



**Reducing the School Performance Gap Among  
Socio-economically Diverse Schools:  
Comparing Full-Day and Half-Day  
Kindergarten Programs**

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**Executive Summary**

The Grade 2 class of 2003 showed impressive improvements in performance on a nationally normed achievement test compared with the performance of previous Grade 2 students. Moreover, the improvements for the Grade 2 class of 2003 were significantly greater in the schools characterized by high poverty when compared with schools in wealthier neighborhoods. The net effect of this phenomenon was to reduce the disparities in achievement between those schools in the wealthy and those in the poor neighborhoods.

The benefits to the Grade 2 class of 2003 were most striking in the area of mathematics computation. A review of four successive years of Grade 2 test scores for students continuously enrolled since kindergarten in high-poverty schools showed that they attained an average scale score equivalent to the 78<sup>th</sup> national percentile level; whereas for the prior three years, students from those same schools produced average scale scores equivalent to just the 52<sup>nd</sup> national percentile level. Grade 2 students continuously enrolled in schools in the wealthier half of the school district attained an average scale score equivalent to the 86<sup>th</sup> national percentile, whereas for the prior three years, students from those same schools attained average scale scores equivalent to the 81<sup>st</sup> national percentile. A similar but less striking trend was evidenced in four other subject areas. That is, the margins of improvements in the schools in poorer neighborhoods were smaller but still significantly greater than the improvements demonstrated by second grade students in the schools in the wealthier neighborhoods.

These improvements in the class of 2003 accompany a significant investment in early elementary education in all schools within the school district, but particularly in the schools with the highest levels of educational and socioeconomic need. The list of initiatives launched during the past three years is long and impressive:

- Full-day kindergarten in the neediest schools
- Kindergarten class size reduced to 15:1
- Grades 1 and 2 class size reduced to 17:1
- Revised curriculum and accompanying diagnostic assessments for Kindergarten through Grade 2
- A new staff development teacher position in each school
- Professional development for teachers in the new curriculum and assessments.

The implementation of these initiatives, across years and among schools, makes it difficult to attribute the improvements in the class of 2003 second graders to any single component of the drive for early academic achievement. However, the net effect of these initiatives has been to reduce the persistent gap in school performance between schools in poorer and wealthier neighborhoods.

# **Reducing The School Performance Gap Among Socio-economically Diverse Schools: Comparing Full-Day and Half-Day Kindergarten Programs**

## **Background**

The Montgomery County Public Schools (MCPS) has embarked on a program to increase student performance in schools with higher levels of poverty and, at the same time, to lift the performance of students in all schools. A series of interwoven initiatives was designed to reduce the disparities in school performance between schools in wealthy neighborhoods and schools in areas with greater educational and socioeconomic needs. This report of Grade 2 performance is one of a series of three reports focusing on various outcomes from the early success performance plan.

Over four years ago MCPS implemented a program to restructure the delivery of reading instruction in Grades 1 and 2. The program ensured that students received 90 minutes of reading instruction daily, in groups of no more than 15. In the 2000-01 school year, a more intense early success performance plan was begun that incorporated multiple supports for schools and students. This broad, multi-year initiative included the following components:

- A shift from half-day to full-day kindergarten, staged in three groups of schools over a period of three successive years
- A reduction of kindergarten class size to 15 students in all schools
- A revised curriculum for kindergarten through Grade 3
- Diagnostic student assessments three times per year aligned with the curriculum
- A reduction in grades 1 and 2 class sizes to 17 students, staged over three years in successive groups of schools
- Professional development for teachers in the new curriculum and assessments
- A new Staff Development Teacher position assigned to each school

During the 2000-01<sup>1</sup> school year, the full-day kindergarten and class size of 15 components (FDK) were implemented in 17 schools, nine of which had just the full-day component in prior years. During the following school year, the FDK program was provided to an additional group of 17 schools next most in need (referred to below as HDK-1 because they were still half-day kindergarten in 2001). During the following year in 2003, the FDK program was added to an additional group of 22 schools (referred to below as HDK-2 because they too had not yet implemented FDK in 2001). The remaining group of 63 schools provided half-day kindergarten programs throughout recent years (referred to below as HDK-3). Starting in the 2001 school year, all of the elementary schools received other features of the early success performance plan such as the revised kindergarten curriculum with the diagnostic assessments, and the professional development supplements.

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<sup>1</sup> Hereafter, school years are denoted by the spring year of the school year when testing normally occurs.

The current report compares the performance of Grade 2 students in the first FDK group of 17 schools with that of the other groups of schools that still provided half-day kindergarten in 2001. All Grade 2 students had been administered the TerraNova Comprehensive Tests of Basic Skills (CTBS) in the school district since 2000.<sup>2</sup> The analysis compared, for all schools, the Grade 2 performance of the 2003 cohort with that of the prior three years. The changes for 2003 among the FDK schools were then compared with the changes found in the other groups of schools that had provided just half-day kindergarten. The issue of interest in this report is whether the changes in 2003 among the FDK schools that received the kindergarten enrichment program exceeded the changes for 2003 found among the HDK groups. In order to assess the extent of closing of the oft-found socioeconomic gap in school performance, the comparison of the FDK group with the schools from wealthier neighborhoods in the HDK3 group was of particular interest.

## Method

**Sample.** A group of Grade 2 students was identified that had been enrolled in the same school from their kindergarten year to their Grade 2 year. The reason for focusing on the continuously enrolled students was because they, not the students new to MCPS in later grades, were the ones who had experienced the FDK programs. The continuously enrolled group of second graders was identified for each of the past four cohorts of second graders from 2000 through 2003. The continuously enrolled students comprised about 55 percent of all Grade 2 students over the past four years, and the school groups described below ranged from 52 percent to 58 percent of continuously enrolled students. The demographic composition of these students is described below in Table 1.

**Measures.** Five subtests from the CTBS have been administered to Grade 2 students systemwide since the 2000 school year. The following are the subtests (*Teacher's Guide to TerraNova*, 1997):

- Reading (RD)—basic understanding of the literal meaning of a passage through identifying stated information, indicating sequences of events, and describing grade-level vocabulary.
- Language (LA)—introduction to print and editing skills.
- Language mechanics (LM)—sentences, phrases and writing conventions.
- Mathematics (MA)—understanding of numbers and number concepts.
- Mathematical computation (MC)—addition and subtraction.

The scale scores of these measures were used for this analysis. The earlier report on Grade 2 CTBS results to the Board of Education cited the median national percentile scores, because those scores also are reported by the Maryland State Department of Education. However, the scale scores are more appropriate for the purposes of statistical analysis in this report.

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<sup>2</sup> A report of systemwide Grade 2 performance on the CTBS was provided to the Board of Education on May 7, 2003.

**Analysis.** The four groups of schools identified above were included in the analysis—FDK, HDK-1, HDK-2, and HDK-3. These four groups were sequenced from lower to higher socioeconomic status and educational need. Demographic descriptions of these groups are provided below in Table 1.

Performance of students in the Grade 2 cohort of 2003 was of primary interest because 2003 was the first cohort of students to reach Grade 2, after having received the more intensive kindergarten program in the 17 FDK schools. Students in the HDK groups had received the curricular, diagnostic assessment, and staff development components of the early literacy initiative, but not the FDK component. Therefore, each school’s 2003 average scores were compared with the average of scores from the three prior years. This analysis plan clearly uses a “posttest-only” design, since only Grade 2 scores were analyzed. However, the essential question was to examine how school average scores for 2003 compared with those of earlier years. Thus, in this analysis each school acts as its own “comparison group” for assessing change over time. The demographic compositions of schools in this sample change little over the past four years, as shown in Table 1. Wherever demographic changes were noted, the 2003 year tended to have slightly higher concentrations of ESOL students than in prior years. Thus, the estimates of effects discussed below for the 2003 school year may be slight underestimates of changes, other demographic conditions being equal.

Also, since an important policy objective was to close the persistent gap in academic performance between schools with lower and higher socioeconomic levels, the size of the score shift for 2003 among the FDK schools was compared with the size of the score shift for 2003 among the HDK groups. The critical question was whether the lower socioeconomic schools showed any greater gains in 2003 over prior years than did the higher socioeconomic schools.

This analysis plan was accomplished with a two-level hierarchical linear model (HLM) analysis (Raudenbush & Bryk, 2002). Grade 2 CTBS scores were compiled for each of the four years from 2000 to 2003 for the continuously enrolled students. The HLM level 1 analysis of student data within schools contrasted each successive year with the average of prior years. Specifically, the level 1 contrasts were:

- a. 2001 versus 2000;
- b. 2002 versus the average of 2000 and 2001; and
- c. 2003 versus the average of 2000 through 2002 (for example, “difference” contrasts in SPSS, 1986).

The level 2 analysis of differences among types of schools employed dummy codes to contrast the FDK, HDK-1, and HDK-2 groups against the HDK-3 group. The policy interest for this analysis focused on the cross-level interaction between the within-school contrast of 2003 versus prior years and the between-school contrast of the FDK group with the HDK-3 group.

## Results

**Descriptive data.** Table 1 shows the demographic comparisons of continuously enrolled students among the groups of schools regarding English for Speakers of Other Languages (ESOL) and Free and Reduced-price Meals Service (FARMS). The CTBS average scale scores appear in Table 2. These data clearly show that the FDK group of 17 schools had the highest levels of educational need. The percentage of continuously enrolled students that received free and reduced-price meals service (FARMS) was close to 56 percent across the four years while that figure for the HDK-3 group was close to 7 percent across the four years. The HDK-1 and HDK-2 groups of schools scheduled to receive the FDK program in the 2002 and 2003 years showed successively lower levels of educational need than did the FDK group, as represented by their respective compositions of English for Speakers of Other Languages (ESOL) students and FARMS students.

Table 1  
Descriptive Data of English for Speakers of Other Languages and Free and Reduced-price Meals Service (FARMS) for Continuously-enrolled Students in School Groups, 2000–2003

			Test Year			
			2000	2001	2002	2003
FDK Sch.	ESOL	Mean	18.0%	17.2%	20.4%	22.5%
		n	835	838	838	896
	FARMS	Mean	57.8%	56.4%	58.8%	55.1%
		n	835	838	838	896
HDK-1	ESOL	Mean	7.7%	8.8%	7.9%	13.2%
		n	736	712	697	767
	FARMS	Mean	37.0%	36.5%	36.9%	40.2%
		n	736	712	697	767
HDK-2	ESOL	Mean	5.2%	5.6%	7.0%	9.6%
		n	1107	1006	1059	1018
	FARMS	Mean	25.7%	21.6%	22.8%	26.9%
		n	1107	1006	1059	1018
HDK-3	ESOL	Mean	1.8%	2.7%	1.9%	3.0%
		n	2960	2879	2949	3059
	FARMS	Mean	8.2%	7.8%	6.8%	7.4%
		n	2960	2879	2949	3059

Table 2  
 Descriptive Data of CTBS Grade 2 Scale Scores for Continuously Enrolled  
 Students, 2000–2003

			Reading	Language	Lang. Mechanics	Mathematics	Math. Computation
FDK Sch.	2000	Mean	603.5	604.8	611.7	564.6	532.8
		Std Deviation	40.7	43.0	39.5	47.1	48.0
		n	815	815	794	816	806
	2001	Mean	600.1	602.0	607.4	562.6	534.7
		Std Deviation	43.3	45.2	36.6	45.5	46.3
		n	833	833	833	832	830
	2002	Mean	600.2	604.6	608.8	565.3	538.1
		Std Deviation	41.2	41.0	37.6	43.9	46.8
		n	826	826	828	823	815
	2003	Mean	609.6	612.8	616.4	577.7	558.5
		Std Deviation	42.1	44.9	39.3	49.2	48.8
		n	893	893	888	891	886
HDK-1	2000	Mean	611.5	612.9	615.7	572.2	541.6
		Std Deviation	39.8	43.7	39.0	46.1	47.0
		n	729	729	728	727	722
	2001	Mean	609.1	610.0	616.2	571.5	543.1
		Std Deviation	43.2	45.6	36.8	47.2	47.6
		n	704	704	697	701	687
	2002	Mean	606.9	610.1	615.7	570.6	546.7
		Std Deviation	42.3	44.9	36.7	46.4	46.3
		n	692	692	683	690	677
	2003	Mean	614.8	618.0	620.8	579.9	559.3
		Std Deviation	44.0	45.2	39.7	45.5	45.1
		n	758	758	756	756	745
HDK-2	2000	Mean	621.3	623.5	623.3	584.2	552.3
		Std Deviation	42.7	44.3	36.1	46.4	46.1
		n	1080	1080	1080	1084	1071
	2001	Mean	618.7	621.8	626.3	584.8	549.8
		Std Deviation	43.4	44.3	39.1	51.0	49.1
		n	995	995	993	994	985
	2002	Mean	621.3	625.4	625.5	586.7	556.0
		Std Deviation	44.3	47.0	38.8	49.2	47.7
		n	1042	1042	1041	1042	1032
	2003	Mean	621.7	622.6	624.8	586.6	561.9
		Std Deviation	43.2	43.0	39.1	47.5	45.4
		n	1011	1012	1009	1008	1002
HDK-3	2000	Mean	632.3	631.4	627.2	596.3	557.1
		Std Deviation	42.4	43.7	34.4	47.1	44.4
		n	2908	2908	2905	2899	2852
	2001	Mean	634.6	633.4	633.8	596.9	560.6
		Std Deviation	42.0	42.9	35.6	47.7	43.5
		n	2860	2861	2858	2854	2822
	2002	Mean	636.2	636.1	636.7	601.0	566.6
		Std Deviation	40.0	42.2	36.1	47.8	43.1
		n	2923	2923	2901	2916	2891
	2003	Mean	637.2	637.7	635.1	602.2	572.6
		Std Deviation	42.2	43.2	37.5	47.1	40.8
		n	3042	3041	3023	3029	3010



**Analytic comparisons.** Table 2 shows the average performance levels for students in the four school groups on each of the five CTBS subtests from 2000 through 2003. These student-level data suggest that the average performance levels in the FDK schools (the group lowest in socioeconomic level) ranged from about one-half of a standard deviation (in mathematics computation) to three-fourths of a standard deviation (in reading) lower than the average performance levels in the HDK3 (the group highest in socioeconomic level).<sup>3</sup> Disparities in school performance this large or larger are commonly found between schools low and high in educational need (e.g., Jencks & Phillips, 1998).

Figures 1 through 5 suggest that in 2003 there was a significant narrowing of the performance disparities between the FDK schools and the HDK-3 group highest in socioeconomic status. This narrowing of the academic performance gap appeared greatest in the areas of mathematics computation and mathematics, and less but still significantly so in the areas of reading and language. Each of the four groups of schools showed increases in 2003 compared with prior years, but the increases were greatest in the FDK group.

The students continuously enrolled in their FDK schools from kindergarten through Grade 2 attained, in 2003, an average reading scale score equivalent to the national 50<sup>th</sup> percentile, despite the fact that one in five of these students received ESOL services and one in two received FARMS (see Table 1). In 2003, these students in the FDK schools attained an average mathematics computation scale score just above the level of the 75<sup>th</sup> national percentile.

Figures 1–5 summarize the contrast of the 2003 data with the average of the prior years for each of the four school groups.<sup>4</sup> The term “baseline” in these figures denotes the average of the three earlier years. Comparisons for baseline versus 2003 are shown for the FDK schools and for each of the three HDK groups. As a guide to interpreting the levels of the scores, Figures 1-5 show reference lines for the scale scores equivalent to the 50<sup>th</sup> and the 75<sup>th</sup> national percentile levels.

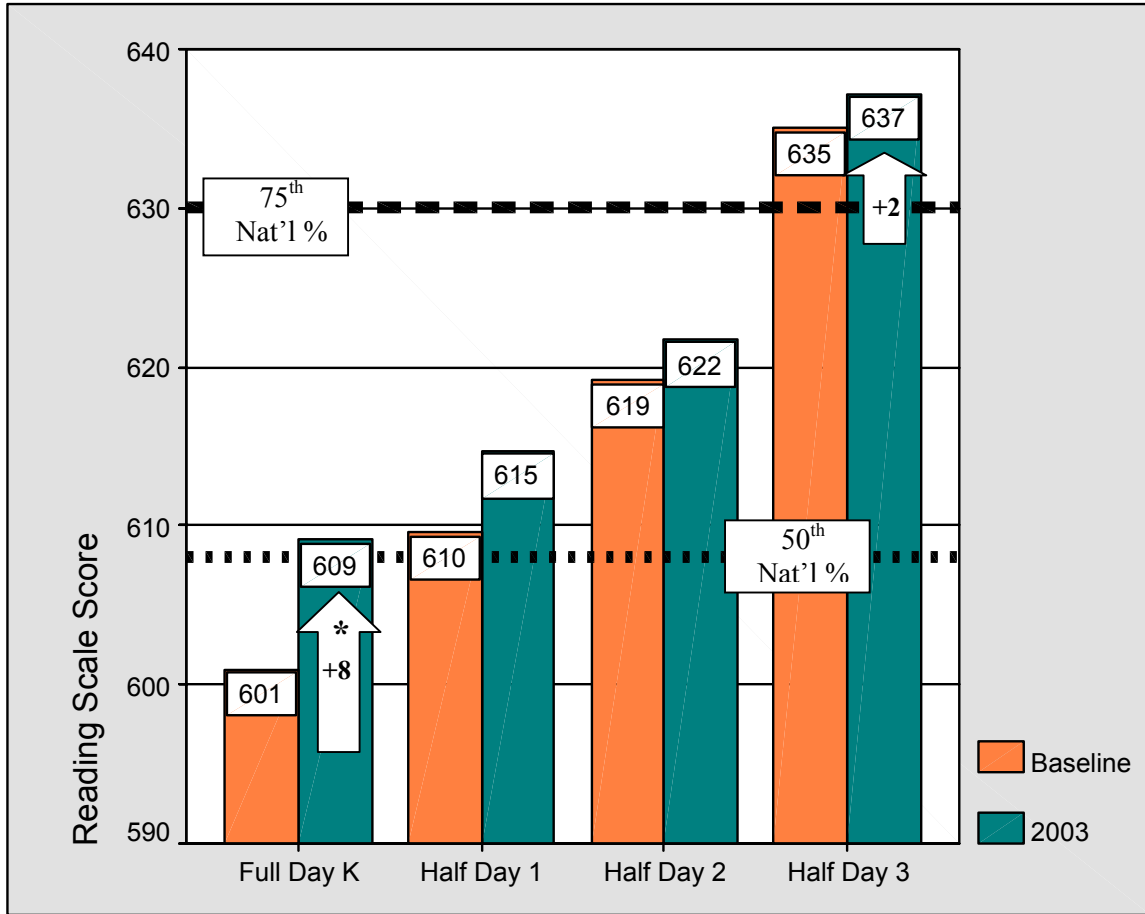
Analytic comparisons of the 2003 baseline contrasts among school groups from the HLM analysis are included in the technical appendix.

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<sup>3</sup> Estimates of the disparities between these two groups of schools over the four years were obtained from the statistical summaries of the HLM analysis (see Appendix 1).

<sup>4</sup> The data in Figures 1–5 may differ slightly from the student-level summaries in Table 2, because data in the figures were compiled from the means of school means. School-level data were used to portray Figures 1-5 because the analytic comparisons between types of schools in the HLM analysis were based on school-level means, not student-level means.

Figure 1. Grade 2 CTBS Reading Averages in 2003 Compared to Baseline Average of Prior Three Years, for Continuously Enrolled Students from Full-Day Kindergarten Group and Other Half-Day Kindergarten Groups.



\* In Figures 1-5, an asterisk denotes that the 2003 versus baseline contrast for the FDK group was statistically significantly greater than the 2003 versus baseline contrast for the HDK-3 group. Data summarized in Figures 1-5 are based on the means of school means.

Figure 2. Grade 2 CTBS Language Averages in 2003 Compared with Baseline Average of Prior Three Years, for Continuously enrolled Students from Full-Day Kindergarten Group and Other Half-Day Kindergarten Groups

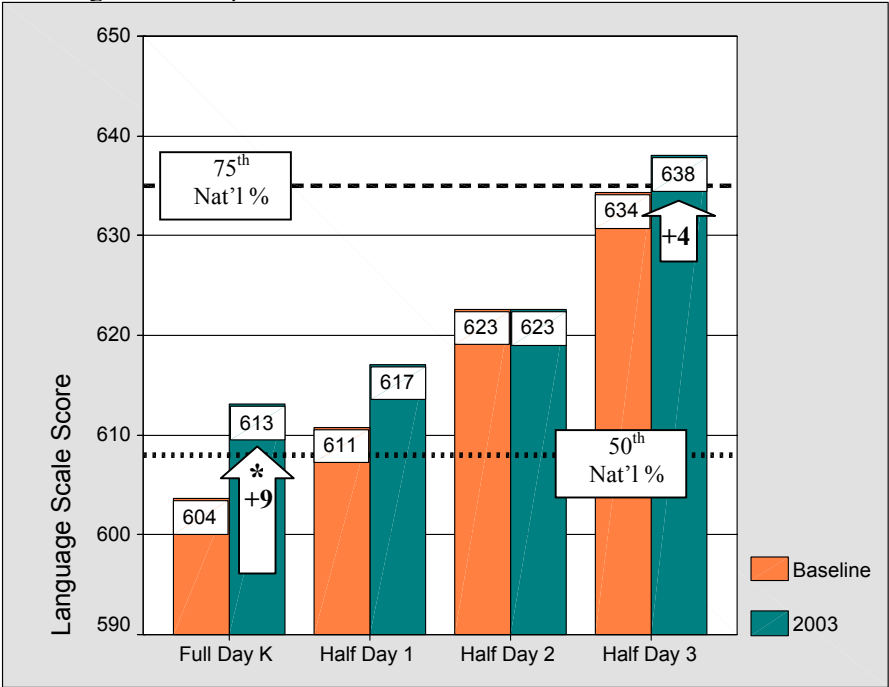


Figure 3. Grade 2 CTBS Language Mechanics Averages in 2003 Compared with Baseline Average of Prior Three Years, for Continuously enrolled Students from Full-Day Kindergarten Group and Other Half-Day Kindergarten Groups

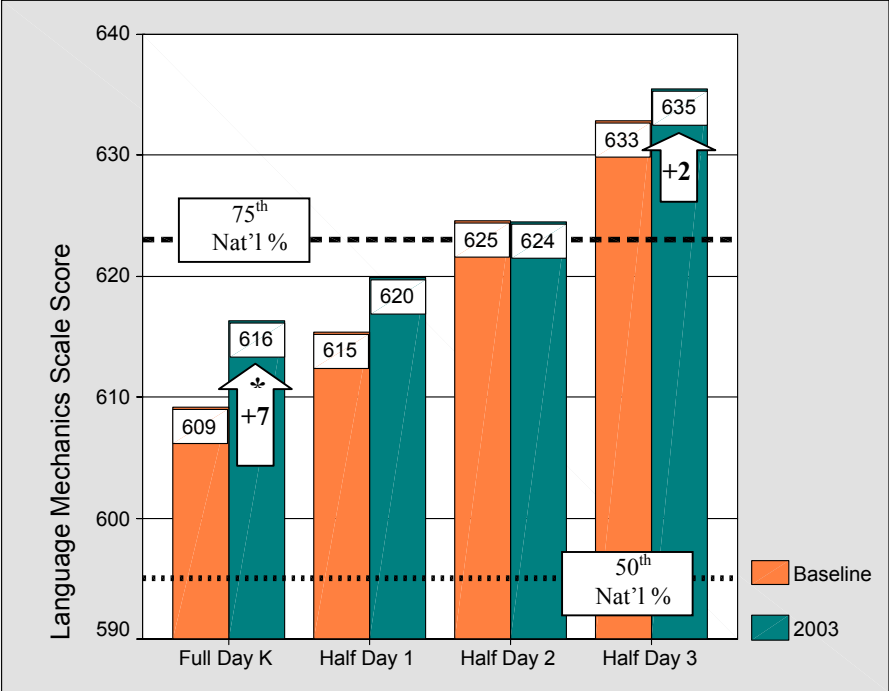


Figure 4. Grade 2 CTBS Mathematics Averages in 2003 Compared with Baseline Average of Prior Three Years, for Continuously enrolled Students from Full-Day Kindergarten Group and Other Half-Day Kindergarten Groups

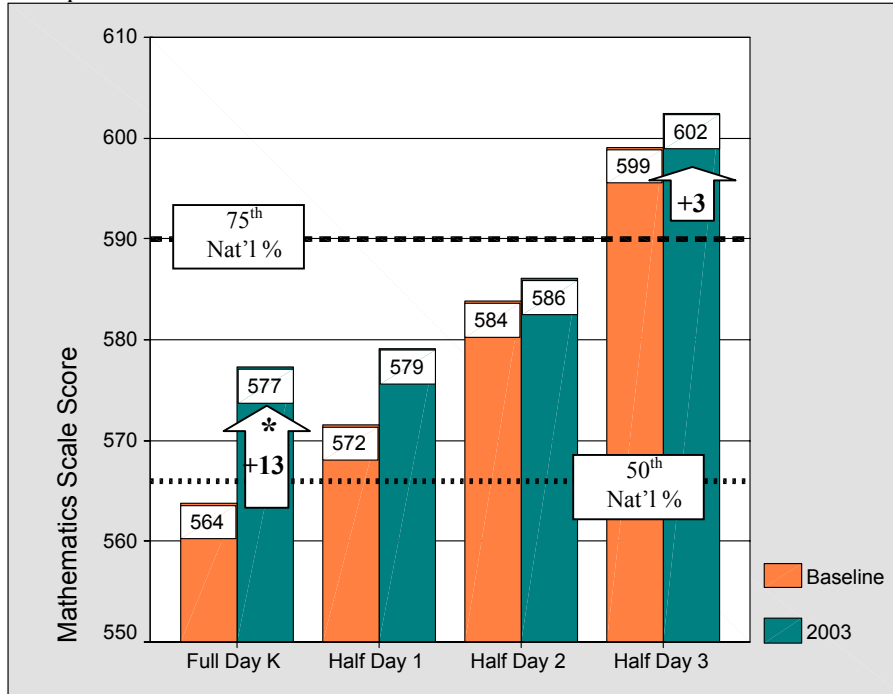
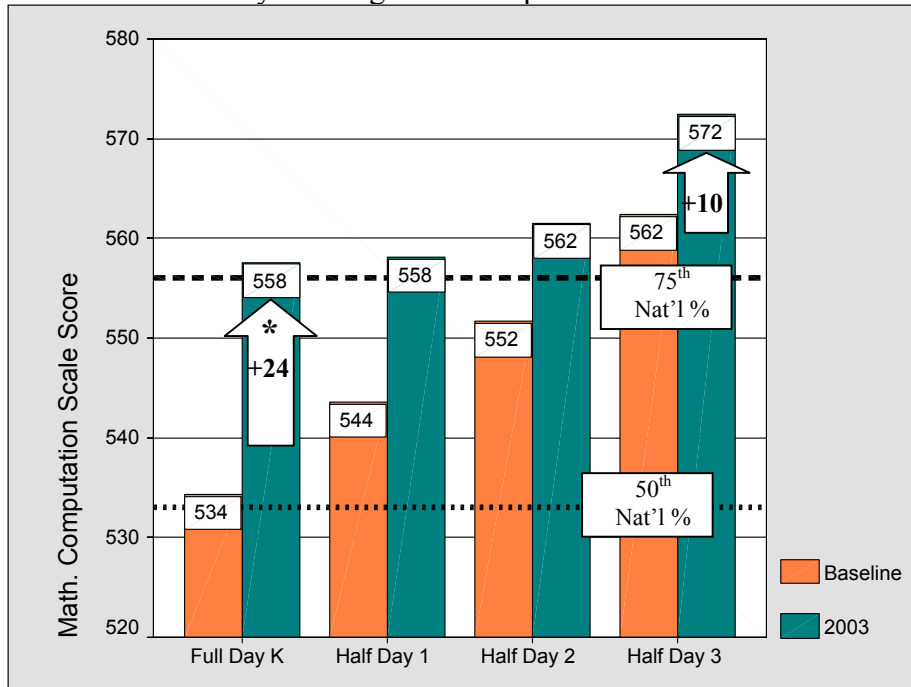


Figure 5. Grade 2 CTBS Mathematics Computations Averages in 2003 Compared with Baseline Average of Prior Three Years, for Continuously enrolled Students from Full-Day Kindergarten Group and Other Half-Day Kindergarten Groups



## Summary

The early success performance plan initiatives launched in 2001 represent a significant investment in full-day kindergarten, curriculum, assessments, staffing ratios, and professional development. However, not all of the components of the early success performance plan were rolled out to all schools in the 2001 year. For example, the curriculum revisions, diagnostic assessments, and professional development enhancements were distributed to all schools starting in 2001. However, the students who started kindergarten in 2001 in the FDK schools and reached Grade 2 in 2003 experienced the fullest “dosage” of these initiatives because they were exposed not only to the FDK supplement, but also to a reduced class size of 17:1 in both Grades 1 and 2. Students in the three HDK groups who started kindergarten in 2001 experienced only a half-day program, but they too experienced a reduced class size of 17:1 in both their Grade 1 and Grade 2 years.

Results show that while the Grade 2 performance of the 2003 students averaged higher than that of prior years for all four school groups, the disparities in performance between schools highest and lowest in academic performance during the years prior to 2003 were narrowed in the 2003 school year.

## References

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# **TECHNICAL APPENDIX**





A two-level HLM analysis was conducted on four cohorts of Grade 2 students' CTBS scale scores. Three within-school contrasts among the four cohorts were examined on level 1:

1. Year 2001 versus year 2000
2. Year 2002 versus unweighted average of years 2000 and 2001
3. Year 2003 versus unweighted average of years 2000, 2001, and 2002

The logic of these contrasts is to use each school's own prior scores as its comparison group. Schools resemble themselves across time far more than they resemble each other at any one year. Schools demonstrated only minor increases in ESOL composition across the four years, and very little fluctuation in FARMS composition.

These level-1 contrasts were then compared among groups of schools (level2) that differed in their early literacy programs. Three dummy codes distinguished these four groups of schools:

1. Full-day kindergarten versus Half-day group 3
2. Half-day kindergarten group 1 versus Half-day kindergarten group 3
3. Half-day kindergarten group 2 versus Half-day kindergarten group 3

The cross-level interaction between the (c) year contrast and the (i) school contrast (row G31 in the appendix tables) represented the extent to which the 2003 gains of the FDK group exceeded the 2003 gains of the HDK-3 group over their respective prior three years. The empirical Bayes coefficients in row G31 of Tables A1-A5 are somewhat smaller than the group differences shown in Figures 1–5 (see Raudenbush & Bryk, *op.cit.*, pp. 268–269).

Table A1  
 Summary of Two-Level HLM Analysis of Within-School-Contrasts Among Years, for  
 Four School Groups on Grade 2 CTBS Reading Scale Scores

Fixed Effect	Coefficient	Standard Error	T-ratio	Approx. d.f.	P-value
<u>INTRCPT1, B0:</u>					
4-YR. Avg. of HDK3, G00	635.411809	1.501916	423.068	114	0.000
FDK vs HDK3, G01	-32.255571	2.291578	-14.076	114	0.000
HDK1 vs HDK3, G02	-24.596170	1.920658	-12.806	114	0.000
HDK2 vs HDK3, G03	-15.131412	2.070163	-7.309	114	0.000
<u>2001 vs 2000, B1:</u>					
INTRCPT2, G10	-0.147491	0.495971	-0.297	117	0.766
<u>2002 vs (2000,2001) B2:</u>					
INTRCPT2, G20	0.499686	0.486799	1.026	117	0.305
<u>2003 vs (2000,2001,2002) B3:</u>					
INTRCPT2, G30	1.654024	0.726064	2.278	114	0.023
<b>FDK vs HDK3, G31*</b>	<b>4.819228</b>	<b>1.669315</b>	<b>2.887</b>	<b>114</b>	<b>0.004</b>
HDK1 vs HDK3, G32	2.277195	2.461741	0.925	114	0.355
HDK2 vs HDK3, G33	-0.343684	1.732964	-0.198	114	0.843

\* Row in bold print indicates the difference between FDK schools and HDK-3 schools in their “2003 versus prior years” contrasts.

Table A2  
 Summary of Two-Level HLM Analysis of Within-School-Contrasts Among Years, for  
 Four School Groups on Grade 2 CTBS Language Scale Scores

Fixed Effect	Coefficient	Standard Error	T-ratio	Approx. d.f.	P-value
<u>INTRCPT1, B0:</u>					
4-YR. Avg. of HDK3, G00	635.097829	1.457766	435.665	114	0.000
FDK vs HDK3, G01	-29.156439	2.160883	-13.493	114	0.000
HDK1 vs HDK3, G02	-22.704424	1.859155	-12.212	114	0.000
HDK2 vs HDK3, G03	-12.309142	2.228992	-5.522	114	0.000
<u>2001 vs 2000, B1:</u>					
INTRCPT2, G10	-0.101291	0.497122	-0.204	117	0.839
<u>2002 vs (2000,2001) B2:</u>					
INTRCPT2, G20	1.578775	0.628454	2.512	117	0.012
<u>2003 vs (2000,2001,2002) B3:</u>					
INTRCPT2, G30	2.659649	0.771269	3.448	114	0.001
<b>FDK vs HDK3, G31*</b>	<b>4.625289</b>	<b>2.027474</b>	<b>2.281</b>	<b>114</b>	<b>0.023</b>
HDK1 vs HDK3, G32	2.352724	2.521127	0.933	114	0.351
HDK2 vs HDK3, G33	-2.800727	1.825808	-1.534	114	0.125

\* Row in bold print indicates the difference between FDK schools and HDK-3 schools in their “2003 versus prior years” contrasts.

Table A3  
 Summary of Two-Level HLM Analysis of Within-School-Contrasts Among Years, for  
 Four School Groups on Grade 2 CTBS Language Mechanics Scale Scores

Fixed Effect	Coefficient	Standard Error	T-ratio	Approx. d.f.	P-value
<u>INTRCPT1, B0:</u>					
4-YR. Avg. of HDK3, G00	633.539742	1.259055	503.187	114	0.000
FDK vs HDK3, G01	-22.837679	2.270537	-10.058	114	0.000
HDK1 vs HDK3, G02	-17.111538	1.771304	-9.660	114	0.000
HDK2 vs HDK3, G03	-9.170032	2.168350	-4.229	114	0.000
<u>2001 vs 2000, B1:</u>					
INTRCPT2, G10	1.715034	0.487141	3.521	117	0.001
<u>2002 vs (2000,2001)B2:</u>					
INTRCPT2, G20	2.044928	0.588999	3.472	117	0.001
<u>2003 vs (2000,2001,2002)B3:</u>					
INTRCPT2, G30	1.348621	0.957276	1.409	114	0.159
<b>FDK vs HDK3, G31*</b>	<b>5.062737</b>	<b>1.940556</b>	<b>2.609</b>	<b>114</b>	<b>0.009</b>
HDK1 vs HDK3, G32	2.600289	2.286553	1.137	114	0.256
HDK2 vs HDK3, G33	-0.976052	1.865738	-0.523	114	0.600

\* Row in bold print indicates the difference between FDK schools and HDK-3 schools in their “2003 versus prior years” contrasts.

Table A4.  
 Summary of Two-Level HLM Analysis of Within-School-Contrasts Among Years, for  
 Four School Groups on Grade 2 CTBS Mathematics Scale Scores

Fixed Effect	Coefficient	Standard Error	T-ratio	Approx. d.f.	P-value
<u>INTRCPT1, B0:</u>					
4-YR. Avg. of HDK3, G00	599.992242	1.620638	370.220	114	0.000
FDK vs HDK3, G01	-32.901677	2.496064	-13.181	114	0.000
HDK1 vs HDK3, G02	-26.979441	2.392213	-11.278	114	0.000
HDK2 vs HDK3, G03	-15.449074	2.434267	-6.346	114	0.000
<u>2001 vs 2000, B1:</u>					
INTRCPT2, G10	-0.179261	0.628400	-0.285	117	0.775
<u>2002 vs (2000,2001)B2:</u>					
INTRCPT2, G20	1.683717	0.635874	2.648	117	0.008
<u>2003 vs (2000,2001,2002)B3:</u>					
INTRCPT2, G30	2.517014	1.083649	2.323	114	0.020
<b>FDK vs HDK3, G31*</b>	<b>7.743745</b>	<b>2.408497</b>	<b>3.215</b>	<b>114</b>	<b>0.002</b>
HDK1 vs HDK3, G32	3.701047	2.153222	1.719	114	0.085
HDK2 vs HDK3, G33	-1.226349	2.358127	-0.520	114	0.603

\* Row in bold print indicates the difference between FDK schools and HDK-3 schools in their “2003 versus prior years” contrasts

Table A5  
 Summary of Two-Level HLM Analysis of Within-School Contrasts Among Years, for  
 Four School Groups on Grade 2 CTBS Mathematics Computations Scale Scores

Fixed Effect	Coefficient	Standard Error	T-ratio	Approx. d.f.	P-value
<u>INTRCPT1, B0:</u>					
4-YR. Avg. of HDK3, G00	564.725562	1.392813	405.457	114	0.000
FDK vs HDK3, G01	-24.390246	3.065264	-7.957	114	0.000
HDK1 vs HDK3, G02	-17.259552	2.371836	-7.277	114	0.000
HDK2 vs HDK3, G03	-10.036292	2.577529	-3.894	114	0.000
<u>2001 vs 2000, B1:</u>					
INTRCPT2, G10	0.777920	0.685711	1.134	117	0.257
<u>2002 vs (2000,2001)B2:</u>					
INTRCPT2, G20	3.943135	0.664053	5.938	117	0.000
<u>2003 vs (2000,2001,2002)B3:</u>					
INTRCPT2, G30	7.433923	1.240914	5.991	114	0.000
<b>FDK vs HDK3, G31*</b>	<b>10.117775</b>	<b>2.312337</b>	<b>4.376</b>	<b>114</b>	<b>0.000</b>
HDK1 vs HDK3, G32	3.760999	2.653600	1.417	114	0.156
HDK2 vs HDK3, G33	-0.143238	2.500821	-0.057	114	0.955

\* Row in bold print indicates the difference between FDK schools and HDK-3 schools in their “2003 versus prior years” contrasts.