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ABSTRACT

Reading achievement of disadvantaged pupils who were grouped for special instruction under the same teacher in grades 1 and 2 was compared to the reading achievement of disadvantaged pupils who were instructed according to regular classroom procedures in grades 1 and 2. Pupils in the experimental group (55) were matched with pupils in the control group (54) on readiness scores from the Metropolitan Reading Readiness Test, Form A, and on mental ability scores from the Pintner-Cunningham Primary Test, Form A, both administered during the first 2 weeks of school. The Stanford Achievement Test, Primary I, was administered at the end of first grade, and the Stanford Achievement Test, Primary II, Form Y, was given at the end of second grade. There were no significant differences between the control and the experimental groups on the two variables at the beginning of grade 1. Mean achievement test scores for pupils in the experimental group were significantly higher than those for the control group both in grades 1 and 2. A significantly higher percentage of pupils in the experimental group than in the control group were reading in grade level in grades 1 and 2. The findings suggested that grouping disadvantaged pupils for instructional purposes significantly improved their chances for progress in the first two grades. (WB)

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THE EFFECTS OF GROUPING DISADVANTAGED CHILDREN FOR READING INSTRUCTIONS IN GRADE 1

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Newport News Public Schools

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I Purpose

The purpose of this study was to determine if grouping children of disadvantaged background, giving them more individual attention and more repetition in skills and allowing them to progress at their own pace, under the same teacher, through the second grade would help to improve their achievement in first and second-grade skills.

II Procedure

A. Definition of Terms

Experimental Group: Pupils having a disadvantaged background who were grouped for special instruction in Grade 1 and Grade 2.

Control Group: Pupils having a disadvantaged background who were instructed according to regular classroom procedures in Grade 1 and Grade 2.

Significant Difference of Mean Scores: Set at the .05 level.

B. Sampling

This study involved six of the nine sections of first-grade pupils enrolled at Booker T. Washington and Newsome Park Schools during the 1966-1967 school year. Three of the sections (55 pupils) composed the experimental group and three sections (54 pupils) made up the control group. Pupils in both groups were matched on readiness scores and mental ability scores at the beginning of Grade 1. The same pupils made up the experimental group and the control group for the second year (1967-1968) of this study.

C. Collection of Data

The Metropolitan Reading Readiness Test, Form A, and the Pintner-Cunningham Primary Test, Form A, were administered to all first-grade children in the experimental and control groups during the first two weeks of school in the fall of 1966. These same children were tested with the Stanford Achievement Test, Primary I, in May of 1967 (end of first grade) and in May of 1968 (end of second grade) with the Stanford Achievement Test, Primary II, Form Y.

D. Analysis of Data

Test scores for pupils in the experimental group and the control group were compared to show evidence of similarity in school readiness and mental maturity at the beginning of Grade 1. The "t" test was applied to mean achievement scores of pupils in the experimental group and the control group at the end of Grade 1 and again at the end of Grade 2 to determine significant differences in reading achievement for the two groups. The "t" test was applied to mean scores at the end of Grade 1 and Grade 2 for both the experimental group and the control group to show changes in reading achievement during the second year of the study. The per cent of pupils reading at grade level at the end of Grade 1 and Grade 2 for the two groups was also compared to determine significant differences in pupil progress.

III Findings

Table 1

A COMPARISON OF PUPIL READINESS AT THE BEGINNING OF GRADE 1
METROPOLITAN READINESS TESTS, FORM A, RAW SCORES

Group	N	Mean	Median	S.D.	"t"	Mean Difference
Experimental	55	25.54	21.37	18.95	.02	Not significant
Control	54	25.61	22.50	18.75		at .05 level

Table 1 shows that school readiness of pupils in the experimental group and the control group was very similar at the beginning of Grade 1. The findings also show that mean scores on the readiness tests were low in both groups which indicated that these pupils could be expected to encounter difficulties in their school work. The Manual of Directions for the Metropolitan Readiness Tests also states that children having a score below 24 have a high chance of difficulty under ordinary instructional conditions and must have additional readiness work and individualized instruction to insure adequate progress.

Table 2

A COMPARISON OF PUPIL ABILITY AT THE BEGINNING OF GRADE 1
PINTNER-CUNNINGHAM PRIMARY TEST, FORM A

Group	N	Mean	Median	S.D.	"t"	Mean Difference
Experimental	55	89.64	86.58	14.75	1.05	Not significant
Control	54	86.91	85.83	12.45		at .05 level

Table 2 shows that mean academic ability for pupils in both the experimental group and the control group was low average at the beginning of Grade 1. This finding suggested that academic achievement for pupils in both groups would very likely fall below grade level. Statistical computation indicated that the slight difference in mean ability for the two groups produced a "t" of 1.05 which was not significant at the .05 level.

Table 3

A COMPARISON OF PUPIL ACHIEVEMENT AT THE END OF GRADE 1
STANFORD ACHIEVEMENT TESTS, PRIMARY I, FORM X, GRADE LEVEL (1.8)

Test and Group	N	Mean	Median	S.D.	"t"	Mean Difference
WORD READING						
Experimental	55	1.48	1.53	.37	2.33	Significant at
Control	54	1.34	1.33	.22		.05 level
PARAGRAPH MEANING						
Experimental	55	1.64	1.60	.27	2.00	Significant at
Control	54	1.52	1.56	.27		.05 level
SPELLING						
Experimental	55	1.69	1.58	.52	3.72	Significant beyond
Control	54	1.30	1.45	.62		.01 level
WORD STUDY SKILLS						
Experimental	55	1.57	1.44	.41	2.56	Significant at
Control	54	1.39	1.34	.32		.02 level
VOCABULARY						
Experimental	55	1.64	1.57	.33	3.33	Significant beyond
Control	54	1.44	1.42	.23		.01 level
TOTAL READING						
Experimental	55	1.60	1.58	.31	3.33	Significant beyond
Control	54	1.41	1.39	.24		.01 level
ARITHMETIC CONCEPT						
Experimental	55	1.50	1.43	.29	3.27	Significant beyond
Control	54	1.33	1.31	.26		.01 level

Table 3 shows that mean scores for pupils in the experimental group were significantly higher than those for pupils in the control group in each of the seven comparisons after one year of school work; four of the mean differences were significant beyond the .01 level. It is also noted that mean achievement for pupils in both the experimental and control groups was below grade level (1.8) in each

comparison as suggested by Metropolitan Readiness Tests and Pintner-Cunningham Primary Test of ability; however, pupils in the experimental group were not as much as one-half of a grade below grade level in any comparison. Mean scores for pupils in the control group were as much as one-half of a grade below the national norm (1.8) in three of seven comparisons at the end of Grade 1.

Table 4

A COMPARISON OF PUPIL ABILITY AT THE BEGINNING OF GRADE 2
KUHLMANN-ANDERSON TEST B

Group	N	Mean	Median	S.D.	"t"	Mean Difference
Experimental	55	106.55	103.36	14.45	1.88	Not significant
Control	54	101.17	98.25	15.40		at .05 level

Table 4 shows that the mean difference in academic ability of pupils in the experimental group and the control group was not large enough to be significant at the beginning of Grade 2. A comparison of mental ability scores (Tables 1 and 2) shows that the mean gain for the experimental group was slightly larger (16 points) than the mean gain for pupils in the control group (14 points) since the beginning of Grade 1. It is also noted that the mean score for both groups compared favorably with the national norm after one year of schooling. These findings suggest that mean scores on achievement tests at the end of Grade 2 should have been about the same for both groups of pupils.

Table 5

A COMPARISON OF PUPIL ACHIEVEMENT AT THE END OF GRADE 2
STANFORD ACHIEVEMENT TESTS, PRIMARY II, FORM X, GRADE LEVEL (2.7)

Test and Group	N	Mean	Median	S.D.	"t"	Mean Difference
WORD MEANING						
Experimental	55	2.38	2.48	.50	2.07	Significant at
Control	54	2.18	2.04	.51		.05 level
PARAGRAPH MEANING						
Experimental	55	2.36	2.40	.45	4.45	Significant beyond
Control	54	1.98	1.91	.44		.01 level
SPELLING						
Experimental	55	2.60	2.55	.80	3.44	Significant beyond
Control	54	2.13	2.05	.62		.01 level
WORD STUDY SKILLS						
Experimental	55	2.26	2.07	.82	2.00	Significant at
Control	53	1.98	1.91	.64		.05 level

Table 5 (continued)

Test and Group	N	Mean	Median	S.D.	"t"	Mean Difference
ARITHMETIC CONCEPT						
Experimental	55	2.40	2.39	.63	2.43	Significant at
Control	54	1.96	1.71	.70		.02 level
TOTAL READING						
Experimental	55	2.42	2.28	.52	3.88	Significant beyond
Control	54	2.07	2.00	.43		.01 level
SCIENCE-SOCIAL STUDIES						
Experimental	55	2.81	2.61	1.00	2.20	Significant at
Control	54	2.37	2.05	1.08		.05 level
LANGUAGE						
Experimental	55	2.43	2.43	.55	2.93	Significant beyond
Control	54	2.08	2.11	.69		.01 level
ARITHMETIC COMPUTATION						
Experimental	55	2.30	2.20	.65	3.47	Significant beyond
Control	54	1.91	1.87	.48		.01 level

Table 5 shows that mean scores for pupils in the experimental group were significantly higher than mean scores for pupils in the control group at the end of Grade 2 in each comparison. Science-Social Studies was the only test in which grade level was achieved by pupils in either group.

It is also noted that mean scores for pupils in the experimental group were less than one-half of a grade below the national norm in each comparison whereas mean scores for the control group were as much as one-half of a grade below grade level in eight of nine comparisons.

A comparison of achievement for the control group (Tables 3 and 5) shows that 42.85% of the mean scores at the end of grade one and 88.88% of the mean scores at the end of grade two were as much as one-half of a grade below grade level (1.8 and 2.7). A similar comparison shows that none of the mean scores for the experimental group deviated this much from grade level at the end of Grade 1 or Grade 2.

Table 6

DISTRIBUTION OF TOTAL READING SCORES, GRADE 1
STANFORD ACHIEVEMENT TESTS, PRIMARY I, FORM X

Reading Grade Level (1.8)	55 in Experimental Group	54 in Control Group
2.7 - 2.9	1	0
2.4 - 2.6	1	0
2.1 - 2.3	1	1
1.8 - 2.0	13	2
1.5 - 1.7	20	19
1.2 - 1.4	19	26
.9 - 1.1	0	6
Per Cent at Grade Level	29.09	5.55

Table 6 shows the distribution of mean reading scores for pupils in the two groups at the end of Grade 1. It is noted that the two highest reading scores were made by pupils in the experimental group and the six lowest scores were recorded for pupils in the control group. The findings show that 29.09% of the pupils were reading at grade level (1.8) in the experimental group which was more than five times the per cent reading at grade level in the control group (5.55%). A difference of 23.54% reading at grade level for the two groups generated a "t" of 3.24 which was significant beyond the .01 level.

Table 7

DISTRIBUTION OF TOTAL READING SCORES, GRADE 2
STANFORD ACHIEVEMENT TESTS, PRIMARY II, FORM X

Reading Grade Level (2.7)	55 in Experimental Group	54 in Control Group
3.9 - 4.1	1	0
3.6 - 3.8	0	0
3.3 - 3.5	2	2
3.0 - 3.2	4	1
2.7 - 2.9	8	2
2.4 - 2.6	13	5
2.1 - 2.3	14	13
1.8 - 2.0	8	24
1.5 - 1.7	3	5
1.2 - 1.4	2	1
.9 - 1.1	0	1

Table 7 (continued)

Reading Grade Level (2.7)	55 in Experimental Group	54 in Control Group
Number at Grade Level and Above	15	5
Per Cent Reading at Grade Level	27.27	9.26

Table 7 shows that 27.27% of the pupils in the experimental group and 9.26% of those in the control group were reading at grade level or above at the end of grade two. A difference of 18.01% reading at grade level in the two groups produced a "t" of 2.43 which was significant at the .02 level. The findings also show that 23.63% (13 of 55) of the pupils in the experimental group and 59.26% (32 of 54) of the pupils in the control group were as much as six tenths of a grade below grade level by the end of their second year of schooling.

Table 8

MEAN CHANGES IN PUPIL SCORES DURING GRADE 2

Test and Group	N	Mean	Median	S.D.	"t"	Mean Difference
Upper Group:	Pupils at Grade Level - End of Grade 1					
WORD READING						
Experimental	11	.66	.70	.39	5.33	Significant beyond
Control	1	- .10	- .10	.00		.01 level
PARAGRAPH MEANING						
Experimental	10	.57	.55	.47	3.80	Significant beyond
Control	5	.00	.07	.04		.01 level
SPELLING						
Experimental	16	.81	.75	.60	.82	Not significant
Control	10	.67	.65	.24		at .05 level
WORD STUDY						
Experimental	13	.65	.60	.79	4.20	Significant beyond
Control	4	- .40	- .46	.24		.01 level
TOTAL READING						
Experimental	16	.81	.80	.45	3.41	Significant beyond
Control	3	.23	.20	.21		.01 level

Table 8 (continued)

Test and Group	N	Mean	Median	S.D.	"t"	Mean Difference
ARITHMETIC						
Experimental	11	1.05	1.17	.46	.95	Not significant
Control	3	.87	.68	.24	.95	at .05 level
Lower Group: Pupils below Grade Level at End of Grade 1						
WORD READING						
Experimental	44	.94	1.11	.45	.90	Not significant
Control	53	.85	.79	.52		at .05 level
PARAGRAPH MEANING						
Experimental	45	.76	.80	.39	3.13	Significant beyond
Control	49	.51	.38	.45		.01 level
SPELLING						
Experimental	39	.92	1.00	.66	.27	Not significant
Control	44	.88	.82	.65		at .05 level
WORD STUDY						
Experimental	42	.67	.60	.56	.00	Not significant
Control	49	.67	.57	.54		at .05 level
TOTAL READING						
Experimental	39	.81	.93	.38	1.44	Not significant
Control	51	.68	.63	.47		at .05 level
ARITHMETIC						
Experimental	44	.70	.58	.52	1.30	Not significant
Control	51	.57	.59	.43		at .05 level
COMPOSITE CHANGE: All Skills						
Experimental	330	.79	.81	.52	3.17	Significant beyond
Control	323	.66	.62	.54		.01 level

Table 8 shows changes in mean scores for pupils in the experimental group and the control group during the second year of the pilot study. Pupils in both the experimental and control groups were subdivided into an upper and lower group in order to determine which pupils were helped more as a result of grouping and special instructions for a two-year period. The upper group was composed of pupils who were at grade level at the end of grade one and the lower group consisted of pupils who were below the national norm at the end of grade one.

The findings show that mean gains for pupils in the upper experimental group were higher than mean gains for pupils in the upper control group in each test and significantly higher in four of the six comparisons. The experimental group gained more than a year in arithmetic and almost a year in spelling and reading during the second year of the project whereas pupils in the control group showed a drop in word reading and word study.

Pupils in the lower group of the experimental group gained more than pupils in the lower group of the control group in five of six comparisons and significantly more in paragraph meaning. The findings also show that pupils in the lower experimental group gained almost a year in word reading, spelling and total reading during the second year of the study.

Comparisons show that pupils in the lower subgroups gained more in word reading, paragraph meaning, spelling and word study than pupils in the upper subgroups in both experimental and control classes. Arithmetic was the only area in which the upper groups gained more than the lower subgroups during the second year.

Table 8 also shows that the mean composite change for the experimental group was significantly higher than mean gains for pupils in the control group.

IV Conclusions

1. Mean achievement test scores for pupils in the experimental group were significantly higher than mean achievement scores for pupils in the control group both in grade one and in grade two.

2. The per cent of pupils in the experimental group reading at grade level was significantly higher than the per cent reading at grade level in the control group in both grade one and in grade 2.

3. The findings suggested that grouping disadvantaged children for instructional purposes, using supplementary readiness materials and keeping them with the same teacher for two years improved significantly their chances for progress in Grade 1 and Grade 2.

4. The largest individual gains in both the experimental and control groups were made by pupils during the second year of school who scored below grade level on the subtests at the end of Grade 1.

V Recommendations

1. That certain schools group their disadvantaged children for instruction, use supplementary readiness materials and keep the teacher with the same group of children through Grade 2.

2. That a followup study be made of the pupils in the experimental group and the control group at the end of Grade 3 to compare pupil achievement.