did score significantly higher on self concepts. (AE)

RESEARCH AND DEVELOPMENT REPORT

VOL. III, NO. 1 SEPTEMBER, 1969

EVALUATION OF INSTRUCTIONAL TEAMS 1968-69

Atlanta Public Schools

Atlanta, Georgia

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Vol. 3, No. 1 September, 1969

EVALUATION OF INSTRUCTIONAL TEAMS

1968-69

Funded Under ESEA Title I, P.L. 89-10

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TABLE OF CONTENTS

TABLES

I. INTRODUCTION

During the past three years, the Atlanta Public Schools have been experimenting with a differentiated instructional team approach to teaching, which is an emerging pattern of personnel utilization. Lead teachers, teachers, teacher assistants, and teacher aides were organized into "teams" with the joint responsibility for the planning and execution of an educational program for groups of first and seventh grade pupils in two Title I (Public Law 89-10) schools. The team pattern allowed for greater flexibility in grouping pupils for instructional purposes than previously was possible with a self-contained classroom organizational plan.

Any experimental program requires comprehensive and continuous evaluation. Accordingly, the purpose of this study was to appraise the educational effectiveness of the instructional teams by comparing them with regular self-contained classrooms. Stated more specifically, the major criteria for the evaluation of the total instructional team program were as follows: (1) progress report made by the lead teachers, (2) duties which the team members performed, (3) cost of the instructional teams compared to the cost of the regular self-contained classrooms, (4) comparison of achievement gains between pupils in the instructional teams and those of pupils in self-contained classrooms, (5) comparison of self-concepts and personal adjustments between seventh grade pupils taught by instructional teams and seventh grade pupils taught in self-contained classrooms, (6) a follow-up study of pupils still in the same schools who had participated in the first grade team evaluation study in 1967-68 and who are now second graders, and (7) a follow-up study of pupils still in the same schools who had participated in the first grade team evaluation study in 1966-67 and who are now third graders.

II. PLAN OF THE EXPERIMENT AND PARTICIPANTS

The evaluation studies were based on an experimental (instructional teams) -- control (self-contained classrooms) comparison. For the first grade pupils the outcomes which were assessed centered on achievement gains in word discrimination, word knowledge, reading, and arithmetic concepts. For the seventh grade pupils the subject areas were as follows:

reading vocabulary, reading comprehension, total reading, arithmetic reasoning, arithmetic fundamentals, total arithmetic, mechanics of English, spelling, and total language. In addition, a comparison was made in self-concepts and personal adjustments between seventh grade pupils taught by instructional teams and seventh grade pupils taught in self-contained classrooms.

During the first year, 1966-67, there were three expermental groups (team taught) comprised of pupils from three Title I schools on three grade levels; namely, first grade, seventh grade, and eighth grade. The control groups (self-contained classrooms) were comprised of pupils from four other Title I schools, which were very similar to the experimental schools according to selected socio-economic and school data. Each instructional team had approximately 180 pupils, and the corresponding control group was composed of six regular self-contained classrooms with approximately the same number of pupils.

During the second year, 1967-68, there were three experimental groups (team taught) comprised of pupils from the same three Title I schools as the previous year on the same three grade levels. The control group for the first grade team was drawn from the same schools which had served the previous year. However, the seventh grade control group was drawn from different schools the second year, while the eighth grade experimental team did not have a control group the second year.

During the third year, 1968-69, the eighth grade team was discontinued. The first and seventh grade experimental groups (team taught) were comprised of pupils from the same Title I schools as the previous two years. The control group for the first grade team was drawn from the same schools which had served during the two previous years. The control group for the seventh grade was selected from the same schools which had served during the previous year.

Each instructional team was composed of one lead teacher, two regular teachers, four teacher assistants, and one or two teacher aides. The team had the same lead teachers all

three years, and there were few personnel changes in the teams during the three-year period. The lead teacher was a certified teacher with at least a master's degree who had a considerable amount of teaching experience and who had demonstrated proficiency in working with children in certain age groups. The regular teachers were certified personnel with at least four-year professional certificates who had some teaching experience and who worked well in a group. The teacher assistants were noncertified persons with at least two years of college. The teacher aides were high school graduates with some clerical skills.

III. HYPOTHESIS

This general hypothesis was proposed: pupils taught by instructional teams will make equally as much or more progress than pupils taught in self-contained classrooms.

Therefore, evaluation of the third year of the pilot program of team teaching was designed to answer these questions:

1. Will there be a significant difference in achievement of first grade pupils in word discrimination, word knowledge, reading, and arithmetic concepts who are taught by instructional teams when compared to first grade pupils taught in regular self-contained classrooms?

2. Will pupils who have had kindergarten experience show greater achievement gains than pupils without kindergarten experience?

3. Will first grade boys show greater achievement gains than first grade girls when taught by instructional teams?

4. Will seventh grade pupils taught by instructional teams show greater achievement gains in reading vocabulary, reading comprehension, total reading, arithmetic reasoning, arithmetic fundamentals,

total arithmetic, mechanics of English, spelling, and total language than seventh grade pupils taught in regular classrooms?

5. Will there be a difference in achievement gains between seventh grade boys and girls when taught by instructional teams?

6. Will there be a significant difference in self-concepts and personal adjustments between seventh grade pupils who are taught by instructional teams and seventh grade pupils taught in self-contained classrooms?

7. Will there be a significant difference in self-concepts and personal adjustments between seventh grade boys and seventh grade girls?

8. Will there be a significant difference in achievement in word discrimination, word knowledge, reading, and arithmetic concepts between present second grade pupils who were taught by teams in the first grade but who were placed in self-contained classrooms in the second grade and present second grade pupils who were taught in self-contained classrooms in both the first and second grades (1968-69 second grade groups)?

9. Will there be a significant difference in achievement between second grade boys and girls in word discrimination, word knowledge, reading, and arithmetic concepts?

10. Will there be a significant difference in achievement in word discrimination, word knowledge, reading, and arithmetic concepts between present third grade pupils who were taught by teams during the first and second grades but who were placed in self-contained classrooms in the third grade and present third grade pupils who were taught in self-contained classrooms during all three years?

11. Will there be a significant difference in achievement between third grade boys and girls in word

discrimination, word knowledge, reading, and arithmetic concepts?

IV. STAFF ACTIVITIES

The differentiated team teaching integrated and used the skills of lead teachers, teachers, teacher assistants, and teacher aides. One purpose of the instructional team approach to teaching was to utilize effectively nonprofessional personnel in the classrooms. The amount of individual assistance available to pupils was increased by the teams. By observation and questionnaires the main duties of the teacher assistants were determined to be the following: (1) routine supervision of pupils in the homeroom, on the playground, in the cafeteria, at rest time, and at dismissal time; (2) clerical duties such as keeping daily attendance records, collecting lunch money, and maintaining health records; (3) instruction of pupils such as sharing in cooperative planning of individualized and group instruction, helping to prepare instructional materials, and helping to teach small groups in reading and mathematics; (4) assistance in the evaluation of pupils, sharing in weekly progress reports, discussing behavior problems, grading papers, filling out report cards, and helping to keep parents informed through conferences and written comments.

The duties of the teacher aides were as follows: (1) to relieve the teacher of routine chores such as taking attendance, recording scores, developing illustrative materials, and setting up and operating audiovisual equipment; (2) to perform clerical tasks related to classroom instruction, attendance and achievement, and to collect attendance and lunch reports; (3) to supervise pupils in the halls, in the cafeteria, and on the playground; and (4) to aid the teacher in preparing bulletin board displays, in keeping attendance records, and in correcting objective tests and work sheet papers.

In some respects the duties of the teacher aides and teacher assistants were very similar such as routine and clerical chores. However, since the teacher assistants had

from two to four years college training they were allowed to assist the teachers in the instruction of pupils such as sharing in cooperative planning of individualized and group instruction. They also helped to prepare instructional materials, helped teach small groups in reading and mathematics, assisted in evaluation and progress reports, and held conferences with parents.

V. COST EFFECTIVENESS

Most studies have revealed that team teaching does or should cost more than the self-contained classroom type of organization. In this study a comparison was made of cost effectiveness based on achievement gains between the first grade team and the first grade control group. However, in order to attempt a comparison the following assumptions were made:

1. That achievement gains can be measured in months.

2. That the average time spent by both groups on teaching reading was 30 per cent of the total time and for teaching arithmetic was 20 per cent of the total time.

3. That the results obtained hold true only for the specific groups in this specific study. For example, teachers with different salaries or with more pupils in either group could change the results.

4. That all other expenditures except salaries were the same for the pupils on the team and for the pupils in the self-contained classrooms.

5. That at the beginning of school all pupils were achieving at the first grade level.

The combined salaries for the team members -- composed of one lead teacher, two regular teachers, four teacher assistants, and three teacher aides -- were $51,543. The total salaries for the six teachers in the control group

Individualized instruction from programmed reader.

were $46,530. Dividing the amount of money for salaries by the number of pupils in each group, the per pupil cost for the team was $330 compared to $375 for the control group.

A comparison made of cost effectiveness showed the per pupil cost for one month's gain in reading was $11.00 for the team compared to $12.50 for the control group. The cost for one month's gain in arithmetic was $8.26 for the team and $6.25 for the control group (Tables 1 and 2).

VI. TESTING PROCEDURES AND ANALYSES OF DATA

To determine if there were significant differences in achievement between pupils in the experimental group (team) and control groups (self-contained), the pretest-posttest design was employed. The first grade group, the second grade group (which had been the first grade group in 1967-68), and the third grade group (which had been the first grade group in 1966-67) were given one form of the Metropolitan Achievement Tests in October, which served as the pretest and another form in May, which served as the posttest.

The seventh grade group was given one form of the California Achievement Test, the About Myself Scale (self-concept), and the California Test of Personality in October, 1968, which served as the pretests, and another form of the same tests in May, 1969, which served as the posttests. Control of individual pupil differences was accomplished statistically by analysis of covariance, as appropriate to the data. The covariant for the first grade was the readiness score. For the second, third, and seventh grades the covariants were the achievement scores made in various subject areas on the pretests. The dependent variables were the achievement scores in similar subject areas made on the posttests.

VII. RESULTS

In reporting the results, all means are given as standard scores instead of grade equivalents. Standard

TABLE 1

READING ACHIEVEMENT COST

	Number of Pupils	Reading (Achievement Gain in Months)	Reading Cost (30% of Salaries)		Per Pupil Cost for one month's Gain in Reading
Team	156	9	$15,463.00	$\frac{15,463}{156 \times 9}$ =	$11.00
Control	124	9	$13,959.00	$\frac{13,959}{124 \times 9}$ =	$12.50

TABLE 2

ARITHMETIC ACHIEVEMENT COST

	Number of Pupils	Arithmetic (Achievement Gain in Months)	Arithmetic Cost (20% of Salaries)		Per Pupil Cost for one month's Gain in Arithmetic
Team	156	8	$10,309.00	$\frac{10,309}{156 \times 8}$ =	$ 8.26
Control	124	12	$ 9,306.00	$\frac{9,306}{124 \times 12}$ =	$ 6.25

scores express results in terms of a common scale which is an appreciable advantage for research purposes. In some respects grade equivalents are not entirely satisfactory. Units in the grade equivalent scale are not equal. For example, six months of grade equivalent at one part of the scale may represent quite a different amount of achievement from six months at another part of the scale. Grade equivalents also are necessarily of unequal variability from subject to subject, which may lead to erroneous inferences concerning pupils' strengths and weaknesses. Experience has shown, too, that grade equivalents are subject to certain types of misinterpretation. However, due to the simplicity and easier understanding of grade equivalents they will sometimes be used in this evaluation.

To keep down confusion for the reader, each question stated in the hypothesis will be repeated, the answer will be given, and then references will be made to tables which substantiate the findings.

1. Will there be a significant difference in achievement of first grade pupils in word discrimination, word knowledge, reading, and arithmetic concepts who are taught by instructional teams when compared to first grade pupils taught in regular self-contained classrooms?

   Analyses of the data did not show any significant differences in word discrimination, word knowledge, and reading between the first grade pupils taught by instructional teams and first grade pupils taught in self-contained classrooms (Tables 3 and 4). In word discrimination the mean was 3.03 higher for the teams, which is equivalent to approximately one month greater than the self-contained classrooms in achievement (Table 4). In word knowledge the mean was 4.47 higher or approximately one month higher for the self-contained classrooms than for the teams (Table 4). However, these differences in word discrimination and word knowledge were not statistically significant. In arithmetic concepts there was a significant difference (8.92 higher or approximately 5 months higher) at the .05 level

between the two groups in favor of the self-contained classrooms (Table 4).

2. Will pupils who have had kindergarten experience show greater achievement gains than pupils without kindergarten experience?

   There were no significant differences in any subject area between pupils with kindergarten experience (Table 3 and 4). Surprisingly, the data show that the means for pupils with no kindergarten experience were about the same for word discrimination, 4.95 higher (about one month) in word knowledge, 2.86 higher (one month) in reading, and 7.10 higher (approximately 4 months) in arithmetic concepts than they were for pupils who had attended kindergarten (Table 4). Only 12 per cent of the pupils in the study had not attended public kindergarten but a check on these pupils showed that they had been in private nurseries and day care centers which probably would account for this slight difference in achievement.

3. Will first grade boys show greater achievement gains than first grade girls when taught by instructional teams?

   In all four subject areas girls showed greater achievement gains than boys. In fact, two of these differences were significant at the .01 level. These differences occurred in word discrimination and in word knowledge (Tables 3 and 4).

4. Will seventh grade pupils taught by instructional teams show greater achievement gains in reading vocabulary, reading comprehension, total reading, arithmetic reasoning, arithmetic fundamentals, total arithmetic, mechanics of English, spelling, and total language than seventh grade pupils taught in regular classrooms?

   In reading comprehension there was a significant difference at the .01 level between the two groups

TABLE 3

VARIANCE RATIOS AND ERROR MEAN SQUARES FOR FIRST GRADE POSTTEST ACHIEVEMENT CRITERIA[a]

Source of Variation	df	Word Discrimination	Word Knowledge	Reading	Arithmetic Concepts
Main Effect					
Treatment	1	0.52	1.03	0.00	5.92 *
Sex	1	9.54**	7.89**	1.91	0.13
Kindergarten	1	0.00	1.24	0.48	3.69
Interaction Effect					
Treatment by Sex	1	0.37	0.38	1.96	0.15
Treatment by Kindergarten	1	0.23	1.78	0.24	2.50
Sex by Kindergarten	1	0.80	0.63	0.05	0.62
Pretest	1	123.84**	134.11**	95.66**	122.95**
Error Mean Square	282	64.50	71.41	65.67	49.23

[a] Mean square for each source of variation may be obtained by multiplying the variance ratio (F) by the appropriate error mean square.

*Significant at the .05 level.

**Significant at the .01 level.

TABLE 4

ADJUSTED MEANS FOR FIRST GRADE
ACHIEVEMENT CRITERIA

Source of Variation	Word Discrimination	Word Knowledge	Reading	Arithmetic Concepts
Treatment 1 (team)	48.10	46.14	48.09	45.01
Treatment 2 (classroom)	45.07	50.61	48.26	53.93*
Sex 1 (boys)	44.16	46.06	47.08	49.22
Sex 2 (girls)	49.00**	50.69**	49.27	49.71
Kindergarten	46.60	45.90	46.69	45.92
No Kindergarten	46.57	50.85	49.65	53.02
Total Means (Unadjusted)	46.71	45.99	46.03	46.99

* Significant at the .05 level.

** Significant at the .01 level.

in favor of the control (self-contained classroom) group. This difference of 4.50 between the means indicated approximately 9 months greater achievement in reading comprehension for the pupils in the control group. There were significant differences at the .05 level in arithmetic reasoning, at the .01 level in arithmetic fundamentals, and at the .01 level in total arithmetic -- all in favor of the team. Converted into grade level achievement, this means that the team was approximately 2 months ahead of the control group in arithmetic reasoning, 6 months ahead of the control group in arithmetic fundamentals, and almost 6 months ahead of the control group in total arithmetic. In reading vocabulary and in spelling the differences in means were almost non-existent. In mechanics of English and in total English the differences were non-significant, but the means were slightly higher for the control group (Tables 5 and 6).

5. Will there be a difference in achievement gains between seventh grade boys and girls when taught by instructional teams?

In the seventh grade sex differences tended to play an important role in achievement. In every instance the means were higher for girls then for boys. These differences were statistically significant at the .05 level in arithmetic reasoning and at the .01 level in reading vocabulary, reading comprehension, total reading, mechanics of English, spelling, and total language. In other words, girls achieved significantly higher than boys in seven of nine subject areas or in 78% of the areas measured (Tables 5 and 6).

6. Will there by a significant difference in self-concepts and personal adjustments between seventh grade pupils who are taught by instructional teams and seventh grade pupils taught in self-contained classrooms?

There was a significant difference between the two groups in self-concepts. This difference was significant at the .05 level, and it favored the

Aide using listening station with pupils.

TABLE 5

VARIANCE RATIOS AND ERROR MEAN SQUARES FOR SEVENTH GRADE POSTTEST ACHIEVEMENT CRITERIA[a]

Criterion	Treatment	Sex	Pretest	Error Mean Square
Reading Vocabulary	0.14	18.81**	1.73	108.47
Reading Comprehension	13.25**	17.79**	.90	70.96
Total Reading	2.24	21.63**	1.47	88.15
Arithmetic Reasoning	6.23*	5.36*	7.10**	53.73

Arithmetic Fundamentals	17.18**	0.12	7.32**	49.07
Total Arithmetic	12.87**	0.59	9.16**	49.86
Mechanics of English	2.43	21.73**	9.90**	95.81
Spelling	0.00	18.69**	14.83**	71.52
Total Language	1.91	23.71**	14.11**	90.05

a Mean square for each source of variation may be obtained by multiplying the variance ratio (F) by the appropriate error mean square. The number of degrees of freedom for error mean square was 186.

* Significant at the .05 level.

** Significant at the .01 level.

TABLE 6

ADJUSTED MEANS FOR SEVENTH GRADE
ACHIEVEMENT CRITERIA

Criterion	Treatment 1 (team)	Treatment 2 (classroom)	Sex 1	Sex 2	Total Means (Unadjusted)
Reading Vocabulary	47.10	46.54	43.50	50.14**	46.81
Reading Comprehension	44.90	49.40**	44.54	49.76**	46.81
Total Reading	45.64	47.71	43.47	49.88**	46.49
Arithmetic Reasoning	42.32**	39.64	39.73	42.23*	41.14

Arithmetic Fundamentals	43.17**	38.91	40.86	41.22	41.31
Total Arithmetic	42.36**	38.60	40.06	40.86	40.70
Mechanics of English	42.84	45.08	40.61	47.31**	43.76
Spelling	47.41	47.46	44.74	50.13**	47.39
Total Language	43.61	45.57	41.20	47.88**	44.41

* Significant at the .05 level.

** Significant at the .01 level.

team. There was no significant difference in personal adjustments between the two groups; however, the mean was slightly higher for pupils in the control group (Tables 7 and 8).

7. Will there be a significant difference in self-concepts and personal adjustments between seventh grade boys and seventh grade girls?

   There was a significant difference in self-concepts at the .01 level in favor of girls.

8. Will there be a significant difference in achievement in word discrimination, word knowledge, reading, and arithmetic concepts between present second grade pupils who were taught by teams in the first grade but who were placed in self-contained classrooms in the second grade and present second grade pupils who were taught in self-contained classrooms in both the first and second grades (1968-69 second grade groups)?

   There were no significant differences in achievement in word discrimination, word knowledge, reading, and arithmetic concepts between the 1968-69 second grade groups. Only in reading and in arithmetic concepts were the differences in means high enough to be noticeable. This difference in reading was 1.92 (approximately 2 months), and it favored the pupils who had been taught both years in self-contained classrooms. In arithmetic concepts there was a difference of 1.61 (about $1\frac{1}{2}$ months) in favor of the team (Tables 9 and 10).

9. Will there be a significant difference in achievement between second grade boys and girls in word discrimination, word knowledge, reading, and arithmetic concepts?

   There were significant differences in word discrimination at the .05 level and in both word knowledge and reading at the .01 level -- all of which favored the girls (Tables 9 and 10).

Two teachers instructing large group.

TABLE 7

VARIANCE RATIOS AND ERROR MEAN SQUARES FOR SEVENTH GRADE POSTTEST SELF-CONCEPT AND ADJUSTMENT CRITERIA[a]

Criterion	Treatment	Sex	Pretest	Error Mean Square
Self-Concept	5.67*	7.18**	4.76	152.03
Personal Adjustment	0.84	0.04	0.02	107.14

[a] Mean square for each source of variation may be obtained by multiplying the variance ratio (F) by the appropriate error mean square. The number of degrees of freedom for error mean square was 186.

* Significant at the .05 level.

** Significant at the .01 level.

TABLE 8

ADJUSTED MEANS FOR SELF-CONCEPT AND PERSONAL ADJUSTMENT FOR SEVENTH GRADE

Criterion	Treatment 1 (team)	Treatment 2 (classroom)	Sex 1	Sex 2	Total Means (Unadjusted)
Self-Concept	62.28*	57.97	57.70	62.55**	60.37
Personal Adjustment	72.40	73.80	73.25	72.95	73.01

* Significant at the .05 level.

** Significant at the .01 level.

TABLE 9

VARIANCE RATIOS AND ERROR MEAN SQUARES FOR SECOND GRADE POSTTEST ACHIEVEMENT CRITERIA[a]

Source of Variation	df	Word Discrimination	Word Knowledge	Reading	Arithmetic Concepts
Main Effect					
Treatment	1	0.03	0.20	3.28	0.96
Sex	1	6.55*	8.82**	10.34**	1.74
Kindergarten	1	0.06	0.17	0.23	0.03
Interaction Effect					
Treatment by Sex	1	2.77	0.08	0.47	3.31
Treatment by Kindergarten	1	0.01	0.00	0.52	1.26
Sex by Kindergarten	1	3.47	1.49	2.49	0.14
Pretest	1	402.69**	230.30**	108.11**	173.96**
Error Mean Square	243	39.05	43.83	38.23	81.52

[a]Mean square for each source of variation may be obtained by multiplying the variance ratio (F) by the appropriate error mean square.

*Significant at the .05 level.

**Significant at the .01 level.

TABLE 10

ADJUSTED MEANS FOR SECOND GRADE
ACHIEVEMENT CRITERIA

Source of Variation	Word Discrimination	Word Knowledge	Reading	Arithmetic Concepts
Treatment 1	44.87	41.42	41.70	45.41
Treatment 2	44.69	41.93	43.62	43.80
Sex 1 (boys)	43.40	39.98	40.92	43.58
Sex 2 (girls)	46.15*	43.37**	44.41**	45.63
Kindergarten	44.90	41.90	42.92	44.74
No Kindergarten	44.65	41.45	42.41	44.46
Total Means (Unadjusted)	44.89	41.94	42.94	44.67

* Significant at the .05 level.

** Significant at the .01 level.

10. Will there be a significant difference in achievement in word discrimination, word knowledge, reading, and arithmetic concepts between present third grade pupils who were taught by teams during the first and second grades but who were placed in self-contained classrooms in the third grade and present third grade pupils who were taught in self-contained classrooms during all three years?

    There was a significant difference at the .05 level in arithmetic concepts that favored the third grade group which had been taught all three years in self-contained classrooms. Means were also slightly higher for this group in word knowledge and in reading (Tables 11 and 12).

11. Will there be a significant difference in achievement between third grade boys and girls in word discrimination, word knowledge, reading, and arithmetic concepts?

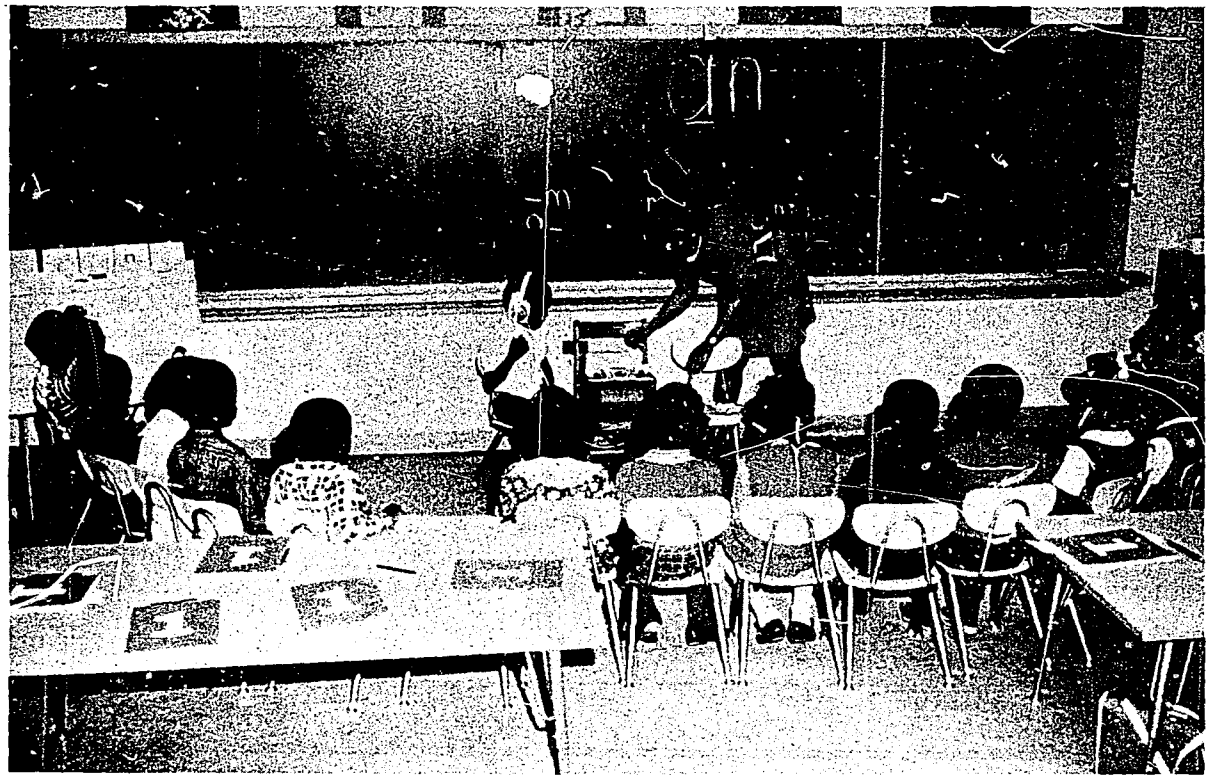
    There were no significant differences in achievement between boys and girls in the third grade (Tables 11 and 12).

VIII. SUMMARY OF RESULTS

A summarization of the findings indicate that:

1. In word discrimination the grade equivalent of the first grade team was approximately one month above the grade equivalent of the self-contained classroom group. This difference was not statistically significant.

2. First grade pupils in the control (self-contained classroom) group scored almost five months higher in arithmetic concepts than the experimental (team) group. This difference was significant at the .05 level.



Programmed reading -- listening and seeing phonics.

TABLE 11

VARIANCE RATIOS AND ERROR MEAN SQUARES FOR THIRD GRADE POSTTEST ACHIEVEMENT CRITERIA[a]

Source of Variation	df	Word Discrimination	Word Knowledge	Reading	Arithmetic Concepts
Main Effect					
Treatment	1	1.02	2.80	2.54	3.53*
Sex	1	1.62	0.06	0.38	1.04
Kindergarten	1	0.18	0.02	0.27	0.00
Interaction Effect					
Treatment by Sex	1	0.00	0.15	1.12	6.11*
Treatment by Kindergarten	1	1.61	0.14	0.55	0.76
Sex by Kindergarten	1	0.98	0.47	0.83	0.16
Pretest	1	245.40**	175.49**	141.62**	183.03**
Error Mean Square	204	35.55	39.29	36.80	38.36

[a]Mean square for each source of variation may be obtained by multiplying the variance ratio (F) by the appropriate error mean square.

*Significant at the .05 level.

**Significant at the .01 level.

TABLE 12

ADJUSTED MEANS FOR THIRD GRADE
ACHIEVEMENT CRITERIA

Source of Variation	Word Discrimination	Word Knowledge	Reading	Arithmetic Concepts
Treatment 1	40.14	39.51	38.82	33.47
Treatment 2	41.07	41.14	40.32	39.15*
Sex 1 (boys)	41.20	40.20	39.28	35.82
Sex 2 (girls)	40.01	40.44	39.87	36.81
Kindergarten	40.41	40.39	39.82	36.32
No Kindergarten	40.80	40.26	39.33	36.31
Total Means (Unadjusted)	40.64	40.42	39.76	35.46

* Significant at the .05 level.

3. Pupils in the first grade who had not attended public kindergarten were about one month higher in word knowledge and reading and were approximately 4 months higher in arithmetic concepts than first grade pupils who had attended public kindergarten. However, these pupils had been in day care centers and private nurseries.

4. First grade girls, regardlesss of classroom organization, scored significantly higher than first grade boys in word discrimination and word knowledge, and they also achieved slightly higher means in reading and in arithmetic concepts.

5. The seventh grade control group scored approximately nine months above the seventh grade team in reading comprehension.

6. The seventh grade team scored 2 months above the control group in arithmetic reasoning, 6 months above the control group in arithmetic fundamentals, and almost 6 months above the control group in total arithmetic.

7. The seventh grade girls, regardless of classroom organization, achieved significantly higher means than the seventh grade boys in 78% of the areas tested.

8. The significant difference in self-concepts favored the seventh grade team.

9. Seventh grade girls, regardless of classroom organization, scored significantly higher on self-concepts than seventh grade boys.

10. There were no significant differences in achievement between the two second grade groups (pupils in last year's first grade team and pupils in last year's first grade control group).

11. Second grade girls, regardless of classroom organization, did significantly better in word discrimination, word knowledge, and reading than did second grade boys.

12. In arithmetic concepts the third grade group, which had been taught all three years in self-contained classrooms, achieved approximately 3 months above the third grade pupils who had been in a team the first two years.

IX. CONCLUSIONS

The general hypothesis of this evaluation proposed that pupils taught by instructional teams would make equally as much or more progress than pupils taught in self-contained classrooms. On the basis of the data assembled in this evaluation, instructional team teaching should be considered to have been, in general, a successful program. The hypothesis must be accepted because the pupils taught by the teams did equally as well in achievement and better in self-concepts than the pupils taught in the self-contained classrooms. In six instances, gains in achievement were statistically significant. Three of these differences were in favor of the teams, while the three other differences were in favor of the control group. However, in the seventh instance, the experimental (team) group was significantly higher in self-concepts than the control (self-contained classroom) group.

The per pupil cost for one month's gain in reading was approximately $1.50 more for the self-contained classroom than for the instructional team. In arithmetic the cost was about $2.00 more for the team than for the self-contained classroom.

X. BRIEF REVIEW OF THE THREE YEAR STUDY

During the first year in every instance in which there was a significant difference in achievement between the experimental (team) group and the control (self-contained classroom) group, the difference was in favor of the control group. It was suggested then that the team teaching approach was a pilot program and that the teachers had no previous experience in instructional team teaching. In addition, at

that time a majority of the instructional team members (10 teachers) had no previous teaching experience either, while the control group only had two teachers without experience. There was also a decided difference in the certification of the two groups in favor of the teachers in the control group. Accordingly, at the end of the first year study, it was stated that the findings of significantly greater achievement in the control group could be due to (1) more experienced teachers in self-contained classrooms, (2) familarity with the organizational plan of the self-contained classrooms, (3) lack of sufficient space for the instructional teams, (4) the newness of the instructional team approach, or (5) a combination of the first four factors.

The second year in the pilot program revealed a decided change. In every instance in which there was a significant difference in achievement between the experimental (team) group and the control (self-contained classroom) group the difference was in favor of the team. The self-contained classroom group still had the more experienced teachers, but the team teachers had become familiar with the organizational plan of the team approach. Furthermore, sufficient space had been provided for the teams, and the newness of the program had time to diminish.

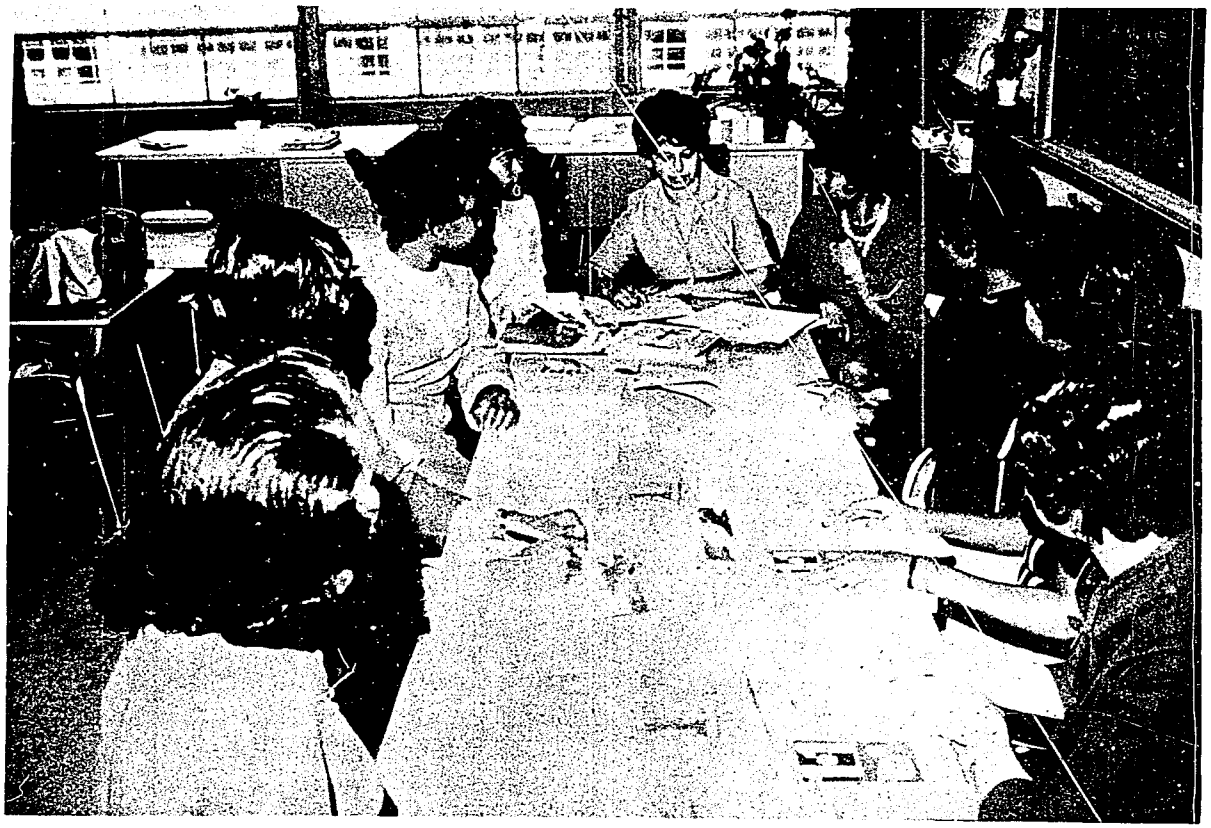
In summary, in the first year study, the control (self-contained classroom) group won the ball game. In the second year study, the game was definitely won by the experimental (team) group. In the third year study, it can neither be said that the experimental group nor the control group won or lost the game. They played equally well in achievement with a 3 to 3 score. However, the experimental group did have a slight edge since the pupils taught by the teams scored significantly higher on self-concepts than the pupils taught in the self-contained classrooms.

TABLE 13

SUMMARY OF RESULTS

Performance Area	Significant Difference	Difference in Favor of: Team	Difference in Favor of: Self-contained Classroom
First Grade			
Word Knowledge	No		
Word Discrimination	No		
Reading	No		
Arithmetic	Yes		X
Second Grade			
Word Knowledge	No		
Word Discrimination	No		
Reading	No		
Arithmetic	No		
Third Grade			
Word Knowledge	No		
Word Discrimination	No		
Reading	No		
Arithmetic	Yes		X
Seventh Grade			
Reading Vocabulary	No		
Reading Comprehension	Yes		X
Total Reading	No		
Arithmetic Reasoning	Yes	X	
Arithmetic Fundamentals	Yes	X	
Total Arithmetic	Yes	X	
Mechanics of English	No		
Spelling	No		
Total Language	No		
Self-Concept	Yes	X	
Personal Adjustment	No		

Total Areas 23
Number of Areas with Significant Differences . . . 7 or 30%
Number in favor of Team . . . . . 4 or 17%
Number in favor of Self-contained Classroom . . . . 3 or 13%



Team planning.