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A STUDY OF THE EFFECTS OF AN ELEMENTARY SCHOOL ENRICHMENT PROGRAM ON THE SCHOOL ACHIEVEMENT OF WELFARE RECIPIENT CHILDREN. FINAL REPORT.

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A STUDY WAS DESIGNED TO DETERMINE THE EFFECTS OF AN ENRICHMENT PROGRAM ON THE INTELLIGENCE SCORES, PERSONALITY, AND SCHOLASTIC ACHIEVEMENT SCORES OF ELEMENTARY SCHOOL CHILDREN. THE SUBJECTS CONSISTED OF 574 CHILDREN, 222 OF WHOM ARE WELFARE RECIPIENTS, IN THE FIRST, SECOND, AND THIRD GRADES IN THREE RURAL ARKANSAS SCHOOLS. ONE SCHOOL, THE EXPERIMENTAL SCHOOL, HAD DEVELOPED AN ENRICHMENT PROGRAM OVER A 10-YEAR PERIOD WHICH CONSISTED OF MODEL FACILITIES, MORE EXPERIENCED STAFF, INSERVICE TEACHER TRAINING PROGRAMS, HOME VISITS, AND ORGANIZATIONAL AND CURRICULAR MODIFICATIONS. THE TWO CONTROL SCHOOLS PROVIDED NONE OF THESE SPECIAL SERVICES AND INNOVATIONS. CHILDREN IN ALL THREE SCHOOLS WERE ADMINISTERED THE CALIFORNIA TEST SERIES AT THE BEGINNING AND END OF THE SCHOOL YEAR AND THE RESULTS WERE STATISTICALLY ANALYZED. IT WAS FOUND THAT THE WELFARE RECIPIENT CHILDREN SCORED SIGNIFICANTLY LOWER ON TEST OF MENTAL MATURITY, LANGUAGE READING, AND ARITHMETIC THAN DID THE NONWELFARE CHILDREN, BUT THERE WERE NO SIGNIFICANT DIFFERENCES IN THEIR PERSONALITY TEST PERFORMANCE. THE RESULTS ALSO DID NOT REVEAL ANY PATTERN OF SUPERIORITY IN ANY OF THE THREE SCHOOLS, SUGGESTING THAT THERE IS A NEED TO PRODUCE MORE CREATIVE COMPENSATORY PROGRAMS, WHICH POSSIBLY SHOULD BEGIN AT AN EARLIER AGE LEVEL. ALSO, THE GREATER SUCCESS OF ONE GROUP OF CHILDREN WHO WERE GIVEN SMALL GROUP INSTRUCTION IN THE EXPERIMENTAL SCHOOL INDICATES THAT SUCH INSTRUCTION MAY OFFER MORE PROMISE FOR INCREASED ACHIEVEMENT THAN LARGE GROUP ENRICHED INSTRUCTION. (DK)

Final Report

Project No. 68107 / Contract No. 3–6–068107–0670

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The University of Texas

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INTRODUCTION

During recent years the problem of providing compensatory education for children of the poor has gained increasing attention. Numerous authorities (4, 6, 10, 12, 13, 15) have supported the thesis that the effects of experiential restriction during infancy and early childhood are permanent. Welfare recipient children represent the most impoverished group in our economy. The debilitating effects arising from circumstances peculiar to the poor create a special set of problems for educators and others concerned with the development of children. The welfare child comes to school retarded in ability to profit from school experiences (6, 7, 8, 9) and becomes increasingly retarded through time. To date, no compensatory program at the elementary school level (grades one to six) has erased the effects of severe early deprivation.

This investigation was designed to provide insight into the relative effects of differentiated instructional programs for disadvantaged children in absence of the Hawthorne effect since schools with radically different existing programs have been selected for study. Knowledge of program effectiveness is needed to give guidelines for improvement of instruction in regular and experimental programs now being developed as a result of the Elementary and Secondary Education Act of 1965 and the Economic Opportunity Act of 1964.

Previous studies (5, 6, 7, 8) by the writer have indicated that curricular enrichment can positively affect academic achievement, personality, and intellectual development of welfare children but does not compensate for early environmental restriction. Yet, positive acceleration of the learning curve, however slight, can make the difference between drop-out, delinquency, and mental retardation or a reasonably fruitful life for those that come to school lacking the "headstart" provided by early environmental stimulation.

The need for enriched preschool experience for disadvantaged children has been supported by considerable research, but far too little has been established about the extent of compensation elementary schools may achieve and too few guidelines for program development exist. Consequently careful studies of enrichment techniques appear essential for future direction.

Related Literature

A number of experimental school programs for disadvantaged children at preschool and later school levels have been recently initiated. Preliminary results of many of these programs are encouraging, but much research is needed for gaining insight into the peculiar set of problems encountered by elementary schools in developing compensatory education for disadvantaged children.

Numerous studies support the assumption that school enrichment is essential for learning growth. Debilitating effects of restricting early experience of animals have been clearly demonstrated in various experiments (9, 18). Although we do not deliberately deprive children for purposes of experimentation, ample cases have been provided by poverty, war, and parental neglect. Skeels (17) has demonstrated the effects of differential stimulation and given support to Hunt's (15) extensively documented thesis that the concept of fixed intelligence is untenable. Hunt envisions brain functioning analogous to the programming of an electronic computer with active processes occurring between stimuli and response, and regards experience as programming the intrinsic portions of the cerebrum. Thus, intellectual capacity at any given time may be conceived as a function of the nature and quality of this programming.

Goldfarb's (10) study indicates that institutional rearing (relatively restricted environment) results in lower intelligence, less ability to sustain a task, and more problems in interpersonal relations than foster homes rearing (where environment provided more varied experiences and responsiveness).

In a Teheran orphanage, where changes in on-going stimulations were minimal, 60% of the two-year-olds could not sit alone and 85% of the four-year-olds could not walk alone (2, 3). This dramatizes the great effect preverbal experience can have on rate of locomotor development and supports the view that facets of growth are interrelated. Thus, the adverse and enduring effects of sensory deprivation in infancy and early childhood are demonstrated in studies of both animals and humans. Programs of compensation have yielded tentative supportive research.

Studies by the writer (5, 6, 7, 8) reveal: (a) the disadvantaged (welfare recipient) child enters the elementary school retarded in ability to profit from common school

experiences; (b) in the traditional school he becomes increasingly retarded through time with cumulative deficit in academic achievement, personality development, and mental maturity; and (c) enrichment in the elementary school significantly affects academic achievement, personality, and mental maturity but fails to compensate for early experiential restriction. This continuing investigation will isolate promising curricular practices for subsequent evaluation and integration.

Objectives

The major objectives of this study are:

1. to determine the effects of an elementary school enrichment program on intelligence, personality, and academic achievement of welfare recipient children.

2. to compare the intelligence, personality, and academic achievement gains of welfare recipient children to non-welfare recipient children.

3. to compare the intelligence, personality, and academic achievement gains of children enrolled in an enriched program with children enrolled in regular programs.

METHOD

This study represents a portion of continuing investigation begun in 1963 by the writer, indicated in the review of literature. First, second, and third grade children enrolled in north central Arkansas were selected in September, 1966. A total of 574 children were subjects for this study. Approximately 39 percent were welfare recipients (determined by school principals from existing records and knowledge of families). Judgment of principals was used to "assign" welfare recipient status to a small number of families who qualified but were "too proud to ask for it."

TABLE I

	Welfare Recipient	Non-welfare Recipient	Total
School X	69	160	229
School A	94	142	236
School B	59	50	109
Total	222	352	574

School X developed an enriched program of instruction over a ten-year period. The model facilities include central library, shower, health and food facilities, outside entry to each classroom, auditorium and cafeteria, health nurse, part-time psychologist, full-time principal, dental provisions, arts and crafts room, and ample play areas. Over half the staff members had earned the Master's degree; consultants, in-service programs, and child study activities were conducted. Regularly scheduled home visitations and parent-teacher conferences were held. Numerous organizational and curricula modifications were evident in individual classrooms--e.g., individualized reading, flexible grouping, multi-level classes, small and large group projects, flexible use of instructional supplies, and pupil-teacher planning. These modifications were stimulated by a large grant from a local resident which provided total payment for the physical plant plus funds for supplementary services. This school (designated School X) represents the experimental or enriched school. No curricula modifications were made for purposes of this study.

The control schools (designated School A and School B) draw from the same geographical area. This area is in one of the severely impoverished rural counties located in the foothills of the Ozark mountains. Schools A and B represent the typical school in this area. Central libraries and many other appropriate instructional supplies were absent. None of the teachers involved in the study from these two schools had earned advanced degrees; two were not fully certified. Basal materials were the primary sources of instruction. Health and other special services facilities were not available. The principal contact with parents was through report cards. During the progress of this study, federal funds were beginning to stimulate change through the provision of funds from the

Elementary and Secondary Education Act of 1965. One Title I instructional project (School A) is assessed in this report. Children involved in School A's special program were taken from the regular classroom daily for small group, intensive instruction in reading and arithmetic.

Procedures

The California Test of Personality, the California Short Form Mental Maturity Test, and the California Achievement Test (complete battery) were administered to all subjects during September, 1966 (achievement tests were not administered to first grade children). A different form of the same series was administered to subjects during May, 1967 (with exceptions noted in analysis section). All instruments were administered by the regular classroom teachers under the direction of counselors. A move from Iowa State University to The University of Texas by the investigator during the initial phase of this project resulted in a four months delay in the transfer of funds. Consequently, plans for collecting sociometric, observation, and interview information could not materialize.

RESULTS AND DISCUSSION

The data in this study were analyzed by means of analysis of variance routines prepared in the College of Education, The University of Texas, for the CDC 6600 computer. The procedures employed in the routines were based on between groups analysis of variance formulae presented in B. J. Winer (1962): Statistical Principles in Experimental Design, New York: McGraw-Hill.

The names of the variables are given in Table II. Appendix I describes the analyses.

TABLE II

Var. 1 - 6:	Pre-Test Scores
Var. 7 - 12:	Post-Test Score
Var. 13 - 18:	Gain Score (Post--Pre)
Var. 1 - 7 - 13:	Personality Test Score
Var. 2 - 8 - 14:	Mental Maturity Score
Var. 3 - 9 - 15:	Reading Score
Var. 4 - 10 - 16:	Arithmetic Score
Var. 5 - 11 - 17:	Language Score
Var. 6 - 12 - 18:	Total Achievement Score

The analyses tested for differences between groups defined by school attended and either sex, welfare status of family, and special or regular program, for grades 1, 2, and 3. Analyses 1, 2, and 3 are one way for differences between means for each school for grades 1, 2, and 3.

Looking at variables 1 through 6, we see that in many cases significant differences were obtained between the means for the pre-test, thus necessitating the use of the "gain" score. This score is defined by subtracting the pre-test score from the post-test score for each subject on each variable. This procedure was performed by the program, and subjects missing pre- or post-test scores, or both, were eliminated from the analysis. The analysis of the gain scores are those of variables 13 - 18, as reported in Table II. The analyses of gain scores are contaminated by the fact that the groups were drawn from populations with different means, as indicated by the pre-test analyses. We might expect the group with the higher pre-test mean to exhibit greater gains, due to their superior ability or adjustment.

Grade 1 presents a special problem since there are no pre-test scores for Reading, Arithmetic, Language, or Total scores for Personality and Mental Maturity. Since significant differences between groups are noted in most analyses of variables 1 and 2, the gain scores will be used to test differences between the group means for Personality and Mental Maturity (variables 13 and 14), while post-test scores will be employed to test differences between groups for Reading, Arithmetic, Language, and Total Achievement (variables 9, 10, 11, and 12). Hence we must make the assumption that the first grade groups were equivalent at the time of the pre-test. It should be noted that only significant differences are reported in most of the following analyses. Raw scores

were converted to stanines (a form of standard score with a mean of five and range of one to nine) before computer analysis.

Hypotheses

1. The mean gain scores (grades 2 and 3) of the students in the three schools are computed from samples drawn from populations having the same mean.

2. The mean gain scores of the main effect groups (defined by sex and school) for each variable are computed from samples drawn from populations having the same mean.

3. There is no significant interaction between the effects of sex and school.

4. No differences between the grade-level groups are attributable to welfare status of family, or to the interaction of welfare status and school attended.

5. There are no significant differences due to the type of program (special or regular, School A) main effect.

6. There are no significant differences due to the interaction of the program and grade effects.

7. No significant difference exists between the number of siblings for welfare recipient and non-welfare recipient children.

ONE WAY ANALYSES FOR DIFFERENCES BETWEEN SCHOOLS

The null hypothesis tested (alpha $< .05$) for each variable was: The mean gain scores (except for Grade 1) of the students in the three schools are computed from samples drawn from populations having the same mean.

Grade One - Significant Differences

No Personality scores for School X students on post-test.

Reading. Reject H_0, P = .0238, School B students obtained highest mean, School A next highest, and School X lowest.

Language. Reject H_0, P = .0017, School B highest, School X next, School A lowest.

Total Achievement. Reject H_0, P = .0015, same order as above.

In general, School B students exhibited higher post-test scores, followed by School X, then School A.

Grade Two - Significant Differences

Reading. Reject H_0, P = .0001, School A students had highest mean gain score, School X next, and School B had lowest mean gain.

Arithmetic. Reject H_0, $P < .00005$, same order as above.

Language. Reject H_0, $P < .00005$, same order as above.

Total Achievement. Reject H_0, $P < .00005$, same order as above.

Generally, students in School A made greatest gains from pre- to post-test, followed by those in School X, then those in School B.

Grade Three - Significant Differences

Mental Maturity. Reject H_0, P = .0254, students in School B made greatest gains, followed by students in School A, then School X.

Language Score. Reject H_0, P = .0155, students in School B made greatest gains, followed by School X, then School A.

Summary

Results indicate that quite probably some influences other than those considered in the design (influence of schools' program and grade level) were operating. The results are not consistent for schools. School B students appear to be superior in the first grade, followed by School X, then School A. School A students consistently made greatest gains in the second grade followed by School X, then School B. School B students appeared to make highest gains in third grade. The enriched program in effect in School X did not lead to superior gain or post-test scores when compared to scores of students in School A and School B. (See Appendix II for additional analysis.)

TWO WAY ANALYSIS - SEX BY SCHOOL

The null hypotheses tested here are:

1. The mean gain scores of the main effect groups (defined by sex and school) for each variable are computed from samples drawn from populations having the same mean.

2. There is no interaction between the effects of sex and school.

Grade One - Significant Differences

The school main effect significant differences are as reported in the previous analyses. No significant interactions were observed.

Language. Reject H_0, P = .0281, females had a higher post-test mean than did the males.

Grade Two - Significant Differences

The school main effect significant differences were as reported in previous analyses. No significant sex main effects or interactions were observed.

Grade Three - Significant Differences

No sex differences were found; the school differences were as in the previous analyses. The following interactions were significant:

Mental Maturity. Reject H_0, P = .0232, a significant interaction between sex and school was observed. This was due to the difference between the School B males and females, the females mean being higher than the males, which is not the case for the other two schools. This indicates that sex or school attended alone are not sufficient to predict gain scores for these samples.

Reading. Reject H_0, P = .0521, a significant interaction between sex and school was observed. This was due again to the School B students. The mean gain for the males was quite a bit lower than for the females, reversing the trend in the other two schools.

Summary

No startling differences between males and females were noted. The two significant interactions indicate that the differences between the males and females in School B were in opposite directions to the differences in School A and School X. No superiority in gains was noted for the School X students.

TWO WAY ANALYSIS - WELFARE STATUS BY SCHOOL

The null hypotheses tested were that no differences between the groups were attributable to welfare status of family, or to the interaction of welfare status and school attended.

Grade One - Significant Differences

School differences were as obtained previously. Significant differences due to welfare status main effect were:

Mental Maturity. Reject H_0, P = .0001, children of families not on welfare made a significantly higher mean post-test score.

Reading. Reject H_0, $P < .00005$, children of families not on welfare made a significantly higher mean post-test score.

Arithmetic. Reject H_0, $P = .0001$, children of families not on welfare made a significantly higher mean post-test score.

Language. Reject H_0, $P = .0003$, children of families not on welfare made a significantly higher mean post-test score.

Total Achievement. Reject H_0, $P < .00005$, children of families not on welfare made a significantly higher mean post-test score.

The following significant interactions were obtained:

Mental Maturity. Reject H_0, $P = .0001$, this interaction was due to the fact that the students from families on welfare at School X did much poorer than those in School A and School B.

Reading. Reject H_0, $P = .0049$, again the School X students from families on welfare did much poorer than those from School A and School B.

Arithmetic. Reject H_0, $P = .0165$, for the same reason as above.

Language. Reject H_0, $P = .0001$, School X students from families on welfare again did much worse than those from School A and School B.

Total Achievement. Reject H_0, $P = .0005$, for the same reason as above.

Grade Two - Significant Differences

The welfare status main effect and the interaction effect produced no significant differences between the groups. The differences due to the school main effect were as expected from the first set of analyses.

Grade Three - Significant Differences

No significant differences were obtained.

Significant pre-test differences between students whose parents are and are not on welfare are as follows:

Welfare students were significantly lower than non-welfare on the following variables of the pre-test:

Grade 1

Personality. P = .0003

Mental Maturity. P .00005

Grade 2

Mental Maturity. P .00005

Reading. P = .0002

Arithmetic. P = .0053

Language. P = .0015

Total Achievement. P = .0004

Grade 3

Mental Maturity. P = .0001

Reading. P .00005

Arithmetic. P = .0038

Language. P .00005

Total Achievement. P = .0001

Summary

School X children exhibited deficient post-test performance, but these differences disappeared in grades two and three. Non-welfare children demonstrate significantly higher achievement in academic areas--mental maturity and total achievement, with the greatest deficiencies for welfare children in reading and language. Lesser differences are noted between welfare and non-welfare children in arithmetic. (See Appendix III for additional analysis.)

TWO WAY ANALYSIS - GRADE BY PROGRAM FOR SCHOOL A ELEMENTARY SCHOOL GRADES TWO AND THREE

The null hypotheses tested were:

1. There are no significant differences due to the type of program (special or regular) main effect.

2. There are no significant differences due to the interaction of the program and grade effects.

Significant Differences

Differences due to program type main effect:

Reading. Reject H_0, $P < .00005$, children not in special program made a significantly lower, in fact negative gain when compared to the students in the special program.

Arithmetic. Reject H_0, $P < .0005$, same direction as Reading.

Language. Reject H_0, $P < .00005$, children in special program made superior gains when compared to children not in special program.

Total Achievement. Reject H_0, $P < .00005$, same as above.

Differences due to grade main effect:

Reading. Reject H_0, $P = .0002$, third graders made superior gains when compared to second graders.

Total Achievement. Reject H_0, $P = .0015$, third graders made superior gains in total achievement when compared to second graders.

Differences due to interaction of type of program and grade:

Reading. Reject H_0, $P = .0301$, difference due to third grade, special program making very superior gains.

Summary

Children enrolled in School A Special Program made significantly higher gains than children not in the Special Program. Third graders made greater gains than second graders. Third grade children in Special Program made very superior gains. (See Appendix IV for further analysis.)

TWO WAY ANALYSIS - WELFARE STATUS BY NUMBER OF SIBLINGS FOR TOTAL SAMPLE

The hypothesis tested was:

No significant difference exists between the number of siblings for welfare recipient and non-welfare recipient children.

TABLE III

N Siblings	Welfare Frequency	Non-Welfare Frequency
0	7	16
1	21	95
2	34	108
3	47	60
4	32	33
5	22	11
6	16	4
7	19	1
8	9	3
9	2	0
10	1	0
11	2	0
12	2	0
$\bar{X}$	3.94	2.21

Reject null hypothesis. Difference significant, $P < .01$.

Summary

Rounding to the nearest whole number and assuming two parents living at home, including respondent, the average size welfare recipient family was seven. The average size non-welfare recipient family was five.

CONCLUSIONS AND IMPLICATIONS

1. There was no pattern of superiority for either of the three schools. The enriched program at School X appears to be no better nor worse than the programs at School A and School B as measured by the variables employed in this analysis. This suggests that compensatory programs based upon common assumptions have little positive effect on disadvantaged (welfare recipient) children and that experimental programming efforts become oriented toward truly creative approaches. A second alternative, supported by considerable evidence, is that compensation attempts must begin before the child enters the elementary school. A combination of the two alternatives appears to be our primary hope in the education of the disadvantaged child.

2. Welfare recipient children have larger families than non-welfare families (seven and five, respectively). They perform at a significantly lower level than non-welfare recipients on academic tests (mental maturity, reading, language, and arithmetic). The differences are greatest in reading and language. Personality development (California Test of Personality) for rural welfare recipient children does not correspond with the low level of academic achievement. Significant differences between welfare and non-welfare children were noted only on the pretest of grade one. This indicates that the operational programs studied are enjoying success in promoting personality development. Examination of school, home, and community factors promoting or detracting from personality development in rural vs. urban environments appears to be relevant in this context. The trends toward academic deficiency for welfare recipient children suggests that such status contains inherent variables for promoting school failure. The welfare condition should be examined for educational implications. This study, for example, suggests that rural welfare recipient

children are not currently personality misfits because of their status but may eventually become so in the larger world because of their sustained academic failure. It should also be noted that some families who qualified for welfare aid (food or money) were "too proud to ask for it." In the words of one mother of seven children, "I'd rather do without than beg."

3. No startling differences in achievement for males and females were noted. The two significant interactions indicate that the differences between the males and females in School B were in opposite directions to the differences in School A and School X.

4. Children enrolled in School A Special Program (grades two and three) made significantly higher gains than children not in the Special Program. Third grade children made very superior gains. This conclusion implies that concentrated, small group instruction is superior to large group "enriched instruction" or "regular instruction" for promoting academic achievement. The children enrolled for special instruction in the Title I program of School A made greater gains than any other group evaluated in this study. The significant stanine gain in total achievement for children in the School A Special Program was 3.42 compared to 0.54 for children in the School A regular program. Sixty percent of the Special Program enrollees were welfare recipient. The comparatively smaller N for this group implies a guarded conclusion with a recommendation for further comprehensive analysis of similar programs.

SUMMARY

This study was primarily designed to determine the effects of an elementary school enrichment program on intelligence, personality, and achievement in language, reading, and arithmetic. The subjects were 574 first, second, and third grade children (222 welfare recipient) in three north central Arkansas schools. The experimental school (X) developed an "enriched" program of instruction over a ten-year period. The control schools (A and B) provided "typical" instruction. The California Test Series was administered for each academic area in question during September, 1966, and May, 1967.

The results revealed no pattern of superiority for either of the three schools, implying two alternatives: (1) Schools should produce creative compensatory programs based upon unique sets of assumptions, and/or (2) they should begin earlier. Welfare recipient children come from larger families than non-welfare children (seven to five, respectively). They performed significantly lower on tests of mental maturity, language, reading, and arithmetic with greatest differences in language and reading. Personality test performance was not significantly different. No pattern of achievement differences between sexes was revealed. Children enrolled in a special, small group, intensive instructional program of reading and arithmetic in School A made gains superior to any other group studied. Comparison of this finding to results of large group enrichment suggests that small group intensive instruction is superior to large group "enrichment" or "regular programs" for compensatory programming.

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APPENDIX I

Types and Descriptions of Analyses

I. One Way Analyses for Differences Between Schools for Grades 1, 2, and 3

School 1 =

School 2 =

School 3 =

Cells:

		COLUMN		
		1	2	3
ROW	I	School A	School X	School B

II. Two Way Analysis, Sex by School for Grades 1, 2, and 3

A_1 = Male

A_2 = Female

B_1 = School A

B_2 = School X

B_3 = School B

Cells:

ROWS	COLUMNS 1	2	3
1	Male School A	Male School X	Male School B
2	Female School A	Female School X	Female School B

III. Two Way Analysis, Welfare Status by School for Grades 1, 2, and 3

A_1 = Children of families on welfare

A_2 = Children of families not on welfare

B_1 = School A

B_2 = School X

B_3 = School B

Cells:

ROWS	COLUMNS 1	2	3
1	Welfare School A	Welfare School X	Welfare School B
2	Not welfare School A	Not welfare School X	Not welfare School B

IV. Two Way Analysis, Grade by Special or Regular Program for School 1 (School A), Grades 2 and 3

A_1 = Children in Special Program B_1 = Grade 2

A_2 = Children not in Special Program B_2 = Grade 3

Cells:

ROWS	COLUMNS 1	COLUMNS 2
1	Special Program Grade 2	Special Program Grade 3
2	Regular Program Grade 2	Regular Program Grade 3

APPENDIX II

Ns and Means for each Variable for the Grades in each School

		N			M			
Schools:		X	A	B	X	A	B	
TOTAL ACHIEVEMENT								
Grade 1	Pre	--	--	--	--	--	--	
	Post	41	49	40	4.07	4.67	5.93	*
	Change	--	--	--	--	--	--	
Grade 2	Pre	73	58	32	3.00	3.40	3.22	
	Post	27	58	29	6.85	6.36	4.45	*
	Change	27	53	29	2.93	2.91	1.14	*
Grade 3	Pre	75	85	34	5.59	5.39	4.91	
	Post	70	45	32	6.14	6.04	5.81	
	Change	68	45	32	0.57	0.69	0.91	
READING								
Grade 1	Pre	--	--	--	--	--	--	
	Post	49	41	40	4.33	3.51	5.00	*
	Change	--	--	--	--	--	--	
Grade 2	Pre	58	73	32	3.00	2.63	2.59	
	Post	58	27	29	6.03	6.52	4.10	*
	Change	53	27	29	3.00	4.00	1.48	*
Grade 3	Pre	75	85	34	5.55	5.42	4.82	
	Post	70	45	32	5.53	5.36	5.03	
	Change	68	45	32	0.00	0.07	0.22	
LANGUAGE								
Grade 1	Pre	--	--	--	--	--	--	
	Post	49	41	40	5.55	4.44	6.38	*
	Gain	--	--	--	--	--	--	
Grade 2	Pre	58	73	32	3.14	2.84	3.69	
	Post	58	27	29	6.79	7.22	4.69	*
	Gain	53	27	29	3.62	4.26	0.90	*
Grade 3	Pre	75	85	34	5.81	5.34	5.03	
	Post	70	45	32	6.17	5.60	6.09	
	Gain	68	45	32	0.22	0.40	1.03	*

*Significant difference, $P < .05$, --:Insufficient data.

		N			M			
Schools:		X	A	B	X	A	B	
ARITHMETIC								
Grade 1	Pre	--	--	--	--	--	--	
	Post	49	41	40	4.45	4.51	6.65	*
	Gain	--	--	--	--	--	--	
Grade 2	Pre	58	73	32	4.02	3.59	3.91	
	Post	58	27	29	6.34	6.78	4.55	*
	Gain	53	27	29	2.15	2.15	0.66	*
Grade 3	Pre	75	85	34	5.56	5.47	4.85	
	Post	70	45	32	6.16	6.29	6.00	
	Gain	68	45	32	0.60	0.71	1.13	
MENTAL MATURITY								
Grade 1	Pre	82	77	41	4.15	3.47	5.24	*
	Post	23	40	40	4.96	4.45	5.85	*
	Gain	23	40	40	0.70	0.55	0.65	
Grade 2	Pre	62	72	29	4.76	4.42	4.24	
	Post	28	59	27	5.32	5.41	4.89	
	Gain	28	59	25	0.39	0.86	0.96	
Grade 3	Pre	77	82	32	5.16	4.88	4.88	
	Post	47	27	32	5.62	5.78	5.91	
	Gain	46	26	30	0.50	0.69	0.72	*
PERSONALITY								
Grade 1	Pre	84	77	42	4.45	3.38	4.50	*
	Post	--	--	--	--	--	--	
	Gain	--	--	--	--	--	--	
Grade 2	Pre	57	72	33	3.51	4.25	4.27	*
	Post	52	60	28	3.62	4.92	4.43	*
	Gain	47	60	28	0.15	0.60	0.21	
Grade 3	Pre	74	82	34	4.42	4.89	4.82	
	Post	67	29	31	4.80	5.10	5.00	
	Gain	66	28	31	0.50	0.61	0.16	

*Significant difference, $P < .05$, --:Insufficient data.

APPENDIX III

Means (Stanines) for Main Effects and Interaction and Ns for Interaction for Welfare vs. Non-welfare by Schools for Grades

VARIABLE: Total Achievement GRADE: 1

A MAIN.	Welfare	Nonwelfare
Pre:	--	--
Post:	3.67	5.58 *
Gain:	--	--

B MAIN.	School X	School A	School B
Pre:	--	--	--
Post:	3.91	4.06	5.93 *
Gain:	--	--	--

A by B	PRE: MEANS			PRE: Ns		
School:	X	A	B	X	A	B
Welf.	--	--	--	--	--	--
Nonwelf.	--	--	--	--	--	--

	POST: MEANS			POST: Ns		
School:	X	A	B	X	A	B
Welf.	1.93	3.88	5.20	15	17	20
Nonwelf.	5.88	4.21	6.65 *	34	24	20

	GAINS: MEANS			GAIN: Ns		
School:	X	A	B	X	A	B
Welf.	--	--	--	--	--	--
Nonwelf.	--	--	--	--	--	--

*: Significant difference, $P < .05$.
--: Insufficient data for analysis.

VARIABLE: Reading GRADE: 1

A MAIN.	Welfare	Nonwelfare
Pre:	--	--
Post:	2.93	5.10 *
Gain:	--	--

B MAIN.	School X	School A	School B
Pre:	--	--	--
Post:	3.58	3.46	5.00 *
Gain:	--	--	--

A by B.

PRE: MEANS

School	X	A	B
Welf.	--	--	--
Nonwelf.	--	--	--

PRE: Ns

	X	A	B
	--	--	--
	--	--	--

POST: MEANS

School	X	A	B
Welf.	1.67	3.18	3.95
Nonwelf.	5.50	3.75	6.05 *

POST: Nx

	X	A	B
	15	17	20
	34	24	20

GAIN: MEANS

School:	X	A	B
Welf.	--	--	--
Nonwelf.	--	--	--

GAIN: Ns

	X	A	B
	--	--	--
	--	--	--

*: Significant difference, $P < .05$.
--: Insufficient data for analysis.

VARIABLE: Language GRADE: 1

A MAIN.

	Welfare	Nonwelfare
Pre:	--	--
Post:	4.43	6.04 *
Gain:	--	--

B. MAIN.

	School X	School A	School B
Pre:	--	--	--
Post:	4.75	4.49	6.48 *
Gain:	--	--	--

A by B.

PRE:MEANS

School:	X	A	B
Welf.	--	--	--
Nonwelf.	--	--	--

PRE: Ns

	X	A	B
	--	--	--
	--	--	--

POST: MEANS

School:	X	A	B
Welf.	2.67	4.76	5.85
Nonwelf.	6.32	4.21	7.10 *

POST: Ns

	X	A	B
	15	17	20
	34	24	20

GAIN: MEANS

School:	X	A	B
Welf.	--	--	--
Nonwelf.	--	--	--

GAIN: Ns

	X	A	B
	--	--	--
	--	--	--

*: Significant difference, $P < .05$.
--: Insufficient data for analysis.

VARIABLE: Arithmetic GRADE: 1

A MAIN.	Welfare	Nonwelfare
Pre:	--	--
Post:	4.20	5.78 *
Gain:	--	--

B MAIN.	School X	School A	School B
Pre:	--	--	--
Post:	4.46	3.86	6.65 *
Gain:	--	--	--

A by B.

PRE: MEANS

School:	X	A	B
Welf.	--	--	--
Nonwelf.	--	--	--

PRE: Ns

School:	X	A	B
Welf.	--	--	--
Nonwelf.	--	--	--

POST: MEANS

School:	X	A	B
Welf.	2.33	4.18	6.10
Nonwelf.	5.38	4.75	7.20 *

POST: Ns

School:	X	A	B
Welf.	15	17	20
Nonwelf.	34	24	20

GAIN: MEANS

School:	X	A	B
Welf.	--	--	--
Nonwelf.	--	--	--

GAIN: Ns

School:	X	A	B
Welf.	--	--	--
Nonwelf.	--	--	--

*: Significant difference, $P < .05$.
--: Insufficient data for analysis.

VARIABLE: Mental Maturity GRADE: 1

A MAIN.	Welfare	Nonwelfare
Pre:	3.34	4.93 *
Post:	4.09	5.72 *
Gain:	0.82	0.52

B MAIN.	School X	School A	School B
Pre:	3.74	3.44	5.23 *
Post:	4.38	4.48	5.85
Gain:	0.77	0.58	0.65

A by B.

PRE: MEANS

School:	X	A	B
Welf.	2.34	3.22	4.45
Nonwelf.	5.13	3.67	6.00

PRE: Ns

School:	X	A	B
Welf.	29	36	20
Nonwelf.	53	42	21

POST: MEANS

School:	X	A	B
Welf.	2.50	4.63	5.15
Nonwelf.	6.27	4.33	6.55

POST: Ns

School:	X	A	B
Welf.	8	16	20
Nonwelf.	15	24	20

GAIN: MEANS

School:	X	A	B
Welf.	1.00	0.75	0.70
Nonwelf.	0.53	0.42	0.60

GAIN: Ns

School:	X	A	B
Welf.	8	16	20
Nonwelf.	15	24	20

*: Significant difference, $P < .05$.
--: Insufficient data for analysis.

VARIABLE: Personality GRADE: 1

A MAIN.	Welfare	Nonwelfare
Pre:	3.54	4.53 *
Post:	--	--
Gain:	--	--

B MAIN.	School X	School A	School B
Pre:	4.27	3.34	4.48 *
Post:	--	--	--
Gain:	--	--	--

A by B

PRE: MEANS

School:	X	A	B
Welf.	3.63	2.97	4.00
Nonwelf.	4.91	3.71	4.95

PRE: Ns

School:	X	A	B
Welf.	30	36	20
Nonwelf.	54	42	22

POST: MEANS

School:	X	A	B
Welf.	--	--	--
Nonwelf.	--	--	--

POST: Ns

School:	X	A	B
Welf.	--	--	--
Nonwelf.	--	--	--

GAIN: MEANS

School:	X	A	B
Welf.	--	--	--
Nonwelf.	--	--	--

GAIN: Ns

School:	X	A	B
Welf.	--	--	--
Nonwelf.	--	--	--

*: Significant difference, $P < .05$.
--: Insufficient data for analysis.

VARIABLE: Total Achievement GRADE: 2

A MAIN.	Welfare	Nonwelfare
Pre:	2.55	3.80 *
Post:	5.32	6.65 *
Gain:	2.66	2.78

B MAIN.	School X	School A	School B
Pre:	2.96	3.09	3.48
Post:	6.12	6.88	4.96 *
Gain:	2.96	3.94	1.25 *

A by B.

PRE: MEANS				PRE: Ns		
School:	X	A	B	X	A	B
Welf.	2.50	2.70	2.45	14	33	20
Nonwelf.	3.68	3.23	4.50	44	40	12

POST: MEANS				POST: Ns		
School:	X	A	B	X	A	B
Welf.	5.64	7.00	3.32	14	11	19
Nonwelf.	6.60	6.75	6.60 *	44	16	10

GAIN: MEANS				GAIN: Ns		
School:	X	A	B	X	A	B
Welf.	3.08	4.00	0.89	13	11	19
Nonwelf.	2.85	3.88	1.60	16	10	10

*: Significant difference, $P < .05$.
--: Insufficient data for analysis.

VARIABLE: Reading GRADE: 2

A MAIN.	Welfare	Nonwelfare
Pre:	1.97	3.43 *
Post:	4.85	6.47 *
Gain:	2.87	2.96

B MAIN.	School X	School A	School B
Pre:	2.66	3.59	2.86
Post:	5.83	6.48	4.67 *
Gain:	3.13	4.00	1.61 *

A by B.

PRE: MEANS

School:	X	A	B
Welf.	2.00	2.12	1.80
Nonwelf.	3.32	3.05	3.92

PRE: Ns

	X	A	B
	14	33	20
	44	40	12

POST: MEANS

School:	X	A	B
Welf.	5.43	6.27	2.84
Nonwelf.	6.23	6.69	6.50 *

POST: Ns

	X	A	B
	14	11	19
	44	16	10

GAIN: MEANS

School:	X	A	B
Welf.	3.38	4.00	1.21
Nonwelf.	2.86	4.00	2.00

GAIN: Ns

	X	A	B
	13	11	19
	40	16	10

*: Significant difference, $P < .05$.
--: Insufficient data for analysis.

VARIABLE: Language GRADE: 2

A MAIN.	Welfare	Nonwelfare
Pre:	2.56	3.79 *
Post:	5.69	7.11 *
Gain:	3.03	3.13

B MAIN.	School X	School A	School B
Pre:	2.80	2.81	3.92 *
Post:	6.62	7.26	5.31 *
Gain:	4.28	3.85	1.11 *

A by B.

	PRE: MEANS			PRE: Ns		
School:	X	A	B	X	A	B
Welf.	2.14	2.55	3.00	14	33	20
Nonwelf.	3.45	3.08	4.83	44	40	12

	POST: MEANS			POST: Ns		
School:	X	A	B	X	A	B
Welf.	6.29	7.45	3.32	14	11	19
Nonwelf.	6.95	7.06	7.30 *	44	16	10

	GAIN: MEANS			GAIN: Ns		
School:	X	A	B	X	A	B
Welf.	4.31	3.36	0.42	13	11	19
Nonwelf.	3.40	4.19	1.80	40	16	10

*: Significant difference, $P < .05$.
--: Insufficient data for analysis.

VARIABLE: Arithmetic GRADE: 2

A MAIN.	Welfare	Nonwelfare
Pre:	3.34	4.31
Post:	5.59	6.26
Gain:	2.19	1.93

B MAIN.	School X	School A	School B
Pre:	3.79	3.57	4.11
Post:	6.11	6.84	4.82 *
Gain:	2.15	3.44	0.59 *

A by B.

PRE: MEANS				PRE: Ns		
School:	X	A	B	X	A	B
Welf.	3.36	3.36	3.30	14	33	20
Nonwelf.	4.23	3.78	4.92	44	40	12

POST: MEANS				POST: Ns		
School:	X	A	B	X	A	B
Welf.	5.64	7.18	3.95	14	11	19
Nonwelf.	6.57	6.50	5.70 *	44	16	10

GAIN: MEANS				GAIN: Ns		
School:	X	A	B	X	A	B
Welf.	2.15	3.64	0.79	13	11	19
Nonwelf.	2.15	3.25	0.40	40	16	10

*: Significant difference, $P < .05$.
--: Insufficient data for analysis.

VARIABLE: Mental Maturity GRADE: 2

A MAIN.	Welfare	Nonwelfare
Pre:	3.66	5.06 *
Post:	4.90	5.59
Gain:	1.01	0.53

B MAIN.	School X	School A	School B
Pre:	4.27	4.38	4.44
Post:	5.20	5.40	5.14
Gain:	0.55	0.88	0.87

A by B.

	PRE: MEANS			PRE: Ns		
School:	X	A	B	X	A	B
Welfare	3.33	4.06	3.61	12	32	20
Nonwelf.	5.21	4.70	5.27	45	40	13

	POST: MEANS			POST: Ns		
School:	X	A	B	X	A	B
Welfare	5.00	5.31	4.39	5	26	18
Nonwelf.	5.39	5.38	5.89	23	33	9

	GAIN: MEANS			GAIN: Ns		
School:	X	A	B	X	A	B
Welfare	0.80	1.04	1.19	5	26	16
Nonwelf.	0.30	0.73	0.56	23	33	9

*: Significant difference, $P < .05$.
--: Insufficient data for analysis.

VARIABLE: Personality GRADE: 2

A MAIN.

	Welfare	Nonwelfare
Pre:	3.72	4.20
Post:	4.08	4.52
Gain:	0.30	0.37

B MAIN.

	School X	School A	School B
Pre:	3.29	4.25	4.35 *
Post:	3.49	4.89	4.52 *
Gain:	0.20	0.57	0.22

A by B.

	PRE: MEANS			PRE: Ns		
School:	X	A	B	X	A	B
Welf.	3.92	4.25	4.00	12	32	20
Nonwelf.	3.67	4.25	4.69	45	40	13

	POST: MEANS			POST: Ns		
School:	X	A	B	X	A	B
Welf.	3.25	4.73	4.26	12	26	19
Nonwelf.	3.73	5.06	4.78	40	34	9

	GAIN: MEANS			GAIN: Ns		
School:	X	A	B	X	A	B
Welf.	0.30	0.38	0.21	10	26	19
Nonwelf.	0.11	0.76	0.22	37	34	9

*: Significant difference, $P < .05$.
--: Insufficient data for analysis.

VARIABLE: Total Achievement GRADE: 3

A MAIN.	Welfare	Nonwelfare
Pre:	4.54	5.69*
Post:	5.18	6.47*
Gain:	0.60	0.81

B MAIN.	School X	School A	School B
Pre:	5.32	5.05	4.98
Post:	5.75	5.76	5.97
Gain:	0.45	0.70	0.97

A by B.	PRE: MEANS			PRE: Ns		
School:	X	A	B	X	A	B
Welf.	4.65	4.19	4.79	23	26	19
Nonwelf.	5.98	5.91	5.18	53	59	17

	POST: MEANS			POST: Ns		
School:	X	A	B	X	A	B
Welf.	4.81	5.00	5.74	21	14	19
Nonwelf.	6.70	6.52	6.20	50	31	15

	GAIN: MEANS			GAIN: Ns		
School:	X	A	B	X	A	B
Welf.	0.15	0.71	0.95	20	14	19
Nonwelf.	0.76	0.68	1.00	49	31	15

*: Significant difference, $P < .05$.
--: Insufficient data for analysis.

VARIABLE: Reading GRADE: 3

A MAIN.	Welfare	Nonwelfare
Pre:	4.29	5.76 *
Post:	4.29	5.84 *
Gain:	-0.05	0.16

B MAIN.	School X	School A	School B
Pre:	5.21	4.97	4.90
Post:	5.12	4.91	5.17
Gain:	-0.68	-0.01	0.25

A by B.	PRE: MEANS			PRE: Ns		
School:	X	A	B	X	A	B
Welf.	4.43	3.81	4.63	23	26	19
Nonwelf.	5.98	6.14	5.18	53	59	17

	POST: MEANS			POST: Ns		
School:	X	A	B	X	A	B
Welf.	4.14	3.71	5.00	21	14	19
Nonwelf.	6.10	6.10	5.33	50	31	15

	GAIN: MEANS			GAIN: Ns		
School:	X	A	B	X	A	B
Welf.	-0.30	-0.27	0.37	20	14	19
Nonwelf.	0.16	0.19	0.13	49	31	15

*: Significant difference, $P < .05$.

VARIABLE: Language GRADE: 3

A MAIN.	Welfare	Nonwelfare
Pre:	4.57	4.85
Post:	5.36	6.32 *
Gain:	0.85	0.41

B MAIN.	School X	School A	School B
Pre:	5.49	5.03	5.10
Post:	5.91	5.44	6.18
Gain:	0.49	0.38	1.01

A by B.	PRE: MEANS			PRE: Ns		
School:	X	A	B	X	A	B
Welf.	4.74	4.23	4.74	23	26	19
Nonwelf.	6.25	5.83	5.47	53	59	17

	POST: MEANS			POST: Ns		
School:	X	A	B	X	A	B
Welf.	5.19	5.00	5.89	21	14	19
Nonwelf.	6.62	5.87	6.47	50	31	15

	GAIN: MEANS			GAIN: Ns		
School:	X	A	B	X	A	B
Welf.	0.60	0.79	1.16	20	14	19
Nonwelf.	0.39	-0.03	0.87	49	31	15

*: Significant difference, $P < .05$.

VARIABLE: Arithmetic GRADE: 3

A MAIN.	Welfare	Nonwelfare
Pre:	4.73	5.56 *
Post:	5.65	6.37
Gain:	0.85	0.78

B MAIN.	School X	School A	School B
Pre:	5.29	5.22	4.91
Post:	5.83	6.11	6.09
Gain:	0.52	0.77	1.16

A by B.

	PRE: MEANS			PRE: Ns		
School:	X	A	B	X	A	B
Welf.	4.61	4.58	5.00	23	26	19
Nonwelf.	5.98	5.86	4.82 *	53	59	17

	POST: MEANS			POST: Ns		
School:	X	A	B	X	A	B
Welf.	5.00	5.64	6.32	21	14	19
Nonwelf.	6.66	6.58	5.87	50	31	15

	GAIN: MEANS			GAIN: Ns		
School:	X	A	B	X	A	B
Welf.	0.30	0.93	1.32	20	14	19
Nonwelf.	0.73	0.61	1.00	49	31	19

*: Significant difference, $P < .05$.

VARIABLE: Mental Maturity GRADE: 3

A MAIN.	Welfare	Nonwelfare
Pre:	4.26	5.34 *
Post:	4.94	6.04 *
Gain:	0.86	0.72

B MAIN.	School X	School A	School B
Pre:	4.88	4.61	4.91
Post:	5.29	5.32	5.85
Gain:	0.52	0.74	1.12

A by B.	PRE: MEANS			PRE: Ns		
School:	X	A	B	X	A	B
Welf.	4.17	3.92	4.68	24	25	19
Nonwelf.	5.59	5.30	5.13	57	54	15

	POST: MEANS			POST: Ns		
School:	X	A	B	X	A	B
Welf.	4.47	4.50	5.84	15	6	19
Nonwelf.	6.12	6.14	5.87	33	21	15

	GAIN: MEANS			GAIN: Ns		
School:	X	A	B	X	A	B
Welf.	0.60	0.83	1.16	15	6	19
Nonwelf.	0.44	0.65	1.08	32	20	13

*: Significant difference, P .05.

VARIABLE: Personality GRADE: 3

A MAIN.

	Welfare	Nonwelfare
Pre:	4.31	4.78
Post:	4.60	5.03
Gain:	0.49	0.43

B MAIN.

	School X	School A	School B
Pre:	4.07	4.75	4.81
Post:	4.67	4.78	4.99
Gain:	0.63	0.60	0.15

A by B.

PRE: MEANS

School:	X	A	B
Welf.	3.27	4.40	5.26
Nonwelf.	4.86	5.11	4.35

PRE: Ns

School:	X	A	B
Welf.	22	25	19
Nonwelf.	53	57	17

POST: MEANS

School:	X	A	B
Welf.	4.30	4.14	5.35
Nonwelf.	5.04	5.41	4.63

POST: Ns

School:	X	A	B
Welf.	20	7	17
Nonwelf.	48	22	16

GAIN: MEANS

School:	X	A	B
Welf.	0.84	0.47	0.06
Nonwelf.	0.42	0.62	0.25

GAIN: Ns

School:	X	A	B
Welf.	19	7	17
Nonwelf.	48	21	16

APPENDIX IV

Means (Stanines) for Main Effects and Interaction and Ns for Interaction for Program (Special and Regular) by Grade Analysis for School A

VARIABLE: Total Achievement GRADE: 2 & 3

A MAIN.	Special Program	Regular Program
Pre:	2.55	4.67 *
Post:	5.77	5.33
Gain:	3.42	0.54 *

B MAIN.	Grade 2	Grade 3
Pre:	2.43	4.78 *
Post:	3.63	7.47 *
Gain:	1.32	2.63

A by B.

PRE: MEANS

	Grade 2	Grade 3
Special	1.63	3.46
Regular	3.24	6.09

PRE: Ns

Grade 2	Grade 3
19	24
21	64

POST: MEANS

	Grade 2	Grade 3
Special	3.83	7.71
Regular	3.43	7.23

POST: Ns

Grade 2	Grade 3
6	21
14	31

GAIN: MEANS

	Grade 2	Grade 3
Special	2.50	4.33
Regular	0.14	0.94

POST: Ns

Grade 2	Grade 3
6	21
14	31

* Significant difference, $P < .05$.

VARIABLE: Reading GRADE: 2 & 3

A MAIN.		Special Program	Regular Program
	Pre:	2.19	4.56 *
	Post:	5.20	4.57
	Gain:	3.23	-0.11 *

B MAIN.		Grade 2	Grade 3
	Pre:	2.06	4.67 *
	Post:	2.67	7.11 *
	Gain:	0.63	2.49 *

A by B.

PRE: MEANS

	Grade 2	Grade 3
Special	1.26	3.11
Regular	2.86	6.27 *

PRE: Ns

Grade 2	Grade 3
19	54
21	64

POST: MEANS

	Grade 2	Grade 3
Special	2.83	7.57
Regular	2.50	6.65

POST: Ns

Grade 2	Grade 3
6	21
14	31

GAIN: MEANS

	Grade 2	Grade 3
Special	1.83	4.62
Regular	-0.57	0.35 *

GAIN: Ns

Grade 2	Grade 3
6	21
14	31

* Significant difference, $P < .05$.

VARIABLE: Language GRADE: 2 & 3

A MAIN.	Special Program	Regular Program
Pre:	2.39	4.65 *
Post:	6.31	5.04
Gain:	3.93	0.22 *

B MAIN.	Grade 2	Grade 3
Pre:	2.38	4.67 *
Post:	4.12	7.23 *
Gain:	1.77	2.37

A by B.

PRE: MEANS

	Grade 2	Grade 3
Special	1.47	3.31
Regular	3.29	6.02

PRE: Ns

Grade 2	Grade 3
19	54
21	64

POST: MEANS

	Grade 2	Grade 3
Special	4.67	7.95
Regular	3.57	6.52

POST: Ns

Grade 2	Grade 3
6	21
14	31

GAIN: MEANS

	Grade 2	Grade 3
Special	3.33	4.52
Regular	0.21	0.23

GAIN: Ns

Grade 2	Grade 3
6	21
14	31

* Significant difference, $P < .05$.

VARIABLE: Arithmetic GRADE: 2 & 3

A MAIN.

	Special Program	Regular Program
Pre:	3.14	4.83 *
Post:	5.96	5.66
Gain:	3.14	0.63 *

B MAIN.

	Grade 2	Grade 3
Pre:	2.89	5.08 *
Post:	4.25	7.38 *
Gain:	1.55	2.23

A by B.

PRE: MEANS

	Grade 2	Grade 3
Special	2.21	4.07
Regular	3.57	6.09

PRE: Ns

Grade 2	Grade 3
19	54
21	64

POST: MEANS

	Grade 2	Grade 3
Special	4.50	7.43
Regular	4.00	7.32

POST: Ns

Grade 2	Grade 3
6	21
14	31

GAIN: MEANS

	Grade 2	Grade 3
Special	2.67	3.62
Regular	0.43	0.84

GAIN: Ns

Grade 2	Grade 3
6	21
14	31

* Significant difference, $P < .05$.

VARIABLE: Mental Maturity GRADE: 2 & 3

A MAIN.	Special Program	Regular Program
Pre:	4.08	4.46
Post:	5.21	5.43
Gain:	0.95	0.74

B MAIN.	Grade 2	Grade 3
Pre:	3.53	5.02 *
Post:	4.76	5.88
Gain:	0.98	0.71

A by B.

PRE: MEANS

	Grade 2	Grade 3
Special	3.37	4.79
Regular	3.68	5.24

PRE: Ns

	Grade 2	Grade 3
Special	19	53
Regular	19	63

POST: MEANS

	Grade 2	Grade 3
Special	4.80	5.61
Regular	4.71	6.15

POST: Ns

	Grade 2	Grade 3
Special	15	44
Regular	7	20

GAIN: MEANS

	Grade 2	Grade 3
Special	1.13	0.77
Regular	0.83	0.65

GAIN: Ns

	Grade 2	Grade 3
Special	15	44
Regular	6	20

* Significant difference, $P < .05$.

VARIABLE: Personality GRADE: 2 & 3

A MAIN.	Special Program	Regular Program
Pre:	3.98	4.65 *
Post:	4.80	4.73
Gain:	0.77	0.69

B MAIN.	Grade 2	Grade 3
Pre:	3.82	4.82 *
Post:	4.28	5.25 *
Gain:	0.98	0.48

A by B.

PRE: MEANS

	Grade 2	Grade 3
Special	3.42	4.55
Regular	4.21	5.10

PRE: Ns

	Grade 2	Grade 3
Special	19	53
Regular	19	63

POST: MEANS

	Grade 2	Grade 3
Special	4.56	4.05
Regular	4.00	5.45

POST: Ns

	Grade 2	Grade 3
Special	16	44
Regular	7	22

GAIN: MEANS

	Grade 2	Grade 3
Special	1.13	0.41
Regular	0.83	0.55

GAIN: Ns

	Grade 2	Grade 3
Special	16	44
Regular	6	22

* Significant difference, $P < .05$.