DOCUMENT RESUME

ED 075 918 EA 005 046

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TITLE	Accountability in Compensatory Education.
PUB DATE	Feb 73
NOTE	45p.; Paper presented at American Educational Research Association Annual Meeting (58th, New Orleans, Lousiana, February 26 - March 1, 1973)
EDRS PRICE	MF-$0.65 HC-$3.29
DESCRIPTORS	*Compensatory Education; *Disadvantaged Youth; Educational Accountability; *Mathematics; Post Testing; Pretests; *Program Evaluation; *Reading Improvement; State Aid; Statistical Analysis
IDENTIFIERS	Michigan

ABSTRACT

This paper is a report of an evaluation study conducted on Michigan's State-funded compensatory education program. For the 1971-72 school year, the legislature appropriated $22,500,000 in an effort to raise the achievement levels of disadvantaged children in reading and mathematics. Approximately 112,000 kindergarten through sixth grade pupils in 67 districts were served under the program. Pretest and posttest data were collected on every pupil, as well as was other related information. Statistical analyses identified successful and unsuccessful programs among the districts and among schools and across grades. (Author)

ACCOUNTABILITY IN COMPENSATORY EDUCATION

by

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AERA, New Orleans '2

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INTRODUCTION

For the 1971-72 school year, the Michigan legislature appropriated $22,500,000 under Section 3 of the State School Aid Act to raise the achievement levels of low achieving children in reading and arithmetic. Approximately 112,000 kindergarten through sixth grade pupils in 67 districts were served under the program. During the first year of operation, money was allocated to the eligible school districts at the rate of $200 per pupil beginning with the district which had the highest concentration of students achieving at the 15th percentile or below on the state assessment tests. This procedure was followed until all available funds were expended. This paper reports the background of compensatory education programs in Michigan, a description of the 1971-72 Section 3 program and a report of the results of Michigan's efforts under Section 3.

HIGHLIGHTS

This paper presents the first year results of Michigan's state funded compensatory education programs. The 1971-72 school year was the first year Section 3 operated as a type of performance contract between the State Department of Education and the local districts.

The collected data actually represent one portion of a comprehensive effort to deliver adequate educational services to Michigan's school children under an experimental accountability model. As teachers and administrators in local districts have become more familiar with the concept of accountability in education, they have tended to support the notion that education is a public trust in which everyone has an abiding interest.

The results of the evaluation of Section 3 programs demonstrated that to a large degree school districts can be held accountable for pupil achievement. Indeed, over half of Section 3 students achieved beyond the 100% level of accomplishment. In Detroit, approximately 16% of the students made zero or negative gains and another 17% made gains less than the 75% level of accomplishment required by the Department of Education; all others performed above minimum levels. In the 66 Section 3 school districts excluding Detroit approximately 6% made zero or negative gains and about 30% of the students made gains between 1% and 75%; again, all others performed at or above minimum achievement levels.

Of the eighteen most populous Section 3 school districts, a majority showed significantly high correlation coefficients when their test results were compared with an independent set of test scores; namely, the Michigan

Educational Assessment test scores. With the exception of ten districts, internal checks of high-achieving and low-achieving students within each district showed that the correlation between the pre- and posttest fell between .80 and .90.

The results reported in this paper show that the implementation of an accountability concept in schools, considered as a single factor, had a great impact on pupil achievement. In addition, the evaluation of Section 3 programs demonstrated that the achievement levels of disadvantaged students can be raised, and that the relative downward trends in achievement can be reversed. Finally, it was shown that money provided incentives to school districts to concentrate on the academic progress of Section 3 students.

BACKGROUND OF STATE COMPENSATORY EDUCATION PROGRAMS IN MICHIGAN

Although the Michigan legislature became involved in compensatory education as early as 1965, it was not until 1968 that substantial funds were appropriated to ameliorate learning disabilities of diverse groups of disadvantaged children. Under Section 3 of the 1968 State School Aid Act, $6,300,000 was distributed to school districts based on a scale which gauged the "degree of deprivation" of schools and children within schools. The scale involved a consideration of: (1) ADC programs; (2) broken homes; (3) underprivileged children; (4) substandard housing; and (5) density of school age children in the district.

For the 1969-70 school year, $8,750,000 was allocated for Section 3 programs. For that school year, eligibility criteria were refined but were still based on the five measures mentioned above.

For the 1970-71 school year, $16,325,437 was appropriated under Section 3. In addition, $2,170,649 was appropriated to support summer school programs for the disadvantaged. For a variety of reasons, eligibility rules were changed for 1970-71; two criteria were used rather than five. The first criterion involved a school's percentage of students identified as "socioeconomically deprived" by the Michigan Educational Assessment Program. The second criterion took into account a school's percentage of students scoring at low achievement levels on the state assessment battery.

For 1971-72, the Section 3 allocation was $23,000,000. Of this amount, $500,000 was set aside for guaranteed performance contracts.

The $22,500,000 available to schools under regular Section 3 funding was distributed to schools based on a percentile rating of the composite achievement scores on the State Assessment battery for grades four and seven. In each district, the percent of those students in grade four who scored in the 15th percentile or lower was multiplied by the number of pupils in K-4. This number was then added to the figure obtained by multiplying the percent of those students in grade seven who scored in the 15th percentile or lower by the number of pupils in grades 5-6. Each district then received $200 times the computed number of students to be served.

In an effort to enhance each district's attempts to develop effective programs to meet their students' particular cultural and economic needs, the 1971 legislature stated that: "A district receiving monies under [Section 3] may use these monies in any manner which, in the judgment of its Board of Education and its staff, will contribute significantly toward substantial improvement in the basic cognitive skills of the pupils."

Since the Michigan State Department of Education distributed Section 3 funds throughout the state, the State Department was also responsible for gauging the success of Section 3 programming and for making certain that, indeed, local school districts were held accountable for the improvement of the basic cognitive skills of Section 3 students.

THE 1971-72 SECTION 3 PROGRAM

The Michigan State Board of Education has stressed for several years that one of the most crucial problems confronting the public schools is to improve the learning of children who exhibit serious deficiencies in basic cognitive skills. When the legislature appropriated money for compensatory education during the 1971-72 school year within the general framework expressed in the previous section of this paper, the Michigan State Department of Education decided to seek answers to two general questions. First, could school districts be held accountable for educating the lowest-achieving pupils in the schools. And second, would additional money for compensatory education result in higher achievement levels for disadvantaged children.

In 1971-72 the per pupil allocation was calculated by using a percentile rating of grade four and seven pupils' composite achievement scores on the state educational assessment battery.[1] Those districts with the greatest concentration of low-achieving pupils then received $200 times the computed number of students to be served. The fact that only $22,500,000 was available limited the number of districts funded to 67.

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[1]A basic skills composite achievement score was computed for each pupil taking the assessment battery. This composite score was derived by averaging standard scores on reading, the mechanics of written English, and the mathematics tests.

Each of the eligible 67 districts was required to submit a proposal for funding. The proposal stated the district program goals, objectives, instructional processes and evaluation design. Once the proposals were accepted by the Michigan Department of Education, money was given to the local educational agencies to implement their proposal. As long as the district used the money to provide needed educational services to Section 3 students and supplemented (not supplanted) available programs, the local school boards, with the advice of a planning committee, determined project activities and expenditures.

In essence, the Section 3 program became a performance contract between the school district and the state. The school established, within certain Department of Education guidelines, the performance objectives for pupils to be served in its application for Section 3 funds. For each pupil achieving 75% of the stated objectives, the school district received a full per pupil allocation during fiscal year 1973. For each pupil achieving less than the 75% level of accomplishment the district received a lesser amount proportional to the gains attained.*

To measure cognitive growth, each Section 3 pupil was pretested and posttested in reading and arithmetic through the use of an approved standardized achievement test battery. The pretest was administered in April through November, 1971, and the posttest was given in April-May, 1972.

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*Thus, school districts were accountable for results in that they could choose instructional strategies and desired results, but if they did not succeed in meeting their own standards, the districts were not paid a full per pupil allocation.

The collected data actually served two purposes; the first being to distribute funds based on educational performance. The second purpose, and of equal importance, was to pinpoint program effectiveness, delineate costs, and to test some of the assumptions underlying compensatory education; in short, to evaluate the total Section 3 program. The remainder of this paper outlines selected results of the evaluation.

RESULTS

Description of Data Collected

The total number of students funded under Section 3 for fiscal year 1971-72 was 112,500. Of that number, 83.69% or 94,158 students had matched pre- and posttests. With respect to the City of Detroit alone, 76.69% or 45,455 students, had matched pre- and posttests. The total number of students with matched scores for the 66 districts excluding Detroit was 48,703 or 91.49%.

The 1971 Michigan Assessment Test scores were used as an independent check on the validity of the Section 3 pre- and posttest scores. Correlation coefficients of Section 3 reading pretest scores and assessment reading scores, Section 3 arithmetic pretest scores and assessment math scores, Section 3 reading posttest scores and assessment reading scores, and Section 3 arithmetic posttest scores and assessment math scores were computed for all Section 3 fourth grade students at the building level.

A number of school districts in Michigan have correlated the district test results with the Michigan Educational Assessment test scores. For example, the district of Mt. Pleasant correlated the Metropolitan Achievement Tests, Elementary Form F (Nov. 1970) with the Michigan Assessment tests, form SMT (Jan. 1971) in seven elementary schools. The correlation coefficients for four subtests (vocabulary, reading, English and mathematics) ranged from .65 to .89. The Grosse Pointe school district also made comparisons of test scores on the Michigan Assessment test with corresponding scores on the Iowa Test of Basic Skills. (Jan-Feb 1971) The correlation coefficients between MABS (Michigan Assessment of Basic Skills) composite standard scores with ITBS composite grade equivalent

scores was 0.85; between MABS Mechanics of Written English standard score with ITBS Total Language grade equivalent scores was .81; between MABS Mathematics standard score with ITBS Total Arithmetic grade equivalent score was .79; between MABS Reading standard score with Total Reading raw score was .71; and between MABS vocabulary standard scores with ITBS Vocabulary raw scores was .69.

Section 3 school districts used, with a few exceptions, nationally normed achievement tests such as the Stanford Achievement Test, the Metropolitan Achievement Test, the California Achievement Test, Science Research Achievement Series, and the Iowa Test of Basic Skills. In computing Pearson Product moment correlations, the grade equivalent scores of the 4th grade students, as measured by the aforementioned standardized achievement tests were correlated with the standard scores of the same students on the Michigan Assessment tests in reading and mathematics.

This analysis was performed in the eighteen most populous school districts in Michigan. In general, the computed correlations were consistently significant. Thus, the data were considered to be valid.

Section 3 Students Achieving 75% of Objectives

As previously indicated, rules promulgated by the Michigan State Department of Education stipulated that to receive a full per pupil allocation of $200, each Section 3 pupil had to achieve 75% of the objectives set forth by local school district personnel. Since the purpose of Section 3 was to improve the achievement of disadvantaged pupils in reading and arithmetic, individual students, depending on individual needs, could have participated in one out of a possible three educational treatments: (1) a combination of reading and arithmetic; (2) reading only; and (3) arithmetic only.

Table 1 and 2 present a summary of the number of students achieving at the 75% level of accomplishment by grade level in reading and arithmetic combined, reading only, and arithmetic only. Further, since the City of Detroit contains approximately one-half of the Section 3 pupils served, the data are aggregated with respect to the state total excluding Detroit, the state total including Detroit, and only the School District of Detroit.

Table 1

NUMBER AND PERCENT OF SECTION 3 STUDENTS ACHIEVING A MINIMUM OF 75% ACCOMPLISHMENT, AND NUMBER OF MATCHED PRE- AND POSTTEST SCORES, AS MEASURED BY STANDARDIZED ACHIEVEMENT TESTS, BY GRADE LEVEL, BY DISTRICT

CODE NUMBER AND NAME OF SCHOOL DISTRICT	GRADE LEVEL	READING AND ARITHMETIC			READING ONLY			ARITHMETIC ONLY		
		n	%	N	n	%	N	n	%	N
State Total Without Detroit School District	K	2322	77.74	2992	1405	86.20	1658	42	77.78	54
	1	3040	73.62	4142	1738	90.66	1963	50	51.02	98
	2	2982	64.75	4633	1674	64.51	2610	144	66.06	219
	3	2724	60.41	4534	1194	70.24	1706	190	77.55	246
	4	3136	63.38	4963	1205	68.94	1752	280	82.11	341
	5	3095	60.11	5179	855	66.13	1299	207	74.19	280
	6	2788	59.50	4713	947	67.79	1410	286	83.14	344
	7	53	80.30	66	7	58.33	12	15	75.00	20
	8	0	.00	0	0	.00	0	1	100.00	1
	OT	0	.00	0	0	.00	0	0	.00	0
State Total	K	2322	77.74	2992	5492	74.05	7445	42	77.78	54
	1	4800	65.85	7302	3122	66.47	4743	50	51.02	98
	2	6010	72.61	8306	4574	73.37	6249	144	66.06	219
	3	4671	62.63	7483	2964	66.13	4488	190	77.55	246
	4	5474	64.37	8520	3437	68.99	4986	280	82.11	341
	5	5508	61.75	8950	3081	65.37	4719	207	74.19	280
	6	4949	60.67	8185	2965	64.48	4611	286	83.14	344
	7	53	80.30	66	7	58.33	12	15	75.00	20
	8	0	.00	0	0	.00	0	1	100.00	1
	OT	0	.00	0	0	.00	0	0	.00	0

Table 2

NUMBER AND PERCENT OF SECTION 3 STUDENTS ACHIEVING A MINIMUM OF 75% ACCOMPLISHMENT, AND NUMBER OF MATCHED PRE- AND POSTTEST SCORES, AS MEASURED BY STANDARDIZED ACHIEVEMENT TESTS, BY GRADE LEVEL, BY DISTRICT

CODE NUMBER AND NAME OF SCHOOL DISTRICT	GRADE LEVEL	READING AND ARITHMETIC			READING ONLY			ARITHMETIC ONLY		
		n	%	N	n	%	N	n	%	N
Detroit (82010)	K	0	.00	0	4087	70.62	5787	0	.00	0
	1	1760	55.70	3160	1384	49.78	2780	0	.00	0
	2	3028	82.44	3673	2900	79.69	3639	0	.00	0
	3	1947	66.02	2949	1770	63.62	2782	0	.00	0
	4	2338	65.73	3557	2232	69.02	3234	0	.00	0
	5	2413	63.99	3771	2226	65.09	3420	0	.00	0
	6	2161	62.24	3472	2018	63.04	3201	0	.00	0
	7	0	.00	0	0	.00	0	0	.00	0
	8	0	.00	0	0	.00	0	0	.00	0
	OT	0	.00	0	0	.00	0	0	.00	0

Previous research demonstrated that students in either reading programs alone or arithmetic programs alone performed better than students enrolled in Section 3 programs which emphasized a combination of both reading and arithmetic. This pattern held true for the state total excluding Detroit Public Schools, with the exception of students in grades K-1. It should be noted that Detroit Public Schools did not offer arithmetic only programs to their Section 3 students.

In general, it is evident that greater numbers of pupils at the lower grade levels tended to accomplish 75% of the stated objectives than did pupils at higher grade levels.

Number and Percent of Students Achieving at Various Levels of Accomplishment

Table 3 summarizes the number and percent of students achieving at various levels of accomplishment. For example, Table 3 shows that 6,969 pupils in Detroit, or 15.33% of the total Detroit Section 3 population, accomplished 300% or above of the objectives stated by the local district. Again, data are aggregated by Detroit alone, the state total without Detroit, and the state total including Detroit.

Table 3

NUMBER AND PERCENT OF STUDENTS, BY DISTRICT NAME AND CODE NUMBER, ACHIEVING A CERTAIN PERCENTAGE OF ACCOMPLISHMENT

PERCENTAGE OF ACCOMPLISHMENT	Detroit (82010)		Total Without Detroit		State Total							
	N	%	N	%	N	%	N	%	N	%	N	%
300%-Above	6969	15.33	4645	9.57	11614	12.36						
275-299%	990	2.18	994	2.05	1984	2.11						
250-274%	1477	3.25	1719	3.54	3196	3.40						
225-249%	1463	3.22	1727	3.56	3190	3.39						
200-224%	3075	6.76	3042	6.27	6117	6.51						
175-199%	2234	4.91	2585	5.32	4819	5.13						
150-174%	3403	7.49	3957	8.15	7360	7.83						
125-149%	2828	6.22	3593	7.40	6421	6.83						
100-124%	4850	10.67	4726	9.74	9576	10.19						
075-099%	2982	6.56	3565	7.33	6547	6.96						
050-074%	3605	7.93	4438	9.12	8043	8.55						
025-049%	2362	5.20	3562	7.31	5924	6.29						
001-024%	1858	4.09	7009	14.39	8867	9.41						
000-Below	7359	16.19	3034	6.25	10393	11.06						
Missing Data:	1549		5534		7083							

Bearing in mind that current Section 3 plans call for no payment if there is no gain in achievement, for 10,393 Section 3 pupils across the State of Michigan, the local districts would receive no reimbursement. (Due primarily to the innovative nature of Section 3 funding, it is likely that this fairly stringent requirement may be eased somewhat for the first year of program operation.)

In addition, for all pupils falling below the 75% level, less than the maximum of $200 per pupil will be paid to local districts. For the 66 districts excluding Detroit, 30.82% of the pupils "earned" less than $200; for Detroit the present figure is 17.22%.

Ineligible Students

Each student's score was checked in an effort to identify misplaced students in pretesting. Students who were not at least one year below grade level in pretesting were considered as not meeting the eligibility criterion and were identified by name, grade level, school building and school district. The aggregate number of students by districts who did not meet the eligibility criterion on the pretest are presented in Table 4.

It should be pointed out that in Table 4 the total number of Section 3 students included students in K-6. In assessing the status of pre- and posttest data of Section 3 students, only those students having grade scores were treated. Thus, students in grades K, 1, and sometimes 2, generally were excluded. The grade level of each student was used as a reference point, and a value was obtained by subtracting .9 from the student's grade level. This value then was compared to the student's pre-

Table 4

Total Number of Section 3 Students (K-6) by District, Number of Students not Meeting Eligibility Criterion on the Pretest Grade Scores and Number of Students Scoring on or Above Grade Level on the Posttest

DISTRICT & NUMBER		TOTAL NUMBER OF SECTION 3 STUDENTS SY 1971-72	NUMBER OF STUDENTS NOT MEETING ELIGIBILITY CRITERION ON PRETEST	NUMBER OF STUDENTS SCORING ON OR ABOVE GRADE LEVEL ON POSTTEST
05010	Alba	36	14	2
06010	Arenac	80	18	5
11010	Benton Harbor	2255	29 ***	42 **
13010	Albion	412	123	14
13020	Battle Creek	1348	189	89
13050	Athens	142	48	7
13135	Union City	181	78 *	14 *
14010	Cassopolis	238	18 **	8 *
14020	Dowagiac	460	55 **	5 *
17140	Brimley	114	42	8
18020	Farwell	175	50	4
21130	Rock	35	12 *	1 *
23010	Bellevue	169	40 **	2 *
23065	Maple Valley	220	55	6
23090	Potterville	120	38	5
25010	Flint	6012	1710 **	394 *
25240	Beecher	895	111	19
25280	Lakeville	327	82 **	11 *
30080	Waldron	92	51 *	12 *
32170	Ubly	116	72	35
33020	Lansing	3895	1042	122
38100	Hanover-Horton	184	20 **	8 *
38150	Springport	134	23 **	4 *
38170	Jackson	1839	604 **	96 *
39010	Kalamazoo	1928	341 **	62 **
40040	Kalkaska	129	25 **	2 **
41010	Grand Rapids	5368 #	795 **	126 *

* Data reported in Description and Evaluation of Section 3 Programs in Michigan 1971-72, Report Number 1; ** Data different from Report Number 1 due to updating procedures; *** Data undergoing corrections; # Grand Rapids' figure includes 117 7th and 8th grade students.

Table 4
(continued)

Total Number of Section 3 Students (K-6) by District, Number of Students not Meeting Eligibility Criterion on the Pretest Grade Scores and Number of Students Scoring on or Above Grade Level on the Posttest

DISTRICT & NUMBER		TOTAL NUMBER OF SECTION 3 STUDENTS SY 1971-72	NUMBER OF STUDENTS NOT MEETING ELIGIBILITY CRITERION ON PRETEST	NUMBER OF STUDENTS SCORING ON OR ABOVE GRADE LEVEL ON POSTTEST
41140	Kelloggsville	340	66	5
43040	Baldwin	232	45	13
46070	Deerfield	55	***	***
50050	Armada	151	88 **	22 *
50160	Mt. Clemens	671	132 **	2 *
50170	New Haven	191	54	6
58080	Jefferson	347	87 **	1
61010	Muskegon	1194	320 *	66 *
61020	Muskegon Heights	890	199 **	20 *
61120	Holton	116	23	5
63020	Ferndale	544	107	***
63030	Pontiac	3511	***	***
63180	Brandon	204	93 **	13 *
73010	Saginaw	3418	864 **	109 **
73080	Buena Vista	516	178 **	47 *
73210	Hemlock	168	39 **	28 *
75030	Centreville	128	39 **	3 *
76140	Marlette	249	48 **	19 *
78060	Morrice	104	22	3
78080	Perry	229	102	17
80020	Bangor	261	50	1
80040	Covert	176	63	8
80110	Gobles	111	18	6
80130	Lawrence	94	19 **	10 *
81020	Ypsilanti	899	287 **	100 *
81070	Linc. Consol.	351	80 *	7 *
81150	Willow Run	852	161 **	29 **

* Data reported in Description and Evaluation of Section 3 Programs in Michigan 1971-72, Report Number 1;
** Data different from Report Number 1 due to updating procedures; *** Data undergoing corrections.

Table 4
(continued)

Total Number of Section 3 Students (K-6) by District, Number of Students not Meeting Eligibility Criterion on the Pretest Grade Scores and Number of Students Scoring on or Above Grade Level on the Posttest

DISTRICT & NUMBER		TOTAL NUMBER OF SECTION 3 STUDENTS SY 1971-72	NUMBER OF STUDENTS NOT MEETING ELIGIBILITY CRITERION ON PRETEST	NUMBER OF STUDENTS SCORING ON OR ABOVE GRADE LEVEL ON POSTTEST
82010	Detroit	59267	21870	5922
82060	Hamtramck	412	88 **	14 *
82070	Highland Park	1845	512	***
82080	Inkster	1007	182 **	50 *
82120	River Rouge	475	140	50
82130	Romulus	963	362 *	12 *
82160	Wayne-Westland	2686	845 *	150 *
82240	Westwood	770	141 **	43 *
82250	Ecorse	623	17 **	13 *
82340	Huron	310	112	19
82365	Woodhaven	290	93	25
82430	Van Buren	840	46	38
83060	Manton	106	34	27

* Data reported in Description and Evaluation of Section 3 Programs in Michigan 1971-72, Report Number 1;
** Data different from Report Number 1 due to updating procedures; *** Data undergoing corrections.

test score. If the pretest grade score was greater than the obtained value, he was considered as not meeting the eligibility criterion.

Number of Students Scoring at or Above Grade Level

The posttest was generally administered to pupils in May, 1972. Using grade level as a reference point, if a student achieved a posttest score which was equal to or greater than his grade level plus .8, the student was considered achieving on or above his grade level. The aggregate statistics are shown in Table 4. It is not difficult to see that a great number of Section 3 students were not necessarily achieving one year below their appropriate grade level. With a few exceptions only a small number of students in each district performed at grade level in posttesting. The question here is, should these students be removed from the Section 3 program. (The present Section 3 rules stipulate that these students be locked in for the tenure of the program.)

Summary of Expenditures for Section 3

The tabulated values of the expenditures for all 67 Section 3 school districts and the state total excluding Detroit Public Schools are shown in Tables 5 and 6. Table 7 contains expenditure data for Detroit Public Schools alone.

A comparison of the four main categories under regular school year between state total and state total excluding Detroit shows that there is a change of less than one percent under teacher expenditures and facilities, a change of 1.3% under materials, and a change of eight-tenths of one percent under administrative services. The changes in 1972 summer school expenditures between state total and state total excluding Detroit are more dramatic--80.0% vs. 52.7% under teaching expenditures; 14.3% vs. 9.4% under materials; 0.3% vs. 0.5% under facilities; and 5.2% vs. 37.6% under administrative services. It should be noted, however, that the summer expenditures in Detroit represents approximately 1.3% of the total allocation of $11,853,400.

TABLE 5

Tabulated Values of the Section 3 Expenditures from 66 Districts*

	Regular SY 1971-72	%	Summer Session 1972	%
Teaching Expenditures	6,035,434.98	59.8	243,862.50	80.0
Salaries for Instruction	5,830,847.67		204,102.40	
In-service Training	204,587.31		39,760.10	
Materials	3,388,153.65	33.5	43,593.04	14.3
Teaching Supplies	1,350,121.28		29,445.30	
Textbooks	375,463.67			
Supplementary Materials	799,996.95		14,147.74	
School Library Books	20,896.35			
Educational TV	2,529.50			
Audiovisual	194,399.86			
All Other Instructional Equipment	644,746.04			
Facilities	324,570.93	3.2	1,500.00	0.5
Operation of Plant	4,495.36		700.00	
Maintenance of Plant	4,123.97			
Fixed Charges	99,671.66		800.00	
Food Services	2,902.02			
Construction	161,398.79			
All Non-instructional Equipment	51,979.13			
Administrative Services	356,808.11	3.5	15,738.20	5.2
Administration	326,931.23		13,518.20	
Attendance Services	150.00			
Health Services	254.90			
Student Body Activities	2,520.00		1,500.00	
Community Services	758.24			
Transportation	26,193.74		720.00	
TOTALS:	10,104,967.67	100.0	304,693.74	100.0

* The Detroit school district is not included in this table.

Table 6

Tabulated Values of the Section 3 Expenditures from 67 Districts

		Regular SY 1971-72	%		Summer Session 1972	%
Teaching Expenditures		12,712,225.98	59.7		243,862.50	52.7
Salaries for Instruction	12,387,123.67			204,102.40		
In-service Training	325,102.31			39,760.10		
Materials		6,859,595.65	32.2		43,593.04	9.4
Teaching Supplies	3,655,131.28			29,445.30		
Textbooks	375,463.67					
Supplementary Materials	799,996.95			14,147.74		
School Library Books	20,896.35					
Educational TV	2,529.50					
Audiovisual	1,151,797.86					
All Other Instructional Equip.	853,780.04					
Facilities		819,343.93	3.8		1,500.00	0.3
Operation of Plant	4,495.36			700.00		
Maintenance of Plant	4,123.97					
Fixed Charges	450,478.66			800.00		
Food Services	2,902.02					
Construction	305,364.79					
All Non-instructional Equip.	51,979.13					
Administrative Services		912,818.11	4.3		174,464.20	37.6
Administration	866,396.23			172,244.20		
Attendance Services	150.00					
Health Services	254.00					
Student Body Activities	2,520.00			1,500.00		
Community Services	758.24					
Transportation	42,738.74			720.00		
	TOTALS:	21,303,983.67	100.0		463,419.74	100.0

Table 7

Tabulated Values of the Section 3 Expenditures from Detroit School District

		Regular SY 1971-72	%		Summer Session 1972	%
Teaching Expenditures		6,676,791.00	59.7			
Salaries for Instruction	6,556,276.00					
In-service Training	120,515.00					
Materials		3,471,442.00	30.9			
Teaching Supplies	2,305,010.00					
Textbooks						
Supplementary Materials						
School Library Books						
Educational TV						
Audiovisual	957,398.00					
All Other Instructional Equipment	209,034.00					
Facilities		494,773.00	4.5			
Operation of Plant						
Maintenance of Plant						
Fixed Charges	350,807.00					
Food Services						
Construction	143,966.00					
All Non-instructional Equipment						
Administrative Services		556,010.00	4.9		158,726.00	100.0
Administration	539,465.00			158,726.00		
Attendance Services						
Health Services						
Student Body Activities						
Community Services						
Transportation	16,545.00					
	TOTALS:	11,199,016.00	100.0		158,726.00	100.0

Combined Results on 64 School Districts

In the statistical analysis of test data, and demographic information, only 3rd grade through 6th grade pupils were included in this phase of the study. Of the 67 Section 3 school districts, data were unavailable on two districts. The remaining 65 districts were considered in two parts: (1) Detroit alone; and (2) the remaining 64 districts. This portion of the paper reports the results of an analysis of data collected from the 64 school districts. The Detroit analysis is presented in a subsequent part of the paper.

Program Level

Although there were three possible programs in Section 3 schools, most students fell under reading and arithmetic (category 1) and reading only (category 2). Due to the small number of cases falling under category 3 (arithmetic only program), only categories 1 and 2 were used in this analysis. Comparing the two treatments through analysis of variance yielded an F value of 15.22 with 1 and 1985 degrees of freedom; there were highly significant differences ($p < .01$) in mean achievement for pupils under the two programs. Pupils in grades 3 through 6 under reading only programs made significantly greater achievement ($p < .05$) in reading than their counterparts in both reading and arithmetic programs. Similarly, students in arithmetic only programs did significantly better in arithmetic achievement than those students in both reading and arithmetic programs ($F_{1,1647} = 36.39$).

Grade Level

The average growth in months in reading achievement of all students in grades 3 through 6 in all 64 school districts excluding Detroit are 7.83 (3rd grade), 8.29 (4th grade), 8.87 (5th grade), and 8.89 (6th grade). The mean gain scores in arithmetic are higher; they are 8.91 for the 3rd graders; 9.92 for the 4th graders; 9.38 for the 5th graders; and 9.65 for the 6th graders. Although there were significant differences ($p \leq .05$) among grades in pupil reading achievement ($F_{3,1983} = 2.620$) there were no significant differences in pupil achievement across grades in arithmetic ($F_{3,1645} = 1.381$).

Funding Level

Four funding levels were investigated: (1) funding level 1 -- schools which received Section 3 funds only; (2) funding level 2 -- schools which received Section 3 and ESEA Title I funds; (3) funding level 3 -- schools which received Section 3, Title I, and other sources of funding; and (4) unknown sources and amounts of funding due to omissions in data reporting.

There was no difference in mean reading achievement between the funding levels in pretesting ($F_{1,1983} = .891$). However, there was a highly significant F value ($F_{3,1983} = 9.378$) when the reading mean gain scores were analyzed according to funding level. The mean gain scores for the four funding levels were: 8.216; 8.467; 5.272; and 9.631 respectively. Evidence seemed to indicate that pupils under funding level 3 had a lower achievement level than the three other categories. Further research will be conducted to study pupils under funding level 3 and 4.

In arithmetic, again there were no differences in mean pretest achievement, ($F_{3,1645} = 1.926$), but there was a highly significant F value on the mean differences of the average gain scores. The mean gain for the 4 levels are 8.942, 10.253, 6.663 and 11.685 respectively. Consistently, the data revealed that schools which did not report funding levels made higher gains than the first three funding levels; and students in funding level 3 made far less gains than all other funding levels.

Years of Operation

The number of years that a given school building has been receiving Section 3 money in each school district varied from one to four. The great majority of schools reported that SY 1971-72 was the first year of operation for Section 3 programs. Evidence seemed to indicate that pupil achievement in both reading and arithmetic increased with the number of years of program operation. This pattern is fairly consistent if the fourth category (years of operation = 4) is deleted. Again, a large number of schools failed to report years of operation for Section 3 programs. Because there were no significant differences in reading and arithmetic achievement by years of operation on the pretest results, the significant differences found between means of pre- and posttest results could also be attributed to factors other than years of operation; for example, the accountability element implemented for the SY 1971-72 Section 3 programs.

Program Duration

Program duration is defined as the elapsed time between pretest and posttest administration. It ranged from six to eight months. There was no difference in mean reading achievement gains for the four types of program duration. A fourth category was created for the few schools which reported no program duration. A highly significant F value ($F_{3,1645} = 4.946$) was found in the arithmetic achievement. The mean gain in arithmetic scores was 8.937 for six month program duration, 10.177 for seven month program, and 8.808 for eight month.

Except that pupils made higher gains in the seven month program, there was no consistent direction concerning the effect of program duration on pupil achievement.

In addition, the mean differences of the pre- and posttest scores of a number of comparable school districts using the May to May testing vs. the September to May testing were compared. Again, in terms of pupil achievement, no consistent direction favoring either method of testing was found among the school districts.

Detroit Public Schools

There are 234 Section 3 schools in the school district of Detroit, distributed among eight regions. Detroit Public School officials reported that there is no central coordination of Section 3 programs; principals generally are autonomous. Furthermore, programs undergo constant change, particularly from school year to school year.

Due to the large number of schools and the diversity of programs, the Department of Education staff and Detroit Public School administrators currently are exploring ways to identify promising programs. For example,

a total of 24 target schools were identified in Detroit, 12 top performing schools (growth of two years and above), and 12 schools with lowest mean gains (1/2 year and below). These schools were listed in alphabetical order. Eight schools were then visited by central office administrators. In essence, no discernible differences in program operation nor teacher and pupil behavior were found. The possibility of devising a sensitive evaluative instrument is being considered at the present time.

Also, the results showed that during one school year the range of reading achievement among the eight Detroit regions ran from a gain of 7.42 months to 12.21 months. In arithmetic the range was 6.27 months to 9.18 months. Clearly, an evaluation of Section 3 programs must be conducted on a regional basis within the City of Detroit.

Type of Program

There was no difference found between pupil achievement in reading by program type. The analysis of variance revealed that Detroit Section 3 students enrolled in reading only programs and combination reading and arithmetic programs made similar gains in reading achievement.

Grade Level

A careful examination of the pretest reading achievement of Detroit Section 3 students across grades 3 - 6 revealed that the 3rd graders, on the average, were 8 months below the average 3rd graders in the nation; the 4th grade students 11 months below the national norm; the 5th grade students 15 months below; and the 6th grade students 17 months below. After one year in Section 3 programs, the same basic condition persisted.

A nonsignificant F value was found when the reading gain scores were compared across grades. Still, students in all four grade levels progressed 8 or 9 months in achievement, an improvement over past years.

In arithmetic, the pretest achievement scores revealed that students in the 3rd grade, on the average, were 7 months below the national norm; the 4th graders were 9 months below grade average; the 5th graders were 11 months below grade average; and the 6th graders were 14 months below grade average. Again, it was found students performed uniformly across grades ($F_{3,377} = 0.61$). On the average, students made between seven and eight months gains across the four grade levels.

Funding Levels

Three funding levels for compensatory education programs existed in Detroit: (1) level 1 included buildings which received only Section 3 monies; (2) level 2 included buildings receiving both Section 3 funds and ESEA Title I funds; and (3) level 3 included buildings receiving Section 3 funds, Title I funds, and money from other sources. Data were not available on a small number of buildings, thus creating a fourth category, unknown funding.

With respect to reading, there were no significant differences between the pretest achievement scores for the four funding levels. Using analysis of variance to analyze gain scores under the different funding levels yielded a highly significant F value ($F_{3,781} = 5.370$). Pupils in the last two categories gained 10 months; in funding level 2, nine months; in level 1, eight months. Although factors other than increased funds could have contributed to significant differences in pupil achievement among the three funding levels, there is evidence that increased money had a positive

effect on reading achievement.

The same type of analysis was conducted in arithmetic. No significant differences in pupil achievement were found among the three different funding levels.

Program Duration

Detroit Section 3 students were placed in programs of either 6 months or 7 months duration. The former group performed better in pretesting than the latter group ($F_{1,783} = 6.096$) in reading. The two groups performed the same in arithmetic. However, an analysis of the reading gain scores and arithmetic gain scores reversed the trend. In both reading and arithmetic achievement, those students involved in the 7 month programs performed significantly better than those involved in 6 month programs. It appears the longer the program lasts the higher the gains in achievement.

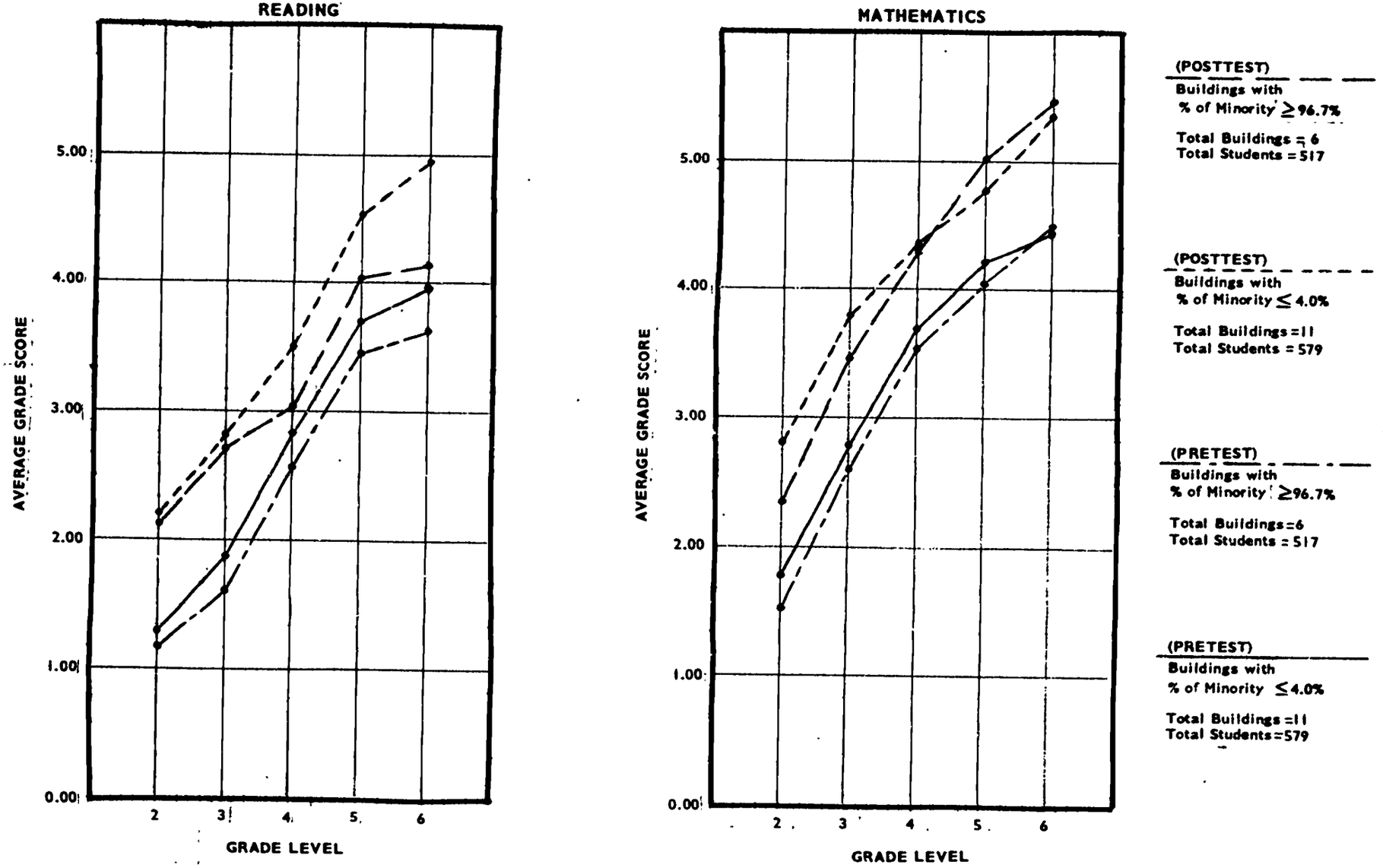
Demographic Variables

Socioeconomic status and percent of minority students were variables taken into account in the analysis of test data.

The percent of minority students accounted for 42% of the variance in reading and 52% of the variance in arithmetic; socioeconomic status accounted for 51% and 62% of the variances in reading and arithmetic achievement of Section 3 students in grades 3-6.

Due to the wide range in socioeconomic status and the percent of minority students in the schools, only data from selected schools in a single district are presented in graphs 1 and 2. In both reading and arithmetic, students in schools with high percentage of minority students

COMPARISON OF GRADE SCORES FOR BUILDINGS WITH A HIGH PERCENT OF MINORITY STUDENTS (≥96.7%) VERSUS BUILDINGS WITH A LOW PERCENT OF MINORITY STUDENTS (≤4.0%)



performed lower than those in largely white schools. This occurred in both pre- and posttest achievement.

Graphs 3 and 4 show that students performed well in early elementary grades but seemed to fall behind around 4th grade. Both teacher variables and the teaching processes will be scrutinized carefully to pinpoint the causes of such drops in achievement.

A Comparison of High Scoring and Low Scoring Districts

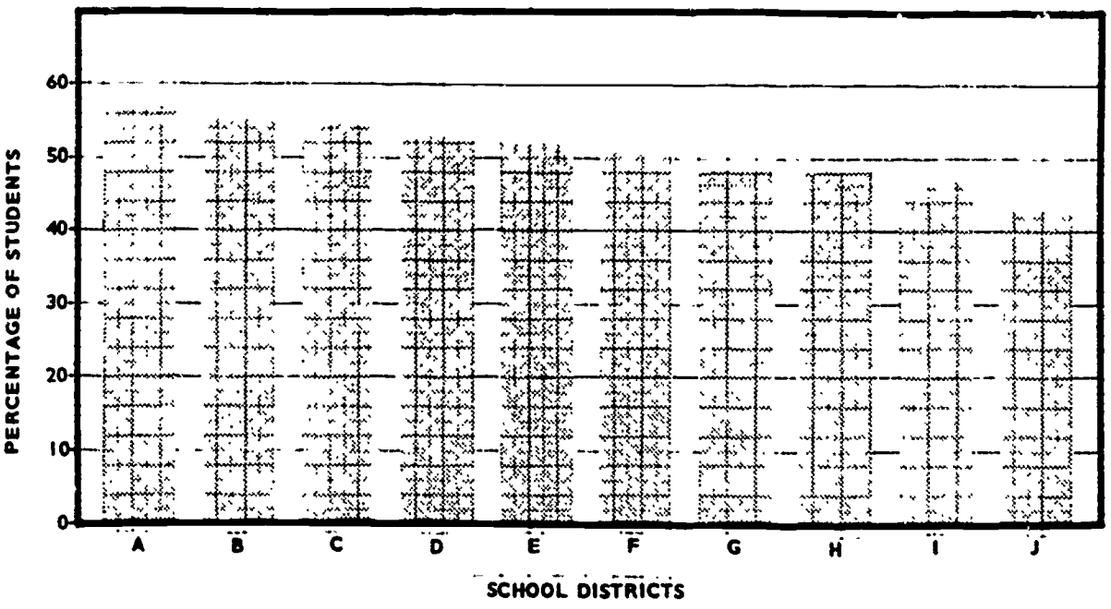
A problem facing compensatory education programs is the identification of effective educational practices. In an effort to isolate factors which caused pupils to achieve at relatively high levels, ten districts which accomplished 175% or more of their stated objectives were compared with nine districts which accomplished 50% or less of their stated objectives. These data are graphically portrayed in graphs 5 and 6.

It should be noted that there is a wide difference between the range of percent of accomplishment between the two groups: 14% among the high districts, 37% among the low districts. Thus, it was difficult to make direct comparisons between the two in terms of percent of accomplishment of stated objectives.

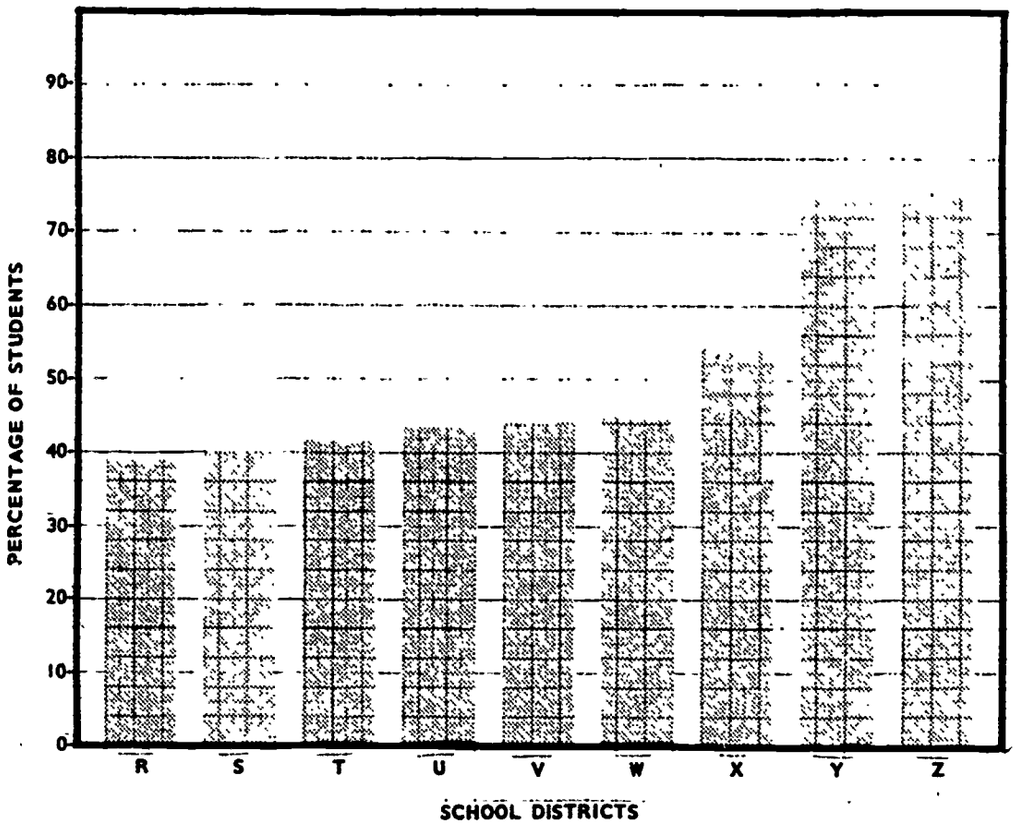
Four general program components were considered in making high/low comparisons:

1. Program logistics -- the extent of time commitment, the size of the learning unit (or pupil/teacher ratio), and the degree to which the program functioned as an assimilated instructional unit (a part of the regular classroom process) vs. an extraneous instructional unit;

PERCENTAGE OF STUDENTS WITH A PERCENT OF ACCOMPLISHMENT OF 175% AND ABOVE



PERCENTAGE OF STUDENTS WITH A PERCENT OF ACCOMPLISHMENT OF 50% AND BELOW



2. Program personnel -- the intensity of "people resources" committed to the pupil or instructional unit, as well as what kind of resources (i.e., teacher aides, reading specialists, auxiliary teachers, consultants, coordinators, and university consultation);
3. Instructional materials -- the kinds of instructional resources which were utilized in the programs (i.e., multimedia, programmed materials, visual aids, a learning resource center, etc.); and
4. Instructional process -- the kind of instructional process which was utilized (e.g., individualized instruction), the extent of systematic interaction of the process components and people (i.e., diagnostic screening, assessment of pupils' deficiencies and learning styles, program prescription, and feedback).

Program Logistics

The amount of instructional time committed per week appeared about equal between the high and low achieving districts. The former seemed to utilize somewhat smaller instructional units, but the difference was rather slight. In particular, there appeared to be a tendency for high districts to utilize extraneous small groups instead of assimilating the program into the regular classroom instruction.

Program Personnel

The high districts tended to utilize coordinators or consultants to facilitate coordination and inservice training for the teachers. The low districts tended more toward parallel personnel (e.g., remedial or auxiliary

teachers) rather than supervisory personnel. Both groups utilized teacher aides.

Instructional Materials

Several of the high districts mentioned utilizing learning resource centers; only one low achieving district mantioned a learning center as being a part of the program. All districts utilized multi-media, programmed materials, etc.

Instructional Process

Nearly all districts recognized the need to relate instructional materials to student deficiencies or disabilities as stated in program descriptions. More high districts mentioned the role of a student learning style in planning her/his instructional program. While the high districts made more frequent reference to diagnostic screening, most of the districts were utilizing some form of individualized instruction.

Both groups mentioned the role of feedback for evaluation and reinforcement; more high districts acknowledged this component and emphasized the role of reinforcement (reward/praise).

Inservice and/or preservice training were utilized by several districts in both the high and low districts.

Problems of Quantifying Program Descriptions

The program descriptions were obtained from the 1971-72 Section 3 program applications. The instrument used to obtain program descriptions contained only two general categories -- organizational characteristics, and instructional strategies. These were essentially open-ended response

formats. Such a format presents great difficulties for data interpretation, in that omission of program components can easily occur.

The second major problem in attempting to quantify the program descriptions was the use of educational concepts in broadly stated terms. The following are commonly used concepts whose exact meaning would seem to be in question due to generalized usage:

1. Learning centers -- what population uses the center; a classroom; the entire school? What kinds of resources, interests, and ability levels are included in the resources? Is this comparable to a library or a laboratory?
2. Programmed materials -- does this mean a precise, sequential, and objective instructional format related to the learning deficiencies of pupils?
3. Learning style -- to expect definitive information on this concept may be an unreasonable demand since they were not specifically asked; but it may be a key to differentiate how effectively teachers and districts are dealing with various learning processes.

Percentage of Section 3 Funds Expended

Although each of the Section 3 school districts was not required to submit a budget at the end of the school year 1971-72, all Section 3 school districts submitted a summary expenditure report. Since districts had complete autonomy in the expenditure of funds, it is assumed that the summary expenditure reports accurately reflect monies expended.

The itemized expenditures of the high and low districts are presented in Tables 8 and 9.

It appeared to be that the high and low districts spent the Section 3 funds in a similar fashion. That is, approximately 40 to 50% in salaries for instruction, 18 to 19% in teaching supplies and other instructional expenses, 14% in instructional equipment.

However, there are some differences between the two groups; the high group tended to spend relatively less in salaries for instruction and textbooks and more in the areas of administration and supplementary materials.

Two school districts in the high group showed a completely different pattern of spending from the rest of the population. One district spent 71.05% of its total allocation on construction and non-instructional equipment, and 19.60% on supplementary materials. The other school district spent 52.33% in teaching supplies and other instructional expenses, 34.38% on instructional equipment, 5.08% on textbooks, all under contractual services. In the same district, an additional 7.84% was spent in administration. Aside from these two exceptions, spending patterns closely matched between the high and low groups. It seemed that the manner in which the funds were spent may not have been directly related to achievement.

Summary

In summary, comparing the high and low achieving districts, there is great similarity between the concepts and processes utilized. The differences between groups must be derived from the specific operations veiled

Table 8

PERCENTAGE OF SECTION 3 MONIES EXPENDED

175% and Above 1. SCHOOL DISTRICT 2. ALLOCATION 3. EXPENDITURES	Salaries For Instruction	Inservice Education	Textbooks	Supplementary Materials	School Library Expenses	Teaching Supplies and Other Instruction Expenses	Instructional Equipment	Administration	Pupil Transportation	Operation and Maintenance	Fixed Charges	Student Body Activities and Community Services	Construction and Non-Instructional Equipment
1.Marlette 2.$49,800.00 3.$50,970.41	46.16	1.85				31.63	(6.29)				(13.36)		
1.Hemlock 2.$33,432.00 3.$33,603.00	74.35	3.32	.5	5.22	3.43	1.13	(12.52)						
1.Van Buren 2.$168,000.00 3.$175,779.00	66.83	.45	1.37	8.28	.6	5.62	(9.41)	11.90					
1.Ubly 2.$23,200.00 3.$23,100.00	60.67	(11.43		(9.42)	(8.62)			.86		.96 (5.38)	(2.20)		
1.Westwood 2.$153,230.00 3.$152,837.00	40.68	(12.43		(11.69)		(18.59)			(.12)	.06			
1.Benton Harbor 2.$451,000.00 3.$386,642.00	34.36	(1.94)			(.48)	(22.56)	(17.63)	3.26 (.04)	(.83)	(.01)	(2.71)	(.16)	(.69)
1.Ypsilanti 2.$178,901.00 3.$178,901.00	49.09		(4.37)			(28.77)	(17.15)			.12	(.46)		
1.Cassopolis 2.$45,220.00 3.$21,402.09	32.72					(14.60)							
1.Lakeville 2.$65,400.00 3.$67,708.26	5.64			(19.60	(2.51)	(1.01)	(2.55)				1.13		71.05
1.Dowagiac 2.$92,000.00 3.$91,999.00	.18		(5.08)			(52.33)	(34.38)	7.84			.16		
AVERAGE	41.06	5.23	2.83	10.84	3.14	19.58	14.27	5.97	.47	1.63	3.33	.16	35.87

*Figures given indicate Salaries
Parenthesized figures indicate Contracted Services and Other Expenses.
Figures Underlined indicate Summer School

Table 9

PERCENTAGE OF SECTION 3 MONIES EXPENDED

50% and below 1. SCHOOL DISTRICT 2 ALLOCATION 3 EXPENDITURES	Salaries For Instruction	Inservice Education	Textbooks	Supplementary Materials	School Library Expenses	Teaching Supplies and Other Instruction Expenses	Instructional Equipment	Administration	Pupil Transportation	Operation and Maintenance	Fixed Charges	Student Body Activities and Community Services	Construction and Non-Instructional Equipment
1.Holton 2.$23,084.00 3.$23,267.94	40.60	(.39)				(6.61)	(28.62)	1.23 (.21)		(.75)	(4.85)		(17.47)
1.Romulus 2.$191,637.00 3.$191,637.00	23.67 (2.29)	(10.00)		(2.55)		(27.35)	(18.28)	1.56 (10.40)					(3.86)
1.Beecher 2.$179,000.00 3.$166,943.00	56.79	(1.27)				(24.09)		2.12 (.33)	(6.34)	(.78)		(.01)	1.48
1.Brimley 2.$22,686.00 3.$22,686.00	87.41	1.00		(11.57)									
1.Gobles 2.$22,089.00 3.$22,089.00	39.12	(9.95)	(15.34)	(1.63)		(9.68)				(3.58)	.36	(.22)	(20.06)
1.Grand Rapids* 2.$1,068,232.00 3.$ 985,612.00	5.17 58.50	.21 (.20)	(5.61)	.22 (12.00)		2.12 (8.45)	(7.26)	.2					
1.Jackson 2.$365,961.00 3.$369,765.83	34.99		(.69)	(14.99)		(37.91)	(9.96)	(.41)		(.32)			
1.Hamtramck 2.$81,988.00 3.$81,988.00	67.48				(8.84)	(18.80)							(4.86)
1.Wayne-Westland 2.$534,514.00 3.$484,007.00	2.50 53.97 (4.11)	6.10 1.27 (.32)		.18 (13.59)		.37 (8.81)	.28 (7.94)				(.50)		
AVERAGE	52.95	4.38	7.21	9.12	8.84	18.02	14.47	3.29	6.34	1.36	1.90	.12	9.54

*Figures given indicate Salaries
Parenthesized figures indicate Contracted Services and Other Expenses.
Figures Underlined indicate Summer School

behind the general concepts stated by the districts. For example, the written descriptions give the general impression of equivalence of process (i.e., use of individualized instruction, use of programmed materials, etc.). However, the high districts seemed more structured and more organized in relating student deficiencies and learning style to program prescription, and then following up with pupil/teacher consultation for feedback. Both groups may be equivalent on this process, but the high districts seemed to stress the specific pupil deficiencies.

In contrast, some of the low achieving districts were more ambiguous in meeting student learning deficiencies. Their strategy sounded more vague (e.g., "We're using a variety of supplemental texts, materials, media, etc."). Such an approach would appear less geared to dealing with learning deficiencies.

Assuming that reading and arithmetic are structured systems, then presumably deficiencies in learning these systems could best be met by utilizing a structured, systematic program, or material. Thus, while the more intangible program components were mentioned by low scoring districts (much love and understanding, or emphasis on materials relating to individual interest) these aspects seem more related to student receptivity and may not move beyond to meeting and countering specific deficiencies.

ACKNOWLEDGMENT

All large projects require cooperative efforts. This paper couldn't have been written without the following persons:

Dr. Howard Teitelbaum provided assistance and consultation in using Michigan State University's statistical packages and computer facilities for the analysis of Section 3 data. Mr. Steve Peter, Mr. Michael Tsai and Mr. Paul Canfield worked on the maintenance and auditing of student records, and analyses of the data.

Ms. Nancy Schoewe Heyser wrote the section on high and low achieving school districts and prepared the tables; Ms. Ronnie Kurchner prepared the financial reports; and Mr. John Orehovec prepared the graphs. Ms. Gualia Chesley and Ms. Phyllis Wilson copyread and typed the manuscript.

The authors are also indebted to Professor Mary Ellen McSweeney and Professor Andrew Porter of Michigan State University for many hours of enlightened discussion on the evaluation of compensatory education programs.