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AUTHOR Gallagher, Michael P.; Lanese, James
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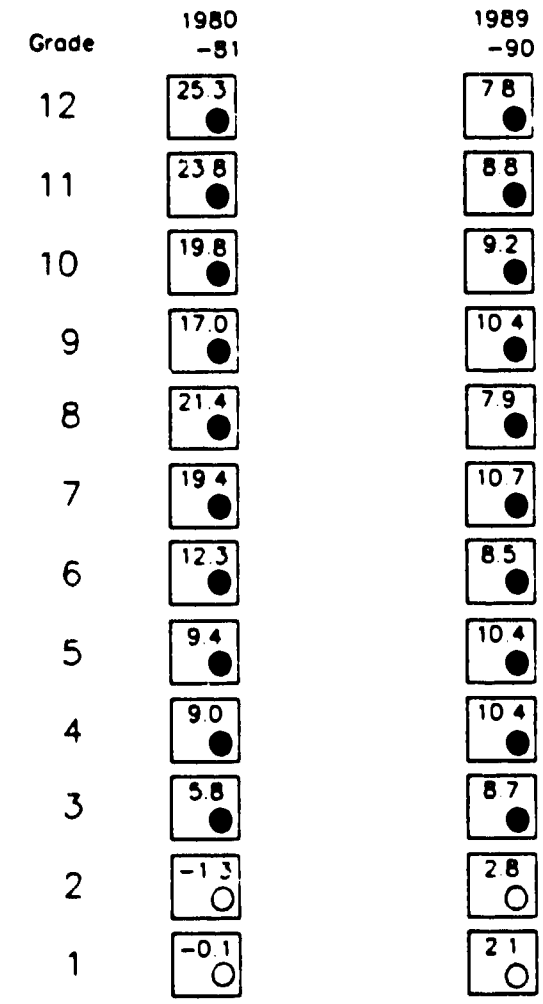
ABSTRACT

The reading pariety study for 1989-90 provided information for the Cleveland, Ohio school district, parents, and community to determine what progress the school system is making toward parity in reading proficiency. Parity will be attained when statistically equivalent proportions of Black and White students score at or above the thirty-fourth percentile rank on a standardized norm referenced reading comprehension test. Data for the annual multi-year cross-sectional analysis and a longitudinal analysis were compiled. Results indicated that: (1) racial parity in reading results was attained for the first and second grades in 1989-90; (2) parity gaps for secondary school grades have decreased since the onset of desegregation; (3) longitudinal analysis, following cohorts of students, indicated increasing parity gap by grade; (4) results of the schoolwide approach to remedial programming at the elementary level were somewhat less positive than for the traditional reading program at a higher cost per student; (5) "Major Work" students showed better normal curve equivalent (NCE) changes than other noncompensatory students in 4 of 5 elementary grades; (6) grade 3 had the best overall NCE change and grade 7 had the worst; (7) results of "THINK," the secondary school support system, were somewhat positive at grade 10, but negligible at other grades; (8) the compensatory program at intermediate grades, "STAR," had average NCE changes that were negative in both grades; and (9) individual schools had widely varying success in improving reading comprehension at various grades. (Six figures and eight tables of data are included.) (RS)

CLEVELAND CITY SCHOOL DISTRICT

1989–90 READING STUDY

Parity ... then and now
from Figure 1



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Department of Research and Analysis

EXECUTIVE SUMMARY

1989-90 READING STUDY

Michael P. Gallagher and James Lanese

... Cross sectional analysis (Figure 1) indicates that for Spring, 1990 racial parity in reading results was attained at grades 1 and 2, compared with only grade 1 the previous year. The year with most grades in parity, 1985-86, had four.

... Parity gaps have decreased from the onset of desegregation in 1980-81 to the 1989-90 school year in all secondary school grades 7 through 12. The range of parity gaps in 1980-81 for secondary grades was 17 through 25, compared with 8 through 11 in the most recent year.

... Longitudinal analysis (Figure 2), following cohorts of students, found increasing parity gap by grade, approximately one point difference per grade. Recommendation. Continued intensive efforts are suggested toward finding/implementing programs which work well.

... Recommendation. A change in parity definition should be sought which incorporates overall district performance levels as well as relative racial equity.

... The schoolwide approach to remedial programming at the elementary level was used at 11 buildings in the study year. Results for eligible students were somewhat less positive than for the traditional reading program at a higher cost per eligible student.

... Major Work students showed better NCE changes than other non-compensatory students in four out of five of the elementary grades in this study.

... Grade 3 had the best overall NCE change (1.1) and grade 7 had the worst (-6.8)

... THINK, the secondary school support program, costs slightly under $500 per student. Results were somewhat positive at grade 10, but negligible differences were observed at other grades.

... STAR is the compensatory program at intermediate grades. For the first time this year STAR had average NCE changes that were negative in both grades.

... Figures 3 through 6 indicate that individual schools had a wide range of success in improving reading comprehension at various grades. One school at grade six had an average NCE change of 11 points, while the lowest average was -9. Recommendation. Cluster staff may employ this tool to help judge school reading program success and target areas for improvement.

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PART I. PARITY - 1990

Introduction

One way that reading achievement is assessed in Cleveland is by reading parity results. Mandated by the Federal District Court, the Annual Reading Parity Study provides information for the District, parents, and community to determine progress the school system is making toward parity in reading proficiency, and to assure them that the Cleveland City School District is making efforts to "correct the effects of prior segregated schooling to the greatest extent possible." (Remedial Order, February, 1978). Parity is attainted when statistically equivalent propcrtions of Black and White students score at or above the 34th percentile rank (PR) on a standardized norm referenced reading comprehension test ($p<.01$). This is the twelfth year in which cross-sectional parity results have been analyzed. The 1989-90 parity results are based on the Spring CAT reading comprehension subtest and address the following two questions:

- What is the status of reading parity in the District at the end of the 1989-1990 academic year?

- What progress toward reading parity is evident from an analysis of the cross-sectional and longitudinal data?

This report answers the above questions by presenting the annual multi-year cross-sectional analysis and the longitudinal analysis--which incorporates the recommendations that baseline years of 1979 and 1981 be used for the initial years of study and that these pupils be followed until 1988 or until parity is attained (OSMCR Comments, Attachment F, Memorandum of 3/11/83, Recommendation # 2). Additionally, subsequent cohorts (consisting of District enrollees since 1982) were analyzed in this study.

A. The Cross-sectional Parity Study

From Spring, 1978, through Spring, 1986, the Comprehensive Test of Basic Skills (CTBS) was administered as part of the city-wide testing program. Beginning in the Spring, 1987, the District used the California Achievement Test (CAT) for city-wide achievement testing. In Spring, 1987 and Spring, 1988, the reading comprehension subtest results of the CAT (transformed to CTBS scores) were utilized for the parity analysis. In Spring, 1989 and 1990, untransformed CAT-E scores were utilized for this analysis.

The Spring, 1990 CAT-E reading scores were appended to multi-year tables prepared in the past. At each grade level, the test of independent proportions was applied to the upper achievement groups (those students scoring at or better than 34 PR). The standard error for the difference of the proportions was calculated and the test statistic was assessed for significant proportional differences at the .01 confidence level. If the test indicates that the proportions of black and white students at of above the 34th PR are not statistically different, then parity is said to exist at the corresponding grade level.

The cross-sectional results are derived from an analysis of reading achievement scores obtained from black and white students who participated in the California Achievement Test in reading in the spring of 1990. Test takers represent between 70 and 96 percent of the student enrollment at each grade level; higher proportions are evident at grades one through eight while lower percentages mark the secondary grade levels. Table 1 and Figure 1 illustrate the results of the 1990 cross-sectional analysis. The following observations (among others) are noted.

Students in grades one and two attained parity in 1989-90. This represents one additional grade level than during the previous two years.

The parity gap was reduced in the four senior high school grades in 1989-90 while other grades evidenced mixed differences from the previous year. Double digit proportional differences appear to be on the wane in the district.

Table 1

1989-90 Cross-Sectional Parity Analysis (Untransformed CAT Scores)

Gr.	Number Total Scores	Number Black Scores	Number White Scores	Number(%) Above Cut	Number(%) Above Cut	Parity Gap	z
1	6028	4521	1507	2761 (61)	953 (63)	2	-1.50*
2	1521	4097	1424	2397 (59)	873 (61)	3	-2.21*
3	5141	3884	1257	2587 (67)	946 (75)	9	-5.75
4	5016	3802	1214	2133 (56)	807 (66)	10	-6.39
5	4620	3483	1137	2195 (63)	834 (73)	10	-6.37
6	4382	3282	1100	2061 (63)	784 (71)	8	-5.10
7	4060	3147	913	1669 (53)	582 (64)	11	-5.73
8	3571	2759	812	1511 (55)	509 (63)	8	-4.00
9	3582	2804	778	1488 (53)	494 (63)	10	-5.18
10	2720	2133	587	1271 (60)	404 (69)	9	-4.07
11	2201	1778	423	1209 (68)	325 (77)	9	-3.55
12	2129	1811	318	1248 (69)	244 (77)	8	-2.81

*Gap size is not significantly different (i.e., parity is attained)

FIGURE 1
RACIAL PARITY IN READING COMPREHENSION
CROSS SECTIONAL HISTORICAL PATTERN

Above Graphic: Parity Gap Equals
Percent of White Students Above 33rd %ile
Minus Percent of Black Students Above 33rd %ile

Grade	1980 -81	1981 -82	1982 -83	1983 -84	1984 -85	1985 -86	1986 -87	1987 -88	1988 -89	1989 -90
12	25.3 ●	21.4 ●	20.5 ●	25.2 ●	18.5 ●	13.8 ●	21.4 ●	23.2 ●	18.4 ●	7.8 ●
11	23.8 ●	23.8 ●	20.2 ●	20.8 ●	22.1 ●	16.3 ●	23.6 ●	18.5 ●	10.4 ●	8.8 ●
10	19.8 ●	19.3 ●	18.9 ●	19.3 ●	14.2 ●	16.1 ●	19.2 ●	14.8 ●	12.6 ●	9.2 ●
9	17.0 ●	18.3 ●	13.5 ●	11.3 ●	11.0 ●	13.5 ●	9.7 ●	14.7 ●	12.0 ●	10.4 ●
8	21.4 ●	19.5 ●	12.5 ●	15.4 ●	13.5 ●	10.2 ●	12.8 ●	9.1 ●	6.3 ●	7.9 ●
7	19.4 ●	13.2 ●	12.7 ●	12.7 ●	8.2 ●	6.0 ●	6.2 ●	11.9 ●	7.6 ●	10.7 ●
6	12.3 ●	11.6 ●	8.6 ●	9.6 ●	6.3 ●	2.9 ○	5.6 ●	5.9 ●	8.3 ●	8.5 ●
5	9.4 ●	12.2 ●	5.5 ●	7.9 ●	5.8 ●	7.5 ●	6.0 ●	8.8 ●	10.5 ●	10.4 ●
4	9.0 ●	5.9 ●	6.9 ●	4.1 ○	10.0 ●	5.0 ●	6.7 ●	10.2 ●	8.8 ●	10.4 ●
3	5.8 ●	6.6 ●	2.9 ○	2.5 ○	3.0 ○	3.0 ○	5.0 ●	4.8 ●	8.1 ●	8.7 ●
2	-1.3 ○	1.5 ○	-1.6 ○	0.7 ○	0.4 ○	0.8 ○	1.0 ○	4.6 ●	5.3 ●	2.8 ○
1	-0.1 ○	-1.4 ○	0.3 ○	4.8 ●	0.4 ○	0.7 ○	0.6 ○	0.3 ○	1.6 ○	2.1 ○

Legend ( ) Grade does have parity ● Grade does not have parity

B. 1990 Longitudinal Parity Study

The longitudinal analysis focuses on students who were enrolled in the District since 1980-81 school year, the year system-wide desegregation was first implemented. There are 21 cohorts that are examined in this analysis, one for each 1980-1981 grade level and all year since 1980-81.

There are five cohorts for which the first year of test data available is prior to 1980-1981. For Cohort D (which was Grade 4 in 1980-81), the initial year is 1979-1980 (when these students were in third grade). For cohort E (students who were in Grade 5), F (students who were in Grade 6 in 1980-1981), G (students who were in Grade 7 in 1980-1981), and H (students who were in Grade 8 in 1980-1981), the first year of test data is 1978-1979. For all other cohorts, 1980-1981 is the first year for which test data is on file, or when the cohort began first grade.

The final year for each cohort is either 1989-90 (cohort A, B, C, and Z-R) or the year in which the cohort was in 12th grade (assuming that students were promoted each academic year). It should be noted that between Spring, 1979 to Spring, 1986 the reading comprehension subtest of the CTBS was the unit of analysis while the CAT reading comprehension subtest score has been used since Spring 1987.

Students were included in a cohort analysis if:

1. students had a reading comprehension score on file for both the initial and last year of their cohort; and
2. if students had attained the final appropriate grade level (this assumes an annual one-grade-per-year promotion rate).

Table 2 gives a summary description of students in each of the 21 cohorts. The number of black and white students in each cohort, the number of years each cohort has been/was in existence, and the beginning and ending grade level for each cohort is included.

- Eleven of the 21 cohorts (C through L) had graduated by Spring, 1990.

- The ARSP was initiated in fall, 1982. This study includes results from tests given in the 1978-79 school year, four years prior to the ARSP implementation.

Once the cohort was identified, the parity analysis, as previously described, was completed for each year.

There are several limitations inherent in how the cohort is defined. Students who are not at grade level are excluded. Since parity is concerned with proportions of students at or above the 34th PR, and since students with low test scores are more apt to be behind their grade level, an important group is excluded from this analysis. By using starting and ending years to define

cohort membership, the comparability between cohorts is weakened. For example, cohort K students needed to be promoted once while Cohort A students (who began in Grade 1) must be in Grade 10 in order to be included.

The parity tolerance shows a wide variation over the included years. The significance of the parity gap is dependent on a number of factors that are independent of the differences between the percent of black and white students scoring at or above the 34th PR. These factors include the size of the groups (the larger the group the smaller allowable parity gap) and the proportion of each group falling above the 34th PR. In addition, since the scores of all students who meet the criteria for the cohort are included, it is questionable whether inferential techniques are appropriate.

In the 1989-1990 school year, 12 cohorts, A, B, C, and Z through R had students enrolled in the District. Therefore, the application of the parity statistic applied only to these cohorts. All other cohorts (D through L) graduated prior to Spring, 1990. Refer to Figure 2 for details on parity for each cohort.

- Cohort C attained parity in all but one of its ten years. The parity gaps ranged from 1.2 percentage points to 12.4 percentage points.

- Cohort B attained parity in three of its ten years. The parity gap ranged from 2.7 to 13.6 percentage points. The 1988-1989 gap of 13.6 percentage points was the highest.

- Cohort A attained parity at all ten grades. The parity gap ranged for .6 percentage points to 7.1 percentage points. The parity gap was greatest in 1989-90. In four of the nine years, the percentage of black students above the 34th PR was greater than the percent of white students.

The following observations apply to cohorts Z through R.

- All nine cohorts have attained parity in reading at least once during their school careers.

- The trends which are evident in the cross-sectional analysis remain evident among these cohorts--the parity gap increases over time; reading parity is most commonly attained among first and second grade cohort members.

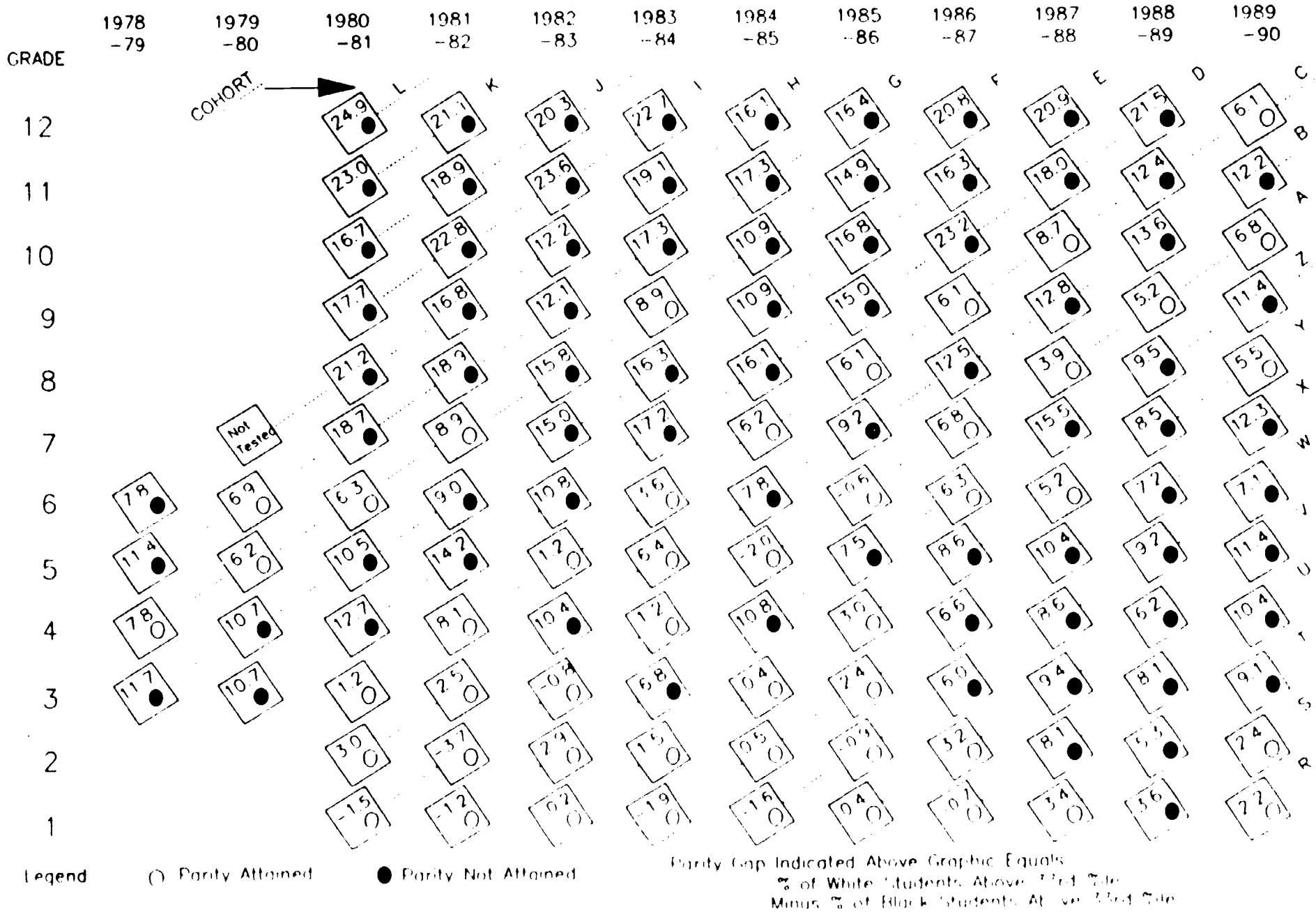
- It should be noted that each cohort's parity gap increased as the cohort moved through the District.

Table 2

Description of Cohort Samples

Cohort Label	Total n	Black n	White n	% Black	% White	Durtn Years	Grade Beg	Grade End
A	1416	1153	263	81	19	10	1	10
B	1266	1074	192	85	15	10	2	11
C	1304	1230	174	88	12	10	3	12
D	1627	1417	210	87	13	10	3	12
E	1666	1420	246	85	15	10	3	12
F	1525	1295	230	85	15	9	4	12
G	1397	1165	232	83	17	8	5	12
H	1576	1274	302	81	19	6	6	12
I	1462	1161	301	79	21	4	9	12
J	1534	1227	307	80	20	3	10	12
K	1458	1101	357	76	24	2	11	12
L	2905	2004	901	69	31	1	12	12
Z	1835	1507	328	82	18	9	1	9
Y	2140	1732	408	81	19	8	1	8
X	2388	1918	470	80	20	7	1	7
W	2833	2182	651	77	23	6	1	6
V	3198	2480	718	78	22	5	1	5
U	3713	2875	838	77	23	4	1	4
T	4148	3182	966	77	23	3	1	3
S	4768	3053	1715	64	36	2	1	2
R	6028	4521	1507	75	25	1	1	1

FIGURE 2
RACIAL PARITY IN READING COMPREHENSION
LONGITUDINAL PATTERN FOR COHORTS OF STUDENTS



The following observations apply to the cohorts that did not have active membership in the 1989-1990 school year.

- Cohort D (June, 1989 graduates) did not attain parity at any grade level. The 12th grade parity gap was greater than the gap at any grade level except for 10th grade. The parity gap for this cohort ranged from 10.7 percentage points to 23.2 percentage points.

- Only cohorts F and G achieved parity at any grade level.

- The parity gap in the secondary grades was greater than in the elementary grades.

- For cohorts E, F, I, and J the parity gaps in the years after 1980-1981 (the first year of District-wide desegregation) were generally greater than the 1980-81 parity gap.

- For cohorts G and H the parity gaps in the years following 1980-81 were smaller than the 1980-1981 parity gap.

- For cohorts E, F, and I, the parity gaps decreased after 1982-1983, the year the ARSP was first implemented.

- For cohorts G and H the parity gap increased after 1982-1983.

Parity between black and white students' reading comprehension test scores was attained at grades one and two; there was evidence of improvement, especially in the secondary grades. The parity gap itself tends to be less at the elementary than at the secondary grades. However, the parity gap has decreased from the onset of desegregation in 1980-1981, to the implementation of the Affirmative Reading Skills Program in 1982-1983, and finally to the 1989-1990 school year in all grades.

The results in the elementary grades for the same period of time were mixed. Although there was a reduction in the parity gap at each elementary grade level from 1980-1981 to 1982-1983, the 1989-1990 parity gap was larger than the 1982-1983 parity gap in Grades 1 through 5. In each primary grade, the parity gap has increased over time; the 1989-1990 gap being greater than the gap at the same grade level in any year since 1980-1981, with but one exception.

In the longitudinal analysis, Cohort A (which had been Grade 1 in 1980-1981) had the best overall parity results. The longitudinal parity analysis indicated that, for each cohort, the parity gap tended to increase by one percentage point per year, whether or not the difference was significant. The analysis of additional cohorts (Z-R) since 1981 also reinforced the cross-sectional studies' picture of parity attained most often among lower grade students between 1983 and 1987 in the district.

PART II. COST-EFFECTS

A. Effects by Treatment

Table 3 gives detailed results for the 1989-90 academic year by grade and by the type of reading programs students received. For each reading program within a grade, the number of students, average pretest NCE (Spring, 1989), average posttest NCE (Spring, 1990), and average NCE change are given. For example, two compensatory reading programs were available in grade 3, the traditional pullout "Reading" model and the "Schoolwide" approach. The Schoolwide Program was expanded to serve 11 schools for the 1989-90 school year. Table 3 indicates that the 864 third grade students in the Reading Program gained 8.0 NCE points on average, compared with 5.4 NCE points for the 239 students in the Schoolwide Program.

The Schoolwide versus Regular Reading comparison made above for grade 3 compensatory students can be made for the other elementary grades as well. We note that in grade 4 schoolwide students did six-tenths of a point better than the regular reading group, but worse in each of the other elementary grades. Some caution is called for in the above comparison and in other comparisons using Table 3: groups receiving different reading program components are not randomly chosen, consequently different results may be partially attributable to differences among groups.

Students in the major work program for the gifted consistently have NCE averages at about 70, approximately 20 points above the average in the elementary grades. NCE changes for the major work students also compare favorably. For example, 234 grade 6 major work students had an average NCE change of 2.8, which was 3.2 points above the -0.4 change for the 2,052 other non-compensatory students. Major work students showed better NCE changes in four of the five elementary grades 2 through 6.

Given the variety of reading programs serving students in each grade, how did that grade perform overall? To answer that question, the last line for each grade in Table 3 provides the averages for all students taken together. Grade 3 showed a modest average NCE gain of 1.1 points, grades 5 and 6 had close to zero change, indicating that those students progressed at the same rate as their peers in the national norming group, and grades 2 and 4 showed abrupt declines of -5.6 and -4.5 NCE points, respectively.

Results for secondary school grades are given on the second sheet of Table 3. The best overall gain for a grade was grade 12, where students had an average NCE change of +0.7 NCE points. Grade 7 had the worst performance, with an average change of -6.8 NCE points.

Comparison may be made between students taking THINK, the support program, and those not. For example, with non-compensatory students in grade 7, those with THINK had an average change of -7.8 NCE points; while those without THINK had almost the same change, -7.9. For five of the six

TABLE 3

READING COMPREHENSION -- By Grade/Treatment

SPRING 89 TO SPRING 90 NCE CHANGE

GRADE	READING STRAND ENROLLMENT DEVELOPMENTAL	SUPPORT	COMPENSATORY	STUDENTS TESTED PRE AND POST(1) N	NCE AVERAGES PRE	POST	CHANGE
2	Reading	LLL	None	3,804	56.9	49.1	-7.7
2	Reading MajWk	LLL	None	167	75.0	71.3	-3.7
2	Reading	LLL	Reading	471	29.6	35.5	5.9
2	Reading	LLL	Schoolwide	222	27.7	31.7	4.0
2	** TOTAL **			4,664	53.4	47.7	-5.6
3	Reading	LLL	None	3,251	55.0	54.1	-0.8
3	Reading MajWk	LLL	None	171	70.6	67.2	-3.3
3	Reading	LLL	Reading	864	31.2	39.2	8.0
3	Reading	LLL	Schoolwide	239	30.4	35.7	5.4
3	** TOTAL **			4,525	49.7	50.8	1.1
4	Reading	DRP	None	2,906	55.5	48.3	-7.2
4	Reading MajWk	DRP	None	243	70.9	69.1	-1.8
4	Reading	DRP	Reading	1,065	34.4	35.4	1.0
4	Reading	DRP	Schoolwide	200	34.8	36.4	1.6
4	** TOTAL **			4,414	50.3	45.8	-4.5
5	Reading	DRP	None	2,592	52.8	51.0	-1.8
5	Reading MajWk	DRP	None	269	67.8	68.1	0.2
5	Reading	DRP	Reading	1,013	34.3	36.5	2.2
5	Reading	DRP	Schoolwide	167	35.1	36.1	0.9
5	** TOTAL **			4,041	48.5	47.9	-0.5
6	Reading	Think	None	2,052	53.0	52.6	-0.4
6	Reading MajWk	Think	None	234	67.0	69.8	2.8
6	Reading	Think	Reading	1,089	34.4	37.8	3.4
6	Reading	Think	Schoolwide	144	34.6	36.8	2.3
6	Reading	(Magnet)	None	354	54.0	51.7	-2.2
6	** TOTAL **			3,873	48.1	48.8	0.8

Note: (1) Only students whose tests indicate grade promotion in Spring, 1989 are included.

--more--

TABLE 3 (CONT)

READING COMPREHENSION -- By Grade/Treatment

SPRING 89 TO SPRING 90 NCE CHANGE

GRADE	READING STRAND ENROLLMENT DEVELOPMENTAL	SUPPORT	COMPENSATORY	STUDENTS TESTED PRE AND POST(1) N	NCE AVERAGES PRE	POST	CHANGE
7	English	Think	None	1,983	53.4	45.5	-7.8
7	English	None	None	298	55.0	47.1	-7.9
7	English	Think	STAR	660	35.4	33.6	-1.8
7	Maj Work	Think	None	277	71.6	62.0	-9.5
7	** TOTAL **			3,218	51.4	44.6	-6.8
8	English	Think	None	1,490	50.6	48.3	-2.3
8	English	None	None	248	53.5	52.5	-1.0
8	English	Think	STAR	747	33.9	33.2	-0.7
8	Maj Work	Think	None	230	65.7	66.1	0.4
8	** TOTAL **			2,715	47.6	46.0	-1.5
9	English	Think	None	1,058	51.5	47.4	-4.0
9	English	None	None	510	51.9	48.0	-4.0
9	English	None	Communic Skills	304	35.4	35.6	0.2
9	English	Think	Communic Skills	321	35.4	36.1	0.8
9	Maj Work	Think	None	133	66.9	62.4	-4.5
9	** TOTAL **			2,326	48.1	45.3	-2.8
10	English	Think	None	821	51.8	51.5	-0.4
10	English	None	None	363	50.9	44.9	-6.0
10	English	None	Communic Skills	257	34.8	36.3	1.5
10	English	Think	Communic Skills	229	32.5	36.3	3.8
10	Maj Work	Think	None	132	65.9	65.7	-0.2
10	** TOTAL **			1,802	47.8	47.1	-0.7
11	English	Think	None	322	53.0	50.4	-2.6
11	English	None	None	754	53.8	51.4	-2.5
11	English	None	Communic Skills	266	33.7	38.2	4.5
11	English	Think	Communic Skills	53	35.2	35.2	0.0
11	Maj Work	None	None	98	67.6	66.2	-1.4
11	** TOTAL **			1,493	50.3	49.2	-1.1
12	English	Think	None	206	51.7	51.3	-0.4
12	English	None	None	1,023	51.3	50.5	-0.7
12	English	None	Communic Skills	257	31.4	37.7	6.3
12	English	Think	Communic Skills	36	27.3	32.3	5.1
12	Maj Work	None	None	140	64.7	66.4	1.7
12	** TOTAL **			1,662	48.9	49.6	0.7

same. The exception was grade 10, where those receiving THINK did much better, changing on average -0.4 compared with -6.0 NCE points.

B. Cost-Effectiveness

Table 4 indicates the estimated average cost per student of the various strands of reading programs each student may receive. In the total line at left, the sum of reading costs is provided. Table 5 places side-by-side the per student cost and the average per student NCE change.

Various comparisons may be made using Table 5. For example, the first line of grade 3 and grade 4 represent students not served by a compensatory program, excluding those in major work. Grade 4 teachers' salary has a smaller proration of time for reading than grade 3, resulting in a per student cost of $412 in grade 4 compared with $720 in grade 3. However, while the cost decreases, there is also a large drop in NCE change from grade 3 to grade 4, -0.8 for grade 3 and -7.2 for grade 4.

The second sheet of Table 5 allows cost-effectiveness comparisons to be made for reading programs in secondary grades. The first and second lines for each grade include students who are not enrolled in the remedial reading program and who may or may not have the support program, THINK. Consistent with the results of previous cost-effectiveness studies, THINK, while costing almost $500 per student, doesn't improve the NCE change. A notable exception to the lack of effectiveness comes in grade 10, wherein THINK students' average change of -0.4 is quite substantially higher than the -6.0 change for students without THINK.

A similar comparison may be made for high school students who receive the remedial program, Communication Skills and who may or may not receive THINK. Grade 10 results suggest a positive result from THINK (+3.8 NCE with THINK versus +1.5 NCE without THINK). However, just the opposite is observed in grade 11 where the students without THINK outperform THINK by 4.5 NCE points. Perhaps grade 11 remedial students gain more by taking some other course via reading in the subject area.

The results for the intermediate grades compensatory program are not encouraging this year. Average NCE changes for both grade 7 (-1.8) and grade 8 (-0.7) were both negative. This is the first year that grade 8 STAR has had negative results in the eight years that cost-effectiveness studies have been done. Grade 7 has been negative in three out of four of the most recent years.

C. NCE Changes for Individual Schools

Figures 3 through 6 provide a look at how schools compare with one another on the basis of average NCE change in reading comprehension for each grade. More precise data on the schools is available in Tables 6, 7 and 8.

Results for schools serving students at grade 2 are depicted in Figure 3. The range of average NCE changes is from -18 at Adlai Stevenson through +4 for Bolton and Scranton. Of the 54 buildings serving grade 2

TABLE 4

READING COSTS -- By Grade/Treatment

SPRING 89 TO SPRING 90 NCE CHANGE

GRADE	READING STRAND ENROLLMENT			READING STRAND COSTS			
	DEVELOPMENTAL	SUPPORT	COMPENSATORY	DEVELOPMENTAL	SUPPORT	COMPENSATORY	TOTAL
2-3	Reading	LLL	None	$720	(1)	$0	$720
2-3	Reading MajWk	LLL	None	$720	(1)	$0	$720
2-3	Reading	LLL	Reading	$720	(1)	$674	$1,394
2-3	Reading	LLL	Schoolwide	$720	(1)	$1,541	$2,261
4-5	Reading	DRP	None	$412	(1)	$0	$412
4-5	Reading MajWk	DRP	None	$412	(1)	$0	$412
4-5	Reading	DRP	Reading	$412	(1)	$674	$1,086
4-5	Reading	DRP	Schoolwide	$412	(1)	$1,541	$1,953
6	Reading	Think	None	$412	$260	$0	$672
6	Reading MajWk	Think	None	$412	$260	$0	$672
6	Reading	Think	Reading	$412	$260	$674	$1,346
6	Reading	Think	Schoolwide	$412	$260	$1,541	$2,213
6	Reading	(Magnet)	None	$412	$0	$0	$412
7-8	English	Think	None	$309	$496	$0	$805
7-8	English	None	None	$309	$0	$0	$309
7-8	English	Think	STAR	$309	$496	$449	$1,254
7-8	Maj Work	Think	None	$309	$496	$0	$805
9-12	English	Think	None	$181	$496	$0	$677
9-12	English	None	None	$181	$0	$0	$181
9-12	English	None	Communic Skills	$181	$0	$993	$1,174
9-12	English	Think	Communic Skills	$181	$496	$993	$1,670
9-12	Maj Work	Think	None	$181	$496	$0	$677

Note: Grades 1-5 Support Strand costs are included with Developmental

TABLE 5

READING PROGRAM COSTS AND EFFECTS

SPRING 89 TO SPRING 90 NCE CHANGE

GRADE	READING STRAND ENROLLMENT			NCE	
	DEVELOPMENTAL	SUPPORT	COMPENSATORY	CHANGE	COST
2	Reading	LLL	None	-7.7	$720
2	Reading MajWk	LLL	None	-3.7	$720
2	Reading	LLL	Reading	5.9	$1,394
2	Reading	LLL	Schoolwide	4.0	$2,261
3	Reading	LLL	None	-0.8	$720
3	Reading MajWk	LLL	None	-3.3	$720
3	Reading	LLL	Reading	6.0	$1,394
3	Reading	LLL	Schoolwide	5.4	$2,261
4	Reading	DRP	None	-7.2	$412
4	Reading MajWk	DRP	None	-1.8	$412
4	Reading	DRP	Reading	1.0	$1,086
4	Reading	DRP	Schoolwide	1.6	$1,953
5	Reading	DRP	None	-1.8	$412
5	Reading MajWk	DRP	None	0.2	$412
5	Reading	DRP	Reading	2.2	$1,086
5	Reading	DRP	Schoolwide	0.9	$1,953
6	Reading	Think	None	-0.4	$672
6	Reading MajWk	Think	None	2.8	$672
6	Reading	Think	Reading	3.4	$1,346
6	Reading	Think	Schoolwide	2.3	$2,213
6	Reading	(Magnet)	None	-2.2	$412

--more--

TABLE 5 (CONT)

READING PROGRAM COSTS AND EFFECTS

SPRING 89 TO SPRING 90 NCE CHANGE

GRADE	READING STRAND ENROLLMENT			NCE	
	DEVELOPMENTAL	SUPPORT	COMPENSATORY	CHANGE	COST
7	English	Think	None	-7.8	$805
7	English	None	None	-7.9	$309
7	English	Think	STAR	-1.8	$1,254
7	Maj Work	Think	None	-9.5	$805
8	English	Think	None	-2.3	$805
8	English	None	None	-1.0	$309
8	English	Think	STAR	-0.7	$1,254
8	Maj Work	Think	None	0.4	$805
9	English	Think	None	-4.0	$677
9	English	None	None	-4.0	$181
9	English	None	Communic Skills	0.2	$1,174
9	English	Think	Communic Skills	0.8	$1,670
9	Maj Work	Think	None	-4.5	$677
10	English	Think	None	-0.4	$677
10	English	None	None	-6.0	$181
10	English	None	Communic Skills	1.5	$1,174
10	English	Think	Communic Skills	3.8	$1,670
10	Maj Work	Think	None	-0.2	$677
11	English	Think	None	-2.6	$677
11	English	None	None	-2.5	$181
11	English	None	Communic Skills	4.5	$1,174
11	English	Think	Communic Skills	0.0	$1,670
11	Maj Work	None	None	-1.4	$181
12	English	Think	None	-0.4	$677
12	English	None	None	-0.7	$181
12	English	None	Communic Skills	6.3	$1,174
12	English	Think	Communic Skills	5.1	$1,670
12	Maj Work	None	None	1.7	$181

through +4 for Bolton and Scranton. Of the 54 buildings serving grade 2 students, 35, or about 65%, had average NCE changes from -9 through -3. The overall average change for grade 2 was -5.6 NCE.

Examination of Figure 3 indicates that some schools do well at multiple grade levels. For example, Scranton achieved an average change of 4 NCE in the second grade and 3 NCE in the third grade. On the other hand, some schools did poorly in more than one grade. Charles Lake, for example, had an average change of -13 NCE in the second grade and -8 in the third grade.

School averages can find successful school sites for problematic grades. For example, in the intermediate grades 7 and 8, which schools were above average in both grades? A look at Figure 5 shows that two very different magnet schools, Fundamental Education Center ("RCKFLR") and Cleveland School of Arts did well in both grades.

Individual schools can also find that programs at some grades are relatively successful, while others may need improvement. John Marshall High School on Figure 6 is highest relative to other district schools at grade 9, about average at grade 10, and somewhat below for grades 11 and 12.

Cleveland's division into six area clusters can provide a further use for school NCE change data. A cluster can highlight its schools on Figures 3 through 6 to determine how they compare with other district schools and how they compare with each other within the cluster. Schools having greater success at a grade may have something to share with those whose students have progressed slowly in reading comprehension.

FIGURE 3
Reading Comprehension in the Primary Grades
Distribution of School NCE Changes 1989-90

NCE CHANGE								
4	BOLTON	SCRNTN						
3	C ORR							
2								
1	M SLTZ							
0	A GRDA	M BAKR	WD PRK					
-1	RCKFLR	GARFLD	M CLVD					
-2								
-3	DENISN	J RAPR	RIVRSD					
-4	CASE	R JNES	WAVRLY	W BYNT				
-5	BRKLWN	IA-MPL	K CLNT	M PARK	M STRL	A BELL	WILLOW	
-6	A WAYN	C DENS	DIKE	R NDSN	L AGSZ	MOUND	P DNBR	VAL VW
-7	GIDNGS	LAFYTE	L PSTR	R FLYN	TRENNT	WD HLS		
-8	M STRD	MT ABN						
-9	A BNSH	CORLEY	D NCAR	K CLRK	M RICK			
-10								
-11	C ROTH	J LNDS	W HARP	B-WDLD				
-12	M LNGF							
-13	ALMIRA	C LAKE						
-14	MILES							
-15								
-16								
-17								
-18	A STVN							

NCE CHANGE								
11	ALMIRA	MOUND						
10	A BNSH	K NDSN						
9								
8	J RAPR							
7								
6	LAFYTE	R FLYN						
5	C ROTH	M BAKR						
4	K CLRK	GIDNGS	L PSTR	SNBEAM				
3	BRKLWN	DIKE	M RICK	P DNBR	SCRNTN	B-WDLD		
2	A STVN	A WAYN	BOLTON	HICKS	M SLTZ	M PARK	TRENNT	WD HLS
1	DENISN	D NCAR	GARFLD	IA-MPL	M STRL	W BYNT		
0	CASE	C ORR	RCKFLR	K CLNT	M CLVD	W HARP		
-1	A GRDA	MILES	M STRD	WD PRK	WILLOW			
-2	J LNDS	MT ABN						
-3	C DENS	CORLEY	A BELL					
-4	WAVRLY							
-5	RIVRSD							
-6	M LNGF	L AGSZ						
-7								
-8	C LAKE							
-9	R JNES							

GRADE 2

GRADE 3

FIGURE 4
Reading Comprehension in the Upper Elementary Grades
Distribution of School NCE Changes 1989-90

NCE CHANGE	GRADE 4									
4	A WARD									
3	E CLMT	M PARK								
2										
1	SNBEAM									
0										
-1	BURRER	D MRGN	M LNGF							
-2	A STVN	ALMIRA	A RIKF	BRKLWN	S ROWE	WALTON	W HARP			
-3	C LAKE	E DESZ	GARFLD	GORDON	HALLE	M BTHN	M HWTH	N BAKR	WAT-LK	WILLOW
-4	B FRNK	CLARK	GRCHNT	MT PLS	TRENNT					
-5	MILES	ORCHRD	P REVR	R FLTN	WD PRK					
-6	E PARK	F PKWY	G CRVR	KENTKY	M IRLD	C ARTS				
-7	M MRTN	MCKNLY	O PERY	WARNER						
-8	CRANWD	FOLYRN	LAFYTE	A BELL						
-9	A WAYN	ROCKFLR	MEMPHS							
-10										
-11										
-12										
-13	UNION									

NCE CHANGE	GRADE 5								
11	A WARD								
10									
9									
8									
7									
6									
5									
4									
3	M LNGF								
2	A STVN	A WAYN	B FRNK	ROCKFLR	E DESZ	GRCHNT	HALLE	M HWTH	WARNER
1	C LAKE	D MRGN	F PKWY	G CRVR	MT PLS	P REVR	TRENNT		
0	ALMIRA	A RIKF	BURRER	GORDON	LAFYTE	M BTHN	MEMPHS	ORCHRD	
-1	BRKLWN	FOLRYN	M MRTN	MCKNLY	S ROWE	WALTON	C ARTS		
-2	CLARK	E CLMT	MILES	M PARK	M BAKR	WAT-LK	A BELL		
-3	CRANWD	E PARK	KENTKY	O PERY	R FLTN	UNION	WD PRK		
-4	W HARP								
-5	GARFLD	M IRLD	WILLOW	SNBEAM					

-- MORE --

FIGURE 4 (CONT)
Reading Comprehension in the Upper Elementary Grades
Distribution of School NCE Changes 1989-90

NCE CHANGE	GRADE 6										
11	WALTON										
10											
9	E CLNT										
8	A WARD										
7											
6	N BTHN										
5	N PARK										
4	BRKLWN										
3	A STVN	A RIKF	CRAWD	GORDON	H BAKR	S HOWE					
2	A WAYN	B FRNK	D MRGN	E DESZ	FULTON	GRCMNT	H IRLD	HCKNLY	TRMNT	WARNER	WAT-LK
1	BOHRER	CLARK	E PARK	GARFLD	H MRTN	MT PLS	R FLTN	C ARTS			
0	HALLE	H LNGF	MEMPHS	MILES	H NWTN	O PERY	ORCHRD				
-1	ALMIRA	P REVR	SNBEAM								
-2	C LAKE	RCKFLR	KENTKY								
-3	P PKWY	WILLOW	W WARP	A BELL							
-4	LAFYTE	UNION	WD PRK								
-5	C SCIE										
-6											
-7											
-8											
-9	G CRVR										

FIGURE 5
Reading Comprehension in the Intermediate Grades
Distribution of School NCE Changes 1989-90

NCE CHANGE	GRADE 7				
0	H DAVS				
-1	J GLGR				
-2	C ELIT				
-3	RCKFLR	C ARTS			
-4	A HHLT				
-5	A HART	F RSVT			
-6	C HONY	EMPIRE			
-7	AUDUBN	H SPLY	N HALE	R JHSN	T JFSN
-8	C SHLR	C WSTP	LINCLN	P HNRY	
-9	CENTRL	W WRGT			
-10	W YNG	C SCIE			
-11	WILLSN				

NCE CHANGE	GRADE 8				
2	A HHLT	C ARTS	C SCIE		
1	C ELIT	EMPIRE			
0	RCKFLR	CENTRL	LINCLN	P HNRY	R JHSN
-1	A HART	C SHLR	F RSVT	W YNG	WILLSN
-2	H SPLY	T JFSN			
-3	AUDUBN	H DAVS	W WRGT		
-4	J GLGR				
-5	N HALE				
-6	C HONY	C WSTP			

FIGURE 6
Reading Comprehension in the High School Grades
Distribution of School NCE Changes 1989-90

NCE CHANGE	Grade 9.				
0	J HRSH				
-1	EAST	L-WEST			
-2	W TECH	C SCIE			
-3	COLMWD	J KNDY	SOUTH	LAW&PS	
-4	GLNVLE	J RHDS	J HAY	C ARTS	
-5	J ADMS				
-6					
-7	E TECH				

NCE CHANGE	Grade 10					
4	J HAY					
3	C ARTS					
2	J RHDS	AVIATN				
1	COLMWD	J KNDY	W TECH	J ADDN	HLTH C	
0	EAST	E TECH	GLNVLE	J HRSH	LN-WST	LAW APS
-1	J ADMS	SOUTH				
-2						
-3						
-4						
-5						
-6						
-7	N HYES					

NCE CHANGE	Grade 11				
4	EAST				
3	GLNVLE				
2					
1	J RHDS	LN-WST	J ADDN	C ARTS	LAW&PS
0					
-1	J KNDY	AVIATN	HLTH C		
-2	E TECH	J HRSH	C SCIE		
-3	J HAY	SOUTH			
-4	COLMWD	J ADMS			
-5	W TECH				

NCE CHANGE	Grade 12						
3	COLMWD	J HAY	J KNDY				
2	EAST	SOUTH	AVIATN				
1	E TECH	GLNVLE	J ADMS	LN-WST	J ADDN	LAW&PS	HLTH C
0	C ARTS						
-1	J RHDS						
-2	J HRSH	W TECH					
-3	N HYES						
-4	C SCIE						

TABLE 6

READING COMPREHENSION -- Elementary Schools

NCE Pretest (Spring, 1989) Averages and Gains

School Code	Abrv	Grade 02 Pre NCE	Grade 02 Change NCE	Grade 03 Pre NCE	Grade 03 Change NCE	Grade 04 Pre NCE	Grade 04 Change NCE	Grade 05 Pre NCE	Grade 05 Change NCE	Grade 06 Pre NCE	Grade 06 Change NCE
Total		53.4	-5.6	49.7	1.1	50.3	-4.5	48.5	-0.5	48.1	0.8
6003	A BNSH	51.1	-8.9	40.4	9.6						
3004	A STVN	63.3	-17.6	60.3	2.2	55.3	-2.2	55.1	2.1	56.9	3.4
3012	ALMIRA	60.5	-12.8	47.6	11.3	52.5	-1.6	42.4	-0.3	44.7	-1.4
3016	A RIKP					46.5	-1.8	43.6	0.0	45.3	2.8
3020	A WAYN	49.5	-6.1	47.7	1.6	51.3	-8.6	44.3	2.0	45.3	1.6
6021	A GRDA	44.0	-0.5	42.8	-0.7						
3023	A WARD					50.7	4.3	47.2	11.2	43.2	8.2
3036	B FRNK					53.4	-4.1	50.7	1.7	53.0	1.7
3041	BOLTON	43.2	4.3	43.9	2.4						
3058	BRKLWN	49.7	-4.6	49.8	3.4	50.5	-1.7	47.0	-1.0	45.4	3.6
3064	BURRIS					48.8	-1.4	50.8	-0.5	46.0	0.6
3065	C ROTH	61.7	-11.2	51.6	4.6						
3068	CASE	47.3	-3.9	52.7	0.2						
3077	C DENS	53.4	-5.9	50.4	-3.3						
3079	C LAKE	68.5	-12.6	62.2	-8.2	49.1	-3.0	51.0	0.5	50.4	-1.6
3081	C ORR	48.7	2.9	45.6	-0.5						
3088	CLARK					47.7	-3.8	47.8	-1.7	47.7	0.9
6094	RCKFLR	54.6	-1.0	56.3	0.4	57.9	-9.5	46.9	1.6	48.2	-1.7
3104	CORLEY	65.0	-9.3	55.3	-3.0						
3107	CRANMD					51.6	-8.2	52.9	-3.5	46.4	3.1
3109	D MRGN					44.8	-1.5	40.7	0.8	46.5	2.2
3112	DENISN	55.7	-2.6	52.7	1.0						
3124	DIKE	47.1	-5.7	50.6	2.9						
3130	D MCAR	59.4	-8.6	52.4	1.1						
3148	E CLRK	44.6	-8.6	47.5	3.9						
3156	E HDSN	50.4	-5.6	43.8	10.2						
6165	E DESZ					43.4	-3.0	51.2	1.6	49.5	2.1
3168	E PARK					51.7	-6.5	47.5	-3.2	45.9	1.2
3171	F PENY					49.8	-6.5	49.9	1.1	49.7	-3.1
3184	FULRTN					55.6	-8.2	51.4	-1.2	48.3	2.4
6188	GARFLD	55.6	-1.4	53.5	0.9	54.1	-3.5	50.5	-5.4	53.3	0.5
3198	G CRVR					51.9	-6.3	46.3	0.9	47.7	-9.1
3200	GIDNGS	52.8	-6.6	50.9	3.6						
3224	GORDON					53.4	-2.6	50.7	-0.5	48.6	3.3
3225	GRCHNY					53.4	-4.5	53.5	1.8	51.5	1.9
3228	HALLK					49.6	-2.8	49.6	2.3	49.6	-0.4
3240	H RICK	56.3	-9.3	45.5	3.1						
3252	H LNGF	68.9	-12.2	61.8	-6.3	48.6	-1.4	49.3	2.7	46.3	0.4
6256	HICKS	56.9	-1.0	61.0	1.5						
3270	IA-HPL	58.9	-4.9	51.2	0.8						
3294	J RAPR	45.7	-3.5	49.4	8.2						
3295	J LNDS	56.0	-11.5	48.2	-1.7						

TABLE 6 (CONT)

School Code	School Abrv	** Grade 02 ** Pre NCE	Change NCE	** Grade 03 * Pre NCE	Change NCE	** Grade 04 * Pre NCE	Change NCE	** Grade 05 * Pre NCE	Change NCE	** Grade 06 * Pre NCE	Change NCE
3297	E CLNT	48.6	-5.5	50.1	0.4	49.6	3.2	55.6	-1.6	56.0	9.0
3301	KENTKY					48.0	-6.0	49.4	-3.2	42.7	-1.9
6308	LAFYTE	60.0	-7.4	47.8	5.7	54.7	-8.1	44.1	-0.3	48.0	-4.3
3338	L AGSZ	53.2	-6.4	53.9	-5.7						
3339	L PSTR	52.3	-6.8	46.1	3.8						
3345	M IRLD					49.2	-6.5	45.9	-5.4	40.8	2.1
3347	M MRTN					51.1	-6.8	52.3	-0.9	46.2	0.9
3350	M BTHN					49.9	-3.0	51.4	0.4	51.4	5.5
3352	MCKNLY					50.6	-7.2	44.7	-1.4	43.9	1.9
3353	M SLTZ	48.9	0.7	45.8	1.6						
3354	M STRL	54.3	-4.9	47.7	0.9						
3360	MEMPHS					50.3	-9.3	44.8	0.1	46.2	0.1
3368	MILES	56.6	-14.5	46.1	-0.6	49.9	-5.3	45.3	-1.9	44.7	-0 2
3372	M PARK	46.5	-4.9	44.4	1.6	41.9	2.6	50.6	-2.4	42.8	4.8
3376	M STND	57.4	-8.4	49.8	-1.1						
3388	M CLVD	52.8	-1.5	50.6	0.0						
3396	MOUND	49.2	-6.0	48.1	11.0						
3400	MT ARN	52.9	-8.1	51.2	-1.8						
3404	MT PLS					46.3	-3.6	43.7	1.0	45.5	0 9
3412	N HNTH					54.5	-3.3	51.8	2.2	57.2	-0.5
3415	N BAKR	49.1	-0.1	50.9	4.8	43.8	-3.0	46.1	-2.0	46.9	3.4
3428	O PERY					51.5	-6.9	53.3	-3.1	46.5	0.4
3436	ORCHRD					50.2	-4.9	48.3	0.2	49.3	0.1
3451	P DNBR	50.5	-6.0	48.1	2.9						
3452	P REVR					51.3	-4.6	47.2	1.3	50.9	-0.9
3485	RIVRSD	68.2	-3.2	61.6	-4.9						
3486	R FLTN	56.6	-6.6	46.4	5.6	51.5	-4.9	47.5	-2.9	45.7	1.2
3487	R JNES	50.8	-3.9	50.5	-8.9						
3500	SCRNTN	42.6	3.6	43.6	3.2						
3525	S HOWE					45.6	-1.5	46.0	-1.1	43.8	2.7
3544	TRENNT	44.9	-7.3	40.8	2.4	47.3	-3.9	44.7	1.4	50.6	1.8
3548	UNION					51.4	-13.4	45.3	-2.6	47.0	-4.5
6550	VAL VW	57.3	-5.7								
3556	WD PRK	43.5	-0.3	46.3	-1.5	48.6	-4.8	46.7	-3.0	46.5	-3.7
3560	WALTON					51.5	-1.8	48.5	-1.5	44.2	11.3
3572	WARNER					46.3	-7.5	45.7	1.8	44.6	2.2
3592	WAT-LK					49.0	-2.9	46.9	-1.8	46.4	1.8
3596	WAVRLY	47.0	-3.6	52.8	-4.0						
3605	WILLOW	53.1	-4.8	44.2	-0.9	47.7	-3.2	46.1	-5.2	50.9	-3.4
3621	W HARP	61.9	-11.1	55.0	0.0	48.6	-2.2	49.1	-4.3	47.1	-3.1
3622	W BYNT	53.4	-4.5	50.4	1.2						
3636	B-WDLD	59.2	-10.8	51.0	3.0						
3638	WD HLS	52.4	-7.4	46.6	1.5						
6010	A BELL	52.4	-5.1	41.4	-2.8	46.2	-7.6	49.1	-1.9	43.3	-2.8
6532	SHBRAH	52.1	-15.9	57.6	4.4	48.3	1.3	48.8	-5.1	45.8	-0.9
6801	C ARTS					57.7	-5.8	56.3	-1.4	54.1	1.0
6802	C SCIE									61.4	-4.7

TABLE 7

READING COMPREHENSION -- Intermediate School Grades

NCE Pretest (Spring, 1989) Averages and Change (1989-90)

** School ** Code	Abrv	** Grade 07 ** Pre NCE	Change NCE	** Grade 08 ** Pre NCE	Change NCE
Total		51.2	-6.6	47.4	-1.5
6094	RCKFLR	47.4	-2.9	46.8	0.1
4005	A HART	49.0	-5.4	44.8	-1.5
4009	A HBLT	46.4	-4.0	45.4	2.0
4024	AUDUBON	46.9	-7.0	44.5	-2.7
4066	C SELR	50.8	-7.6	44.4	-1.3
4076	CENTRL	48.1	-9.0	41.7	0.1
4078	C HLIT	48.4	-2.5	44.8	0.5
4080	C MONT	48.2	-6.3	46.5	-5.6
6090	C WSTP	48.5	-8.1	46.6	-5.7
4164	EMPIRE	45.7	-5.6	42.1	0.7
4172	F RSVT	50.1	-5.4	45.3	-1.0
4253	H DAVS	48.0	-0.5	46.6	-2.6
4279	J GLGR	49.2	-0.8	50.6	-3.6
4328	LINCLN	50.4	-7.7	40.2	0.3
4343	M SPLT	53.3	-6.9	47.3	-1.9
4411	M HALR	46.5	-7.0	44.8	-5.2
4448	P HNRY	56.6	-8.1	49.4	0.1
4482	R JHSN	49.8	-6.6	48.2	-0.5
4536	T JFSN	49.7	-7.0	44.2	-1.9
4615	W TNG	72.6	-10.5	66.4	-0.8
4616	W WRGT	55.1	-9.5	48.2	-3.0
4624	WILLSN	45.9	-10.8	41.6	-1.5
6801	C ARTS	52.4	-2.7	53.9	1.6
6802	C SCIE	57.1	-10.4	55.3	1.8

TABLE 8

READING COMPREHENSION -- High School Grades

NCE Pretest (Spring, 1989) Averages and Change (1989-90)

** School ** Code	Abrv	** Grade 09 ** Pre NCE	Change NCE	** Grade 10 ** Pre NCE	Change NCE	** Grade 11 ** Pre NCE	Change NCE	** Grade 12 ** Pre NCE	Change NCE
Total		48.3	-2.9	48.0	-0.6	50.6	-1.1	49.1	0.7
5096	COLWD	47.5	-3.0	50.7	0.8	49.7	-4.2	46.5	2.6
5144	EAST	43.3	-1.3	44.6	-0.3	41.1	4.4	46.6	2.3
5161	E TECH	44.8	-6.8	45.2	-0.1	48.6	-1.6	49.0	1.3
5220	GLNVLE	49.7	-4.0	49.1	0.3	45.8	2.8	49.9	1.0
5273	J RHDS	47.6	-4.0	43.5	1.8	49.4	0.9	55.0	-1.4
5276	J ADMS	49.7	-5.2	48.9	-0.9	54.2	-3.8	47.4	0.5
5284	J HAY	50.4	-4.1	47.9	4.1	53.4	-2.9	49.1	2.8
5285	J KNDY	47.0	-2.7	43.0	1.0	48.9	-1.0	47.8	3.1
5292	J MRSH	51.1	0.1	53.9	-0.5	57.1	-1.7	55.4	-1.7
5330	LN-WST	46.5	-1.5	47.2	0.2	48.5	0.6	48.8	0.8
5512	SOUTH	45.3	-2.6	44.1	-0.8	50.8	-3.0	46.8	1.7
5612	W TECH	45.1	-1.6	44.4	1.4	47.6	-4.7	46.4	-1.6
6026	AVIATN			51.0	1.5	48.5	-1.0	46.8	2.4
6275	J ADDM			41.6	0.6	46.5	0.9	46.4	1.4
6349	M HYES			39.7	-6.6			40.1	-3.7
6801	C ARTS	55.4	-4.5	53.2	2.6	53.2	1.0	54.4	0.0
6802	C SCIE	58.1	-2.2			65.4	-2.2	63.0	-3.8
6803	LAW&PS	47.0	-2.7	45.8	-0.5	48.5	1.1	52.9	1.3
6804	HLTH C			41.5	0.5	45.1	-0.7	43.7	1.4

Note: Averages printed when N > 9