NYU INSTITUTE FOR EDUCATION & SOCIAL POLICY

OUTCOMES STUDY

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NEW YORK NETWORKS FOR SCHOOL RENEWAL

An Annenberg Foundation Challenge for New York City

NEW YORK NETWORKS FOR SCHOOL RENEWAL

Initiated by a five-year, $25 million Annenberg Foundation challenge grant being matched by other contributors, New York Networks for School Renewal is developing and nurturing a rapidly increasing number of small public schools in New York City that are now offering quality education to nearly 50,000 students of highly diverse backgrounds. Linking these schools in networks, the project seeks to empower school practitioners, parents and students in ways that lead to greater student achievement and school accountability.

PROJECT SPONSORS

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Center for Puerto Rican Studies at Hunter College
Lang College, The New School for Social Research

The NYNSR Research Collaborative will issue a series of reports from 1997 through 2001 about various aspects of the NYNSR project.

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INTRODUCTION

The New York Networks for School Renewal (NYNSR) project is the New York City recipient of the national Annenberg Challenge grant. NYNSR was awarded $25 million across five years by the Annenberg Foundation in the fall of 1994. The NYNSR project proposed to use this grant to create a critical mass of excellent small public schools of choice, and to generate systemic changes that would provide these small schools the autonomy and support necessary to produce high quality instruction and nurture successful student learning.

The NYNSR project hypothesized that if their affiliated schools were voluntarily organized into networks for mutual support and accountability, the resulting collaborations would more effectively encourage good teaching and learning, and more successfully provide accountability for student performance, than the efforts of the centralized New York City system. Therefore the NYNSR theory of action proposed to:

- Organize existing schools and newly created ones into a critical mass of small schools to equitably serve the full range of NYC children;
- Develop cross-school networks to support schools' instructional efforts and develop cross-school forms of mutual accountability for student performance;
- Use the critical mass of small schools to leverage more supportive policies and scale up reform across the city system;
- Create a Learning Zone as a virtual district in which successful schools would receive autonomy from state, city, union and community school district regulation in exchange for demonstrated capacity for mutual, cross-school accountability.

To assess how successfully the NYNSR project implemented its theory of action, and to evaluate the results, the project engaged the services of several New York City university-based education research institutes, which subsequently formed the NYNSR Research Collaborative. Representatives of the NYNSR

project and the Research Collaborative met throughout 1995 to formulate the following key questions to shape and drive the evaluation:

- Who are the students in NYNSR schools and what is the nature of their academic achievement? Are they doing as well, better, or worse than students in other NYC public schools? What are the costs? What are the equity considerations?

- How effectively has NYNSR implemented its design and realized its educational goals? What policies and practices contribute to the development and functioning of NYNSR schools and networks (including school-level practices, network practices, and district/city/state policies)? What policies and practices impede the development and functions of NYNSR schools and networks? How have these policies hampered school and network development?

- How and to what extent have the collaborating institutions (Community School Districts, New York City Board of Education, New York State Education Department and other partners) carried out their commitments to the NYNSR project?

NYU's Institute for Education and Social Policy (IESP), the lead organization of the NYNSR Research Collaborative, is responsible for producing an **Outcomes Evaluation** to answer the broad questions posed in the first bullet above about the demographic characteristics, comparative academic outcomes, costs, and equity dimensions of NYNSR students and schools. IESP has reported its findings in a series of studies since 1997. Its initial report, ***Who We Are***, analyzed school-level data to provide student demographic characteristics in NYNSR founding schools for 1995-96. In April 1998, IESP published ***The New York City Board of Education's Data Systems: An Initial Approach.*** IESP's ***January 1999 Outcomes Study*** used student-level data to update the demographic findings reported in ***Who We Are***. That January report also charted the expansion of NYNSR schools across the 1996-97 school year, analyzed student demographic characteristics across the project's first two years, assessed within-year NYNSR student stability, and provided a preliminary analysis of NYNSR students' gains in reading from 1995-96 to 1996-97. The most recent study, the ***October 1999 Outcomes Report***, explored the changes in the NYNSR student

body between the project's first year and second year (1995-96 and 1996-97 respectively) and expanded our earlier work on student outcomes. In that October report, we investigated the demographic characteristics and outcomes of those founding students who remained in NYNSR schools (core students) during the 1996-97 school year and compared them with the outcomes of those students who left NYNSR schools after the 1995-96 school year (attrition students). The October 1999 report analyzed students' standardized test scores in NYNSR schools and compared these results to the scores of students in non-NYNSR comparison schools across the 1995-96, 1996-97 and 1997-98 school years. The report also presented graduation and dropout outcomes for NYNSR high schools and compared them to outcomes in the rest of the system's high schools.

Contents of this Report

This report uses both student-level and school-level data to explore changes in student demographic characteristics from 1995-96 to 1997-98, the project's first three years; assesses student stability and attendance in NYNSR schools; compares academic outcomes in NYNSR schools to a series of New York City comparison schools across the first four years of the project; and reports on graduation outcomes for NYNSR high schools. Using school-level data, we examine teacher characteristics and compare the characteristics of NYNSR schools' teaching staff to the teachers in the comparison schools and the citywide average. This report also provides in-depth analyses of the NYNSR high schools, comparisons between NYNSR high schools and a sample of similar schools, as well as comparisons between NYNSR high schools and a group of large, zoned high schools. The variables examined include graduation rates, student stability, and teacher characteristics.

The 1995-96 school year was the initial year of the NYNSR project's implementation; the project is slated to continue for five years and conclude at the

end of the 1999-2000 school year. Evaluation data collection will continue until Spring 2001, and a final evaluation report will be presented in December 2001.

EVALUATION DESIGN AND ANALYTIC ISSUES

Since the goals of our Outcomes Study are to understand the characteristics of students in the NYNSR schools and how those characteristics change across time, as well as to analyze NYNSR students' academic achievement and progress across the years of the project, we have been collecting demographic data (date of birth, gender, ethnicity, free lunch, special needs status, grade, school) and outcome data (reading and math standardized achievement test data, attendance rates, graduation and dropout status) for each student in the NYNSR project. These data are provided by the New York City Board of Education for each year of the evaluation for all students in NYNSR schools.[1] We also developed a comparison sample of students from other NYC public schools that we matched with NYNSR schools.[2]

The development of these school-level and student-level databases, for both NYNSR students and comparison students, allows us to:

- describe the status of all NYNSR students in a specific year (*cross sectional analyses*); and
- follow an identified group of students (the *core* group) who remain in the project over time (*longitudinal analyses*).

The cross-sectional analyses in this report include data from both student-level and school-level databases. In these analyses, different students are represented in each year and for each measure; thus the comparisons are always of different groups of students rather than of the same students across time. For example, our initial ***Who We Are*** report relied on 1995-96 cross-sectional NYNSR school-level data; this type of analysis provides a snapshot of the project's student

[1] See the ***January 1999 Outcomes Study*** for a detailed description of the databases constructed for this evaluation.

[2] See the ***January 1999 Outcomes Study*** for a detailed description of how our comparison sample was constructed.

composition in any given school year. In many of the analyses that follow, the group of students included in 1995-96 data are different from the students included in the 1996-97 data, because students move into and out of NYNSR and comparison schools and also because the schools participating in the project change during each year of the project.

The school-level data we use in this report have been provided by the New York City Board of Education, primarily in their Annual School Reports. We use school-level data for an analysis of the gap between NYNSR test score outcomes and citywide outcomes for 1995-96 through 1998-99, the graduation outcomes comparisons, and also for the examination of teacher characteristics in NYNSR schools.

In the analyses using student-level data, we aggregate individual student data to the NYNSR project level for each year of the evaluation. Using student-level data allows us to track the progress of individual students across time, to account for mobility and attrition from project schools, and to chart both school-level and project-level changes in student demographic characteristics and academic outcomes across time. For each student there are three points in each school year (October, March and June) when their school identification code is entered into their records. For this report and for all future reports, we use a different method of assigning students to schools (for both NYNSR students and comparison students) than we have used in past reports. (See Appendix A for a detailed account of how our decision rules have changed.)

I. CROSS-SECTIONAL ANALYSES

In 1995-96, the NYNSR project's first full year of implementation, 81 schools participated in NYNSR. In the second year of the project, 1996-97, the number of NYNSR schools increased to 114 through the creation of new schools and through adding established schools as NYNSR members. After the 1996-97 school year, some schools were dropped from the project and other schools joined, bringing the total number of NYNSR schools to 124.[3] At the close of the 1998-99 school year, there were 121 schools participating in NYNSR. Data are available from the New York City Board of Education (BOE) only for those NYNSR schools officially recognized as BOE schools.[4]

The NYNSR Project in Year 3

This section focuses on the demographic characteristics and performance of NYNSR students in the 1997-98 school year and how NYNSR schools' demographic characteristics have changed over time. Table 1a indicates the demographic characteristics of the students attending NYNSR schools during the 1997-98 academic year, and compares the characteristics of these students to students in the entire New York City school system.

[3] Schools dropped from the project are listed in Appendix B.

[4] Many NYNSR schools are not officially recognized by the Board of Education as schools, but rather as "programs." Those schools designated as programs do not have independent data, and therefore their student demographic characteristics or academic outcomes cannot be readily disaggregated from their larger official units. Thus their data are not available for use in our analyses.

Table 1a
Student Characteristics
NYNSR Schools and All NYC Schools
1997-98

	NYNSR Students N=44,547	All NYC Schools **
Student Characteristics		
Percent Female	51.1	N/A
Ethnicity/Race		
Percent Latino	40.1	37.5
Percent Black	38.1	35.9
Percent White	12.3	15.7
Percent Asian or Other	9.5	10.3
Other Characteristics		
Percent Eligible for Free Lunch*	72.1	N/A
Percent Stable Students[5]	94.7	N/A
Special Populations		
Percent English Language Learners	11.7	16.8
Percent in Special Education[6]	4.0	N/A

* Free lunch data are unreliable for high school students. The free lunch data presented here represent free lunch eligibility of elementary and middle school students only. See Appendix A for a more detailed explanation of the free lunch variable.
** Source: Facts and Figures 1997-98. The students in NYNSR schools are included in the citywide averages. Data for variables marked N/A were not available in the Facts and Figures Report.

Table 1a indicates that NYNSR schools enrolled a larger percentage of Latino and Black students than the entire NYC system during the 1997-98 school year. A smaller percentage of English Language Learners were served by the NYNSR schools. In Table 1b we have disaggregated these data by school level, because aggregated data often obscures significant variation between schools serving lower grades (elementary and middle schools) and schools serving upper grades (high schools).

As indicated in Table 1b, there are some substantial differences between NYNSR elementary, middle and high schools. The percentage of female students is much higher in NYNSR high schools than in NYNSR elementary and middle schools. While the percentage of Latino students is stable across the differing grade levels, the percentage of Black students in NYNSR high schools is

[5] Throughout this report student stability is measured by the percent of students in the same school in October and June of any school year.

[6] The percentage of students in special education includes only students in self-contained classrooms, but not those in District 75 or Pre-Kindergarten special education programs.

considerably higher than the percentage of Black students in NYNSR elementary and middle schools. Consequently there is a higher percentage of White students, Asian students, and students who fall into the "Other" category in NYNSR elementary and middle schools than in NYNSR high schools.

Table 1b
Student Characteristics
NYNSR Students by School Level
1997-98

	All NYNSR Students N=44,547	Elementary and Middle Students N=29,373	High School Students N=15,174
Student Characteristics			
Percent Female	51.1	49.2	54.8
Ethnicity/Race			
Percent Latino	40.1	40.1	40.1
Percent Black	38.1	34.5	45.3
Percent White	12.3	13.6	9.6
Percent Asian or Other	9.5	11.8	5.1
Other Characteristics			
Percent Eligible for Free Lunch*	72.1	72.1	N/A
Percent Stable Students	94.7	96.1	92.0
Special Populations			
Percent English Language Learners	11.7	11.9	11.3
Percent in Special Education	4.0	5.0	2.2

* Free lunch data are unreliable for high school students. The free lunch data presented here represent free lunch eligibility of elementary and middle school students only. See Appendix A for a more detailed explanation of the free lunch variable.

NYNSR Student Characteristics over Time

Tables 1c – 1e below indicate how the demographic characteristics of the NYNSR schools have changed over the first three years of the project. Though the female/male ratio and the percentage of Black students in NYNSR schools have remained stable, the percentage of Latino students has declined across the three years in NYNSR elementary and middle schools (though not in high schools). The percentage of White and Asian students has increased across the NYNSR project because of significant increases in NYNSR elementary and middle schools, though again, not in high schools. Note that the increases in percentages of White and Asian or Other students have not significantly changed how the project's student

profile compares to the city schools' student composition. NYNSR students, in the aggregate, are still more of color than the students in all the city's public schools.

The percentage of students eligible for free lunch in NYNSR elementary and middle schools has also declined across the three years, particularly between 1995-96 and 1996-97. (As the tables indicate, high school data is too unreliable to report or analyze.) Student stability, indicating what percentage of students were in the same school in October of the school year and then in June of the same school year, also experienced a small decline.

Table 1c
Student Characteristics
NYNSR Students
1995-96, 1996-97, 1997-98

	1995-96 N=19,140	1996-97 N=42,350	1997-98 N=44,547
Student Characteristics			
Percent Female	51.3	51.3	51.1
Ethnicity/Race			
Percent Latino	46.4	39.9	40.1
Percent Black	38.9	38.7	38.1
Percent White	9.7	12.3	12.3
Percent Asian or Other	5.0	9.1	9.5
Other Characteristics			
Percent Eligible for Free Lunch*	76.4	72.3	72.1
Percent Stable Students	98.2	94.8	94.7
Special Populations			
Percent English Language Learners	13.5	11.0	11.7
Percent in Special Education	4.6	4.5	4.0

* Free lunch data are unreliable for high school students. The free lunch data presented here represent free lunch eligibility of elementary and middle school students only. See Appendix A for a more detailed explanation of the free lunch variable.

Table 1d
Student Characteristics
NYNSR Elementary and Middle School Students
1995-96, 1996-97, 1997-98

	1995-96 N=12,532	1996-97 N=29,176	1997-98 N=29,373
Student Characteristics			
Percent Female	49.2	49.6	49.2
Ethnicity/Race			
Percent Latino	49.7	40.6	40.1
Percent Black	36.5	35.3	34.5
Percent White	9.1	13.3	13.6
Percent Asian or Other	4.7	10.8	11.8
Other Characteristics			
Percent Eligible for Free Lunch*	76.4	72.3	72.1
Percent Stable Students	98.8	95.8	96.1
Special Populations			
Percent English Language Learners	14.2	11.5	11.9
Percent in Special Education	6.3	5.5	5.0

* See Appendix A for a more detailed explanation of the free lunch variable.

Table 1e
Student Characteristics
NYNSR High School Students
1995-96, 1996-97, 1997-98

	1995-96 N=6,608	1996-97 N=13,174	1997-98 N=15,174
Student Characteristics			
Percent Female	55.5	54.9	54.8
Ethnicity/Race			
Percent Latino	39.4	38.4	40.1
Percent Black	44.0	46.3	45.3
Percent White	11.2	10.0	9.6
Percent Asian or Other	5.4	5.3	5.1
Other Characteristics			
Percent Eligible for Free Lunch*	N/A	N/A	N/A
Percent Stable Students	97.2	92.8	92.0
Special Populations			
Percent English Language Learners	12.1	9.9	11.3
Percent in Special Education	1.2	2.4	2.2

* Free lunch data are unreliable for high school students. See Appendix A for a more detailed explanation of the free lunch variable.

The average daily attendance rate in NYNSR schools (Table 1f) is consistently higher in NYNSR schools than in city schools at all school levels. Additionally, the NYNSR middle schools show an upward trend in the daily average attendance rate that is larger than the corresponding citywide trend.

Table 1f
Percent Average Daily Student Attendance
NYNSR and Citywide Average
1995-96, 1996-97, 1997-98

	NYNSR			Percent Citywide**		
	1995-96 N=18,924	1996-97 N=40,062	1997-98 N=42,881	1995-96	1996-97	1997-98
Elementary school students	89.9	91.2	91.9	89.0	90.2	91.1
Middle school students	87.4	90.0	90.9	87.3	88.4	89.2
High school students*	87.8	88.3	87.3	84.9	85.8	86.4
High school students in transfer alternatives	82.3	82.6	79.8	N/A	N/A	N/A

Note: The data presented in this table exclude pre-kindergarten students, and the N's reported in the table reflect the removal of these students.
*This statistic excludes students in transfer alternative high schools
** Source: 1997-98 Annual School Reports. The students in NYNSR schools are included in the citywide averages.

NYNSR Student Outcomes over Time

Gap Analysis

During the NYNSR project (1995-96 to 1999-2000), the New York City Board of Education has repeatedly changed the format of the standardized tests administered to public school students in New York City. As a result, straightforward comparisons of test score results across multiple years cannot be made. Charts 1 & 2 on the following page show the difference between NYNSR elementary and middle schools' test results and the citywide average for four years, from 1995-96 to 1998-99. By highlighting the *difference* or *gap* between the average NYNSR school performance and the average citywide performance, we avoid the problem of standardized test incomparability over the four years shown on these graphs**.** In Chart 1 and Chart 2, the NYNSR school average reflects schools that were participants in the project for that particular year. Because the NYNSR project is dynamic--adding and dropping schools each year-- the NYNSR average includes the test results of different schools and students for each year.

The data for these charts come from our NYNSR school-level databases. The sources of the data are the 1995-96, 1996-97, and 1998-99 Annual School

Reports.[7] To create the first chart, the reading results for each NYNSR elementary school were aggregated up to an average for the NYNSR elementary schools for 1995-96, 1996-97, 1997-98, and 1998-99. The average citywide reading score for elementary schools was then calculated for the same years. The average reading score for NYNSR elementary schools was then subtracted from the citywide average for elementary schools to get a score indicating the difference between the average for NYNSR elementary schools and the citywide elementary school average.[8] This same procedure was then followed for the NYNSR middle schools to produce Chart 2. For both Chart 1 and Chart 2, negative numbers indicate that NYNSR schools, as an aggregate, were scoring below the citywide average, while positive numbers indicate that NYSNR schools, as an aggregate, were scoring above the citywide average.

As Chart 1 and 2 illustrate, both NYNSR elementary and middle schools made steady progress over the four years, from performing below the citywide average in 1995-96 on the citywide reading and math exams to performing above the citywide average in 1998-99 on both tests. Elementary schools made the greatest gains in reading performance, going from almost 7 percentage points below the citywide average for elementary schools in 1995-96 to 4.5 percentage points above the citywide average in 1998-99. NYNSR middle schools show clear progress in their math scores, going from 4.5 percentage points below the citywide average in 1995-96 to 2 percentage points above the citywide average in 1998-99.

[7] The test data for the 1997-98 school year come from the recalculated 1997-98 tests results presented in the 1998-99 Annual School Report.

[8] The citywide average shown on these charts includes the students in NYNSR schools.

Chart 1

Difference between NYNSR Elementary and Middle Schools and the Citywide Average on the Citywide Reading Exam

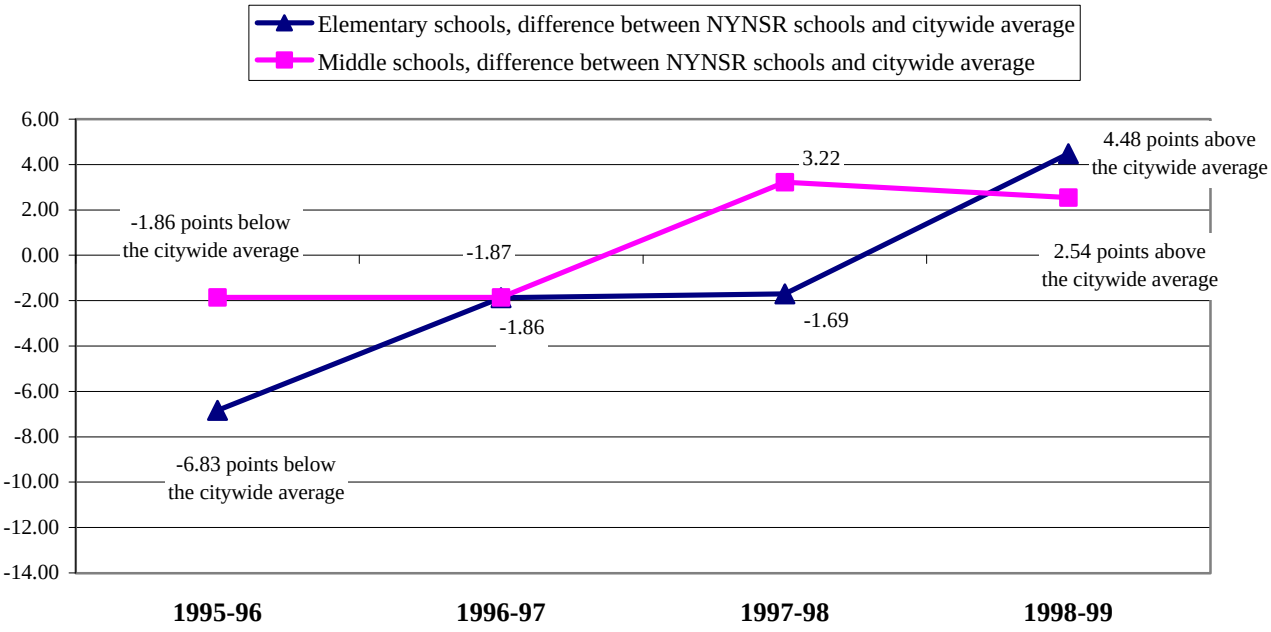
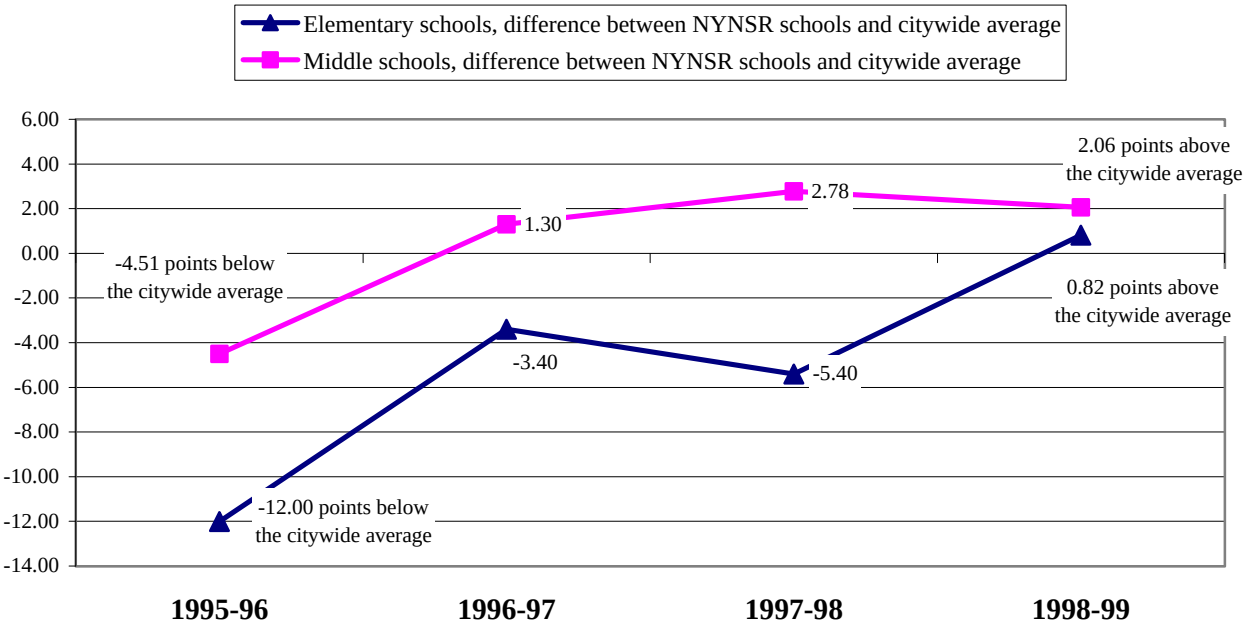


Chart 2

Difference between NYNSR Elementary and Middle Schools and the Citywide Average on the Citywide Math Exam



Quartile Analysis

The following tables and charts show the gains of NYNSR elementary and middle school students over three years on the citywide reading test (the CTB) and the citywide math test (the CAT). The data presented in these tables and charts follow the progress of a cohort of founding NYNSR students over three years. Note that across those three years, the number of students declines sharply. Only those students remaining in a NYNSR school and having test scores in all three years are included in the third year of the data. Thus if students leave NYNSR schools or the New York City public school system in any given year, they will be excluded from that year's and all subsequent year's analyses. Additionally, many students were excluded because they advanced to a higher grade in which students are no longer tested by the citywide reading or math exams.[9] (Approximately 2,300 of the students who took the math and reading exam in 1995-96 were in the eighth grade and therefore would not be expected to be taking the citywide exams in 1996-97.) These strict guidelines allow us to look at the outcomes of students who have persisted in NYNSR schools. However, without a systematic examination of the students who left the NYNSR schools, we cannot be sure that the increase in scores does not reflect a higher attrition rate among low-scoring students.[10]

Reading Results

Table 1g and Chart 3 shows the three-year progress of the NYNSR founding students on the citywide CTB reading exam, and indicate a shift in student scores from the lower to the upper quartiles. Among the students who have remained in a NYNSR schools for three years and have taken the citywide reading exam in each year, there has been a substantial decrease in the percentage in the bottom quartile (from 37% of NYNSR students in the bottom quartile in 1995-96 to 28% of

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[9] In New York City, the citywide reading and math exams in 1995-96 through 1997-98 were administered to students in the 3rd through 8th grade.

[10] We will explore the issue of the characteristics and outcomes of students who leave the NYNSR schools in greater detail in the final report.

students in the bottom quartile in 1997-98) and a 7 percentage point increase in the percentage of students in the top quartile.

Table 1g
Reading Results (CTB Exam)
NYNSR Student Scores by Quartiles
1995-96, 1996-97, 1997-98

	1995-96		*1996-97*		*1997-98*	
	Number of Students	Percent of Students	Number of Students	Percent of Students	Number of Students	Percent of Students
1-25th Percentile	3194	37.3	1214	27.5	557	28.4
26-49th Percentile	2406	28.1	1311	29.7	507	25.8
50-75th Percentile	1819	21.3	1187	26.9	502	25.6
76th-99th Percentile	1133	13.2	699	15.8	397	20.2
Totals	8552	99.9	4411	99.9	1963	100

Chart 3

NYNSR CTB Reading Results by Quartile

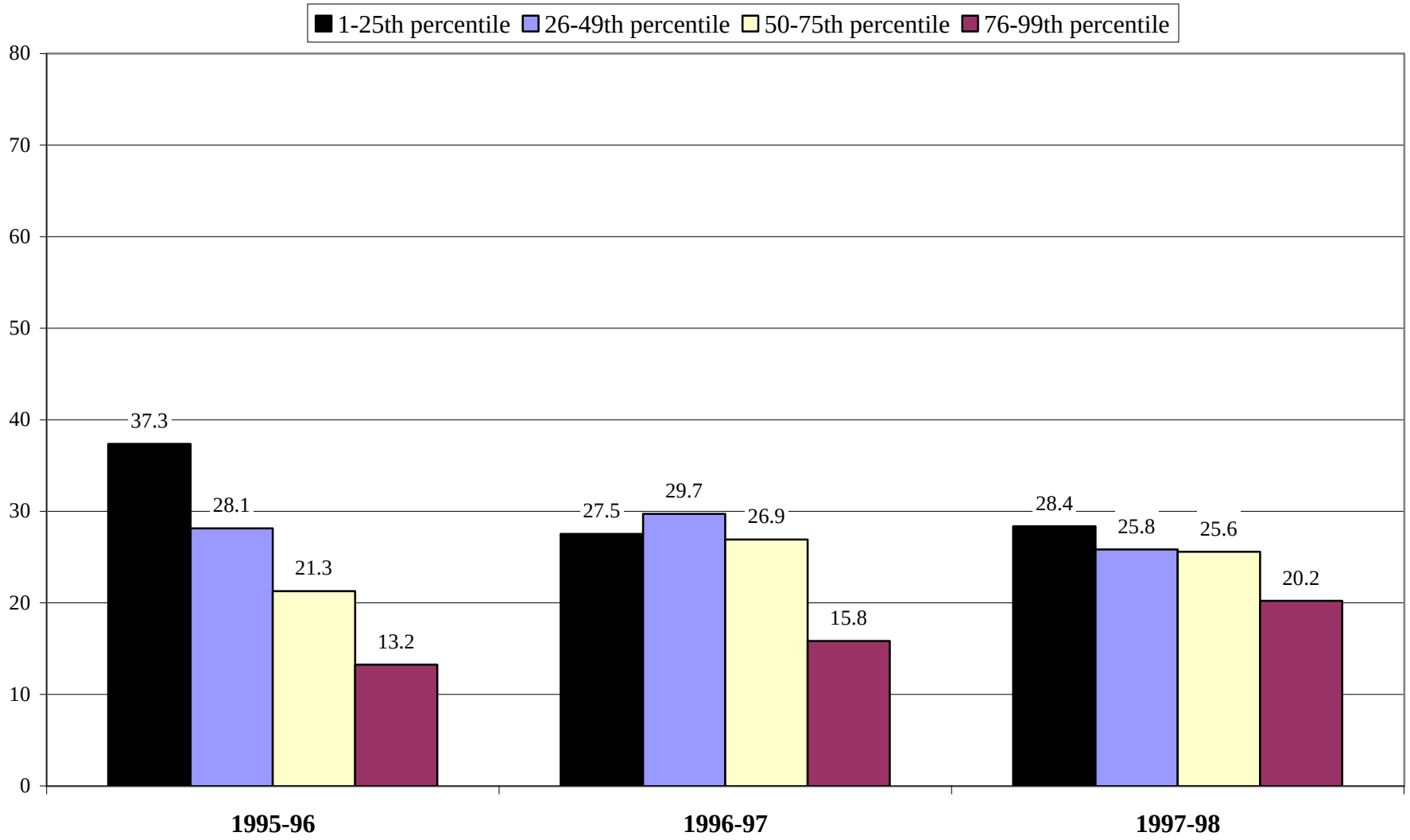

Chart 4

NYNSR CTB Reading Results by Quartile by Race-Ethnicity

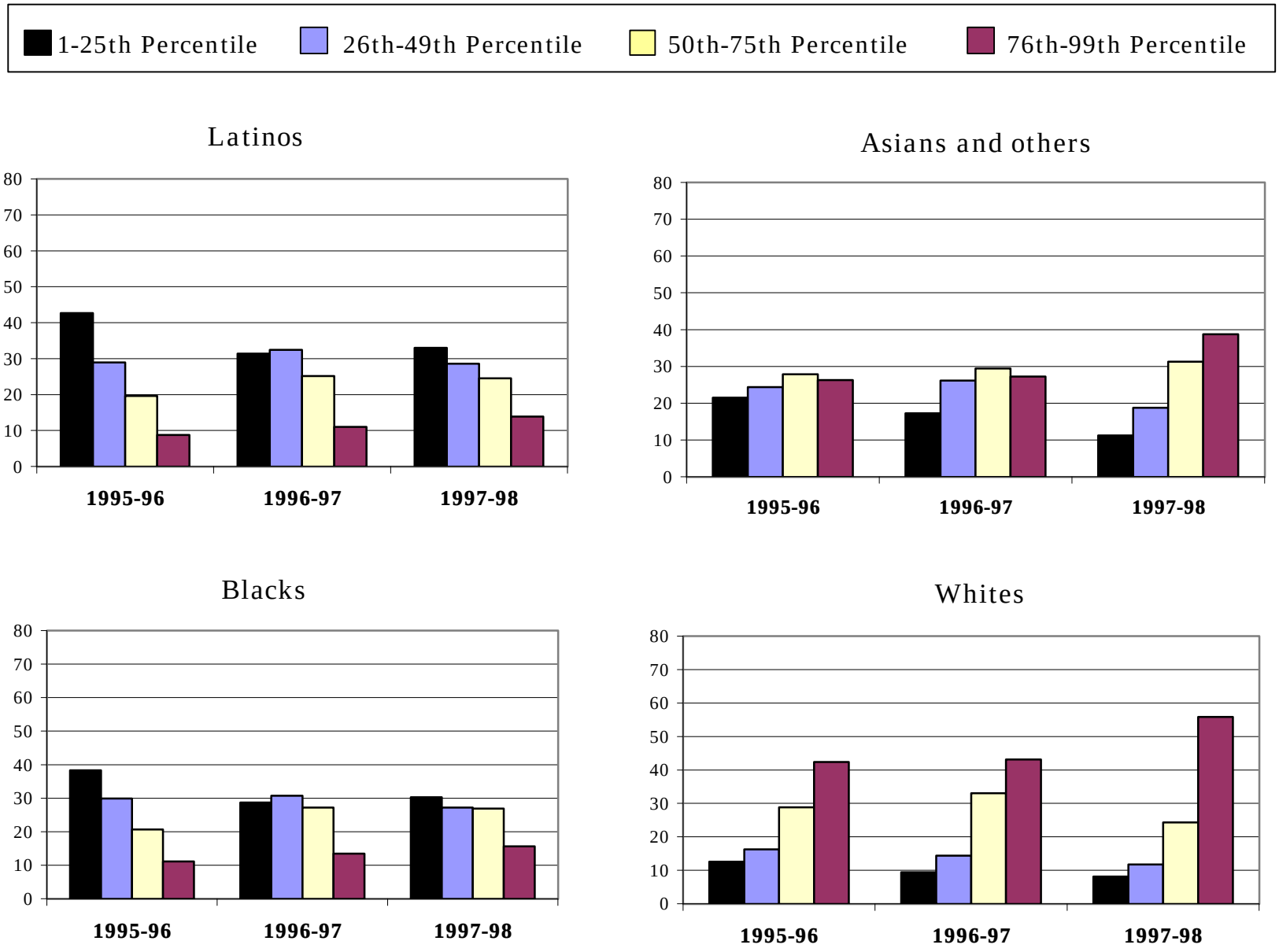

Chart 4 shows the data presented in Table 1g disaggregated by student race-ethnicity. Across all racial-ethnic groups there is a pattern of students progressing toward the upper quartiles, but the strongest movement is of White and Asian or Other students moving into the top quartile. Both had more than a 10 percent increase in the percentage of students in the top quartile from 1995-96 to 1997-98, while Latino and Black students had slightly more than a five percentage point increase in the top quartile in the same years.

Table 1h presents the quartile data in a more commonly used form, the "percent of students at or above grade level", [11] which combines the students in the third quartile (50th-75th percentile) with students in the top quartile (76th-99th percentile). Using this analysis, Asian or Other students made the greatest gain over the three years, shifting from 54% at or above grade level in 1995-96 to 70% at or above grade level in 1997-98. Among both Black and Latino students, there was approximately a 10 percentage point increase in students scoring at or above grade level.

Table 1h
Reading Results (CTB Exam)
Percentage of Students At or Above Grade Level
NYNSR Student Scores by Student Ethnicity-Race

	1995-96		1996-97		1997-98	
	Number of Students	Percent of Students	Number of Students	Percent of Students	Number of Students	Percent of Students
Latino	1124	28.4	766	36.2	387	38.4
Black	1103	31.8	675	40.6	278	42.5
White	482	71.2	339	76.2	178	80.2
Asian or Other	171	54.1	102	56.7	56	70.0

[11] We are using "at or above grade level" as a synonym for "at or above the 50th percentile".

Math Results

The distribution of NYNSR students by quartile over three years for the CAT math exam is similar to the distribution of students for the CTB reading exam. Clearly, when the stable students are followed across time, the students who remain in NYNSR schools improve their performance on the citywide standardized tests.[12] Between 1995-96 and 1997-98, the percentage of NYNSR students in the bottom quartile on the CAT math exam decreased from 30% of students to 23%. The percentage of NYNSR students in the top quartile went from 21% to 27% over the three years shown in Table 1i. Chart 5 reproduces the data presented in Table 1i graphically.

Table 1i
Math Results (CAT Exam)
NYNSR Student Scores by Quartiles
1995-96, 1997-98, 1998-99

	1995-96		1996-97		1997-98	
	Number of Students	Percent of Students	Number of Students	Percent of Students	Number of Students	Percent of Students
1-25th Percentile	2633	30.4	1052	23.5	463	23.4
26-49th Percentile	2140	24.7	1139	25.4	441	22.3
50-75th Percentile	2072	23.9	1116	24.9	543	27.5
76th-99th Percentile	1828	21.1	1169	26.1	528	26.7
Total	8673	100.1	4476	99.9	1975	99.9

[12] To be included in all years of this analysis, a student must have been in a NYNSR school for all three years and have taken the citywide tests in all three years.

Chart 5

NYNSR CAT Math Results by Quartile

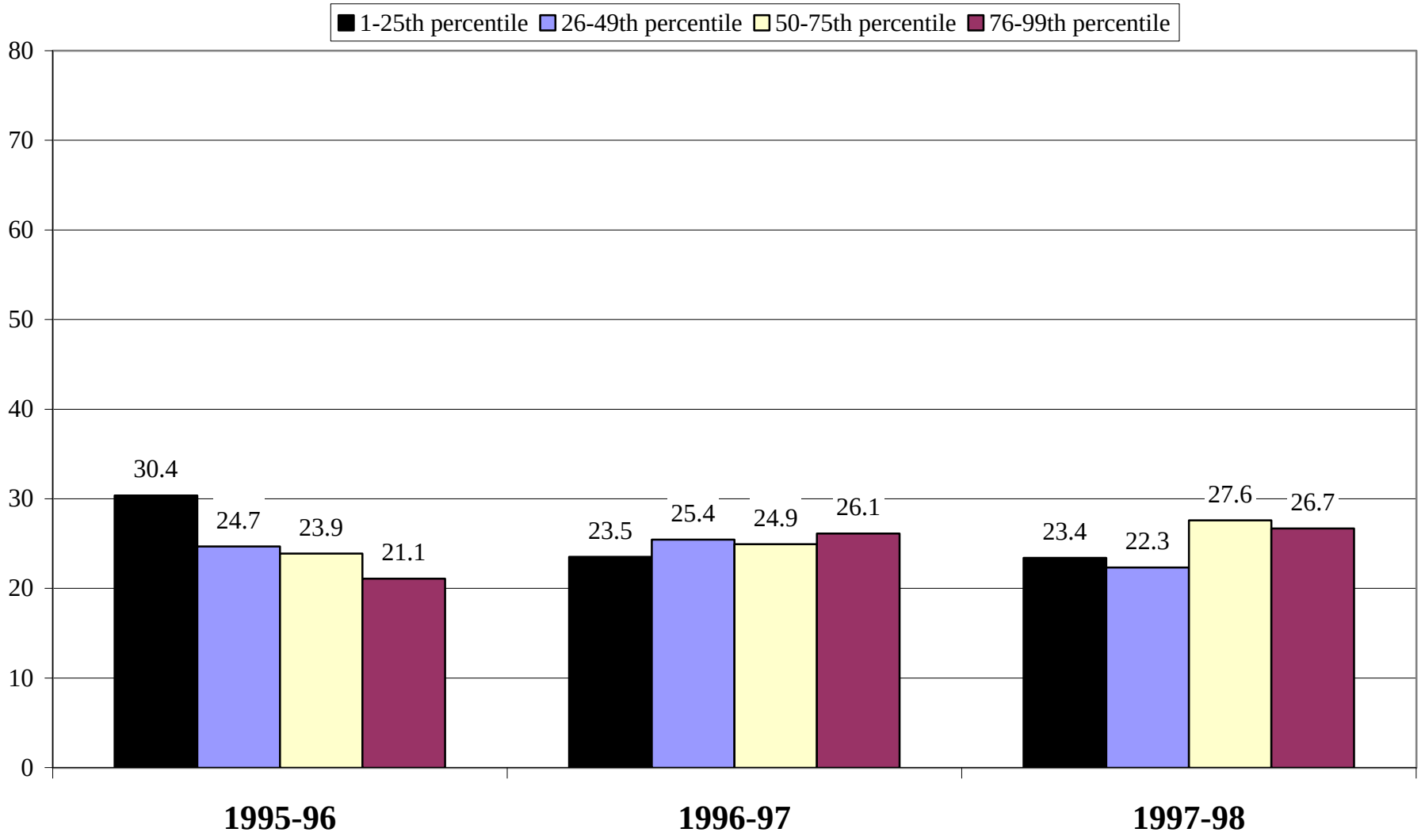

Chart 6

NYNSR CAT Math Results by Quartile by Race-Ethnicity

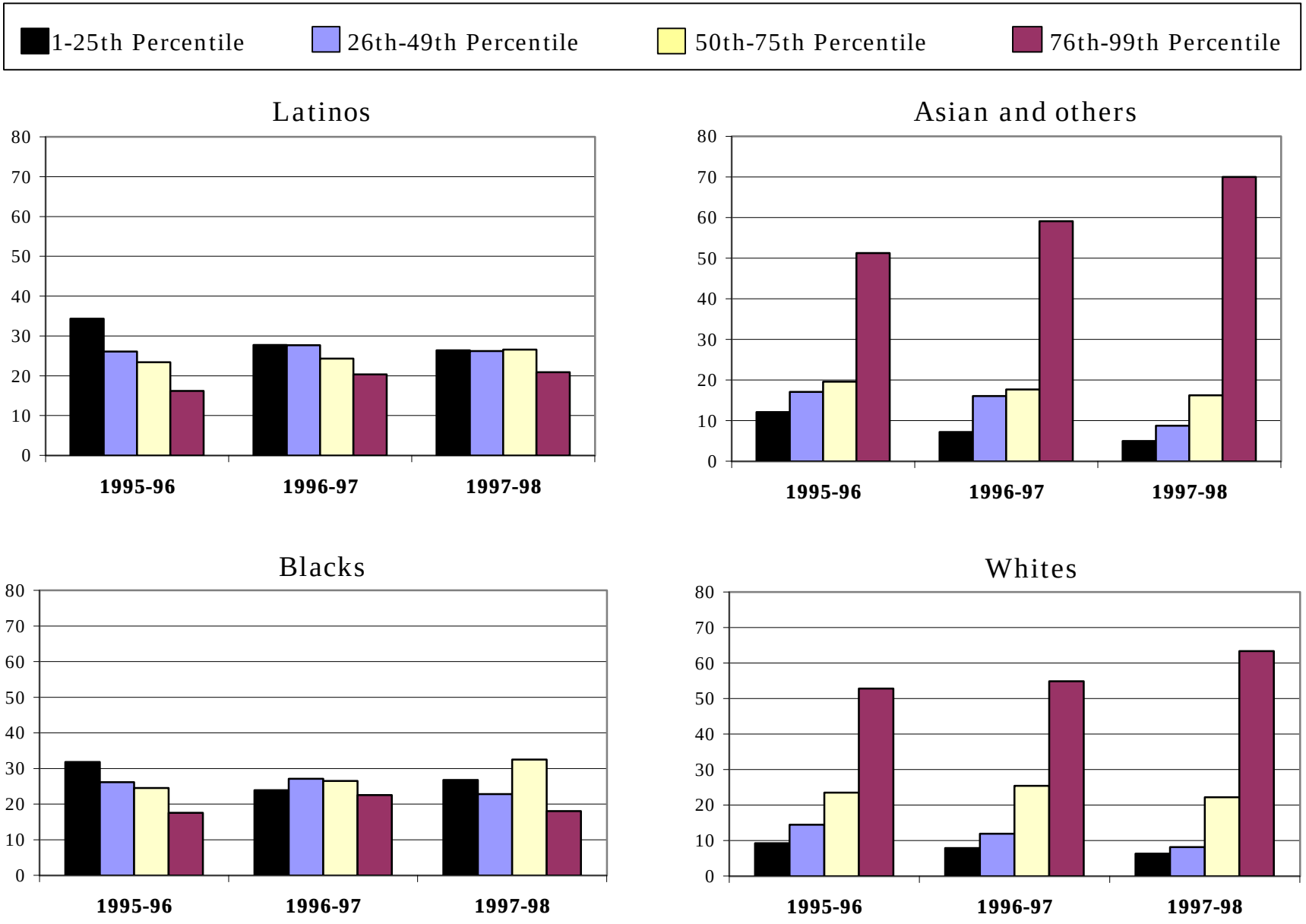

Chart 6 presents the data from Table 1i and Chart 5 disaggregated by students' race-ethnicity. Among all racial-ethnic groups there was a decrease in the percentage of students in the bottom quartile between 1995-96 and 1997-98. Blacks and Whites made the least progress in moving out of the bottom quartile. (Whites had proportionally fewer students scoring in the bottom quartile than Blacks.) White students went from having 9% in the bottom quartile in 1995-96 to 6% in the bottom quartile in 1997-98. Black students went from 32% in the bottom quartile in 1995-96 to 27% in the bottom quartile in 1997-98. However Black students made more progress between 1995-96 and 1996-97 in moving out of the bottom quartile, but lost ground again between 1996-97 and 1997-98.

This same pattern occurred for Black students moving into the top quartile. Between 1995-96 and 1996-97 there was a 5 point increase in the percentage of Black students scoring in the top quartile. But between 1996-97 and 1997-98, the percentage of Black students scoring in the top quartile decreased to the same level (18%) as in 1995-96. Asian or Other students also had greater growth in the percentage of students in the top quartile between 1995-96 and 1996-97 than in 1996-97 and 1997-98. White students, on the other hand, made strong and steady progress in the proportion of students scoring in the top quartile over the three years (53% in 1995-96, 55% in 1996-97 and 63% in 1997-98). Latino students made moderate progress over the three years, going from 16% in the top quartile in 1995-96 to 21% in 1997-98.

Table 1j presents the same data but calculated as the percentage of students at or above grade level. Asian and Other NYNSR students showed the strongest movement, from 71% to 86% of students scoring at or above grade level on the CAT exam. Both Latinos and Blacks had approximately an 8% increase between 1995-96 and 1997-98 in the percentage of students scoring at or above grade level. White students had a 10% increase over the three years.

Table 1j
Math Results (CAT Exam)
Percentage of Students At or Above Grade Level
NYNSR Student Scores by Student Ethnicity-Race

	1995-96		1996-97		1997-98	
	Number of Students	Percent of Students	Number of Students	Percent of Students	Number of Students	Percent of Students
Latino	1627	39.6	980	44.6	484	47.5
Black	1447	42.0	806	49.0	328	50.5
White	513	76.3	357	80.2	189	85.5
Asian or Other	228	70.8	139	76.8	69	86.3

NYNSR Teacher Characteristics

The data that follow describe the characteristics of the teachers in NYSNR schools, using school-level data from the Board of Education's Annual School Report databases. Unfortunately, these data have some limitations. Because several NYSNR schools are small programs within other schools, the Board of Education does not provide disaggregated data for them. Since many of the NYNSR schools that the Board of Education considers programs are middle schools, we do not include middle schools in the analyses that follow. We have also excluded 1995-96 data because there is considerable missing data for NYNSR schools in that year.

Our analysis includes the teacher variables commonly used to describe teacher quality. But these variables are only proxies, rather than actual measures of the quality of the teaching staff in NYNSR schools.

The data in Table 1k indicate that from 1996-97 to 1998-99 NYNSR elementary schools have consistently lower percentages of experienced teachers than the citywide average.[13] NYNSR schools have lower percentages of fully licensed and permanently assigned teachers compared to the citywide average

[13] The Annual School Reports also include data on the percent of teachers who have been teaching in a school for more than two years. However because so many of the NYNSR schools are new schools, the new NYNSR schools pull down the average for NYNSR schools on the whole, making it appear as though the NYNSR schools have a very low percent of teachers with more than two years experience teaching in the school. For this reason, this variable is not used in the teacher analyses in this report.

across all three years, have consistently fewer teachers with more than five years teaching experience, and have fewer teachers with master's degrees or higher. Interestingly, the average number of days absent for NYNSR teachers is lower than the citywide average despite the higher level of unlicensed and inexperienced teachers in the NYNSR elementary schools, which may indicate something about the strengths of the school cultures NYNSR member schools have built.

Table 1k
Teacher Characteristics
NYNSR and Citywide Elementary Schools
1996-97, 1997-98, 1998-99

	1996-97		1997-98		1998-99	
	NYNSR	Citywide*	NYNSR	Citywide*	NYNSR	Citywide*
Percent of teachers fully licensed and permanently assigned	81.6	83.2	84.7	86.3	79.8	83.7
Percent of teachers with more than 5 years of teaching experience	57.9	68.6	54.5	61.3	48.6	60.7
Percent of teachers with master's degrees or higher	87.3	89.5	76.0	78.4	76.2	79.2
Average number of days teachers are absent during the school year	6.5	6.8	7.8	7.9	8.5	8.8

For many NYNSR schools there is no data for the teachers reported on the Annual School Reports. In 1996-97, data was available for 22 out of 37 NYNSR elementary schools, in 1997-98, 24 out of 36, and in 1998- 99, 21 out of 39.
* The citywide average in these tables includes NYNSR schools.

The pattern of teacher characteristics is very similar for high schools, except that the difference between the NYNSR teaching staff and the citywide average is even more distinct. The NYNSR high schools have a very low percentage of teachers who are fully licensed and permanently assigned as compared to citywide high schools, a considerably lower percentage of teachers with more than five years teaching experience teaching, and a lower percentage of teachers with master's degrees or higher. Again, days absent for NYNSR high school teachers is lower than the citywide average.

Table 1l
Teacher Characteristics
NYNSR and Citywide High Schools
1996-97, 1997-98, 1998-99

	1996-97		1997-98		1998-99	
	NYNSR	Citywide*	NYNSR	Citywide*	NYNSR	Citywide*
Percent of teachers fully licensed and permanently assigned	64.1	80.7	62.8	81.5	57.7	81.2
Percent of teachers with more than 5 years of teaching experience	42.1	69	35.3	63.3	32.0	65.3
Percent of teachers with master's degrees or higher	84.6	90.4	68.0	80.7	70.5	80.2
Average number of days teachers are absent during the school year	5.3	6.2	6.5	7.0	7.3	8.5

In 1996-97, data was available for 39 out of 43 NYNSR high schools, in 1997-98, 41 out of 46, and in 1998-99, 43 out of 48.
*The citywide average in these tables includes NYNSR schools.

Thus, NYNSR schools at all levels are staffed by who are less likely to be licensed, have less experience and less graduate education than teachers in the New York City system as a whole, yet their attendance, at each level, is better. The next section reviews specific comparisons between NYNSR schools and a sample of schools that were selected as matching schools.

II. MATCHED NYNSR VERSUS COMPARISON SCHOOLS

As another way to assess achievement in NYNSR schools, we constructed a sample of matched schools which allows us to compare the progress of students in NYSNR schools to the progress of students in other NYC public schools that are roughly similar in size, geographic location, student demographic characteristics and prior test score outcomes. We selected a total of 45 comparison schools to match 59 of the 81 NYNSR founding schools.[14] We refer to the subset of NYNSR schools that were matched to comparison schools as the "matched NYNSR schools" throughout this report.

Our ***October 1999 Outcomes Report*** demonstrated that our selected group of comparison schools was very similar, across a wide range of variables, to the group of matched NYNSR schools in 1994-95 (before the start of the NYNSR project) and therefore provided a sound comparison.[15] In this section we examine the demographic characteristics of the students in the matched NYNSR schools and the comparison schools in the 1997-98 school year, and then analyze four years of test results (1995-96 through 1998-99) for the two groups.

Year 3 Student Characteristics--Matched NYNSR and Comparison Students

In 1997-98 the students in the subset of matched NYNSR schools remained very similar to the students in the comparison schools. While the NYNSR schools have a larger proportion of Latino and White students, the comparison schools have a greater percentage of Black students as well as slightly more students in the Asian or Other category. The comparison schools have a slightly higher

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[14] Appendix C contains a list of the founding NYNSR schools that were matched, a list of comparison schools, and a list of unmatched NYNSR schools. Several selective NYNSR schools were not matched simply because they have no counterparts in the public system.

[15] See the ***October 1999 Outcomes Report*** for details on the construction of the comparison sample and its similarity to the matched NYNSR schools.

percentage of students eligible for free lunch. This was not the case in 1995-96 but may be due to changes in how we calculate free lunch eligibility (see Appendix A for further information about free lunch data). The matched NYNSR schools serve a smaller percentage of students receiving self-contained special education, as well as students for whom English is a second language. These patterns, overall, reflect the data in previous years as well.[16]

Table 2a
Student Characteristics
Matched NYNSR and Comparison Students
1997-98

	Students in Matched NYNSR schools N=20,276	Students in Comparison Schools N=19,794
Student Characteristics		
Percent Female	52.7	53.1
Ethnicity/Race		
Percent Latino	47.0	44.8
Percent Black	39.3	44.3
Percent White	8.8	5.7
Percent Asian or Other	4.8	5.1
Other Characteristics		
Percent Eligible for Free Lunch*	78.1	81.5
Percent Stable Students	94.5	93.2
Special Populations		
Percent English Language Learners	9.6	11.4
Percent in Special Education	3.5	5.1

*Free lunch data are unreliable for high school students. The free lunch data presented here represent free lunch eligibility of elementary and middle school students only. See Appendix A for a more detailed explanation of the free lunch variable.

Table 2b shows the breakdown of student characteristics by school level for students in matched NYNSR schools and students in comparison schools. Both the matched NYNSR schools and the comparison schools show considerable difference in racial-ethnic student composition between elementary and middle schools and high schools. Black students served by both the matched NYNSR schools and the comparison schools are more concentrated in the high schools, while the percentage of Latino students is much higher in the elementary and

[16] The data for previous years comparing the demographic characteristics of the students in matched NYNSR schools and the comparison schools will be included in our final report.

middle schools. The matched NYNSR schools also have slightly higher rates of student stability at elementary, middle and high school levels.

Table 2b
Student Characteristics
Matched NYNSR and Comparison by School level
1997-98

	Elementary and Middle Grades		High Grades	
	Matched NYNSR School Students N=9,831	Comparison School Students N=9,833	Matched NYNSR School Students N=10,445	Comparison School Students N=9,961
Student Characteristics				
Percent Female	49.2	50.3	56.1	55.9
Ethnicity/Race				
Percent Latino	54.2	53.4	40.2	36.3
Percent Black	29.9	31.4	48.4	57.2
Percent White	9.2	8.9	8.4	2.6
Percent Asian or Other	6.7	6.4	3.1	3.9
Other Characteristics				
Percent Eligible for Free Lunch*	78.1	81.5	N/A	N/A
Percent Stable Students	97.0	95.7	92.2	90.7
Special Populations				
Percent English Language Learners	13.7	16.0	5.8	6.8
Percent in Special Education	5.6	6.6	1.6	3.7

*Free lunch data are unreliable for high school students. The free lunch data presented here represent free lunch eligibility of elementary and middle school students only. See Appendix A for a more detailed explanation of the free lunch variable.

As Table 2c indicates, attendance data is quite similar for both groups of schools. Across the three-year period, attendance has consistently increased in both the matched NYNSR and the comparison elementary and middle schools. While the matched NYNSR elementary school students had consistently higher rates of attendance than the students in the comparison schools, the matched NYNSR middle school students had consistently lower rates of attendance. Only among the NYNSR matched transfer high schools does there appear to be a clear difference between the matched NYNSR schools and the comparison schools; the matched NYNSR transfer alternative high schools have substantially higher attendance rates.

Table 2c
Percent Average Daily Student Attendance
Matched NYNSR and Comparison Schools by Level
1995-96, 1996-97, 1997-98

	Matched NYNSR Students			Comparison Students		
	1995-96 N=14,403	1996-97 N=19,429	1997-98 N=20,051	1995-96 N=18,354	1996-97 N=20,155	1997-98 N=19,574
Elementary school students	89.8	90.8	91.8	88.6	90.2	91.4
Middle school students	87.0	88.6	89.6	86.8	88.5	89.1
High school students*	87.6	87.7	86.7	83.3	86.0	86.6
High school students in transfer alternatives	78.6	81.4	79.8	74.7	75.3	74.4

Note: The data presented in this table exclude pre-kindergarten students, and the N's reported in the table reflect the removal of these students.
*This statistic excludes students in transfer alternative high schools

Student Outcomes—Matched NYNSR and Comparison Schools

Gap Analysis

On pages 14-16, we present a gap analysis comparing the performance of NYNSR schools to the citywide average on both the citywide reading and math exams. Here we use the same type of analysis to examine the difference between the performance of matched NYNSR schools and the citywide average, and the difference between the performance of the comparison schools and the citywide average. In Charts 7 and 8, the scores of the elementary and middle schools were aggregated together for both the matched NYNSR schools and the comparison schools.[17]

The results are consistent for both the citywide reading exam and the citywide math exam: NYNSR matched schools show considerable progress while the comparison schools lose ground. On the reading exam (Chart 7), in 1995-96 the matched NYNSR schools scored 8.6 percentage points lower than the citywide average. In 1998-99, the same group of NYNSR schools scored .1 percentage

[17] Charts 3 and 4 also differ from the two Charts presented in the previous section of this report, because unlike the previous charts that included all NYNSR elementary and middle schools for each school year (and therefore included a slightly different group of schools in each year), these charts include the same group of matched schools in each year.

points *higher* than the citywide average. The comparison schools scored 10.4 percentage points lower than the citywide average in 1995-96 and 13.8 percentage points lower in 1998-99. On the citywide math exam, the matched NYNSR schools scores improved when compared to the citywide average over four years, going from 12.3 percentage points lower than the citywide average on the citywide math exam in 1995-96 to 5.3 percentage points lower (Chart 8). The comparison schools' scores again decreased, from 9 percentage points lower than the citywide average in 1995-96 to 13.9 percentage points lower in 1998-99.

Chart 7

Difference between Matched NYNSR and Comparison Schools Scores and the Citywide Average on the Citywide Reading Exam

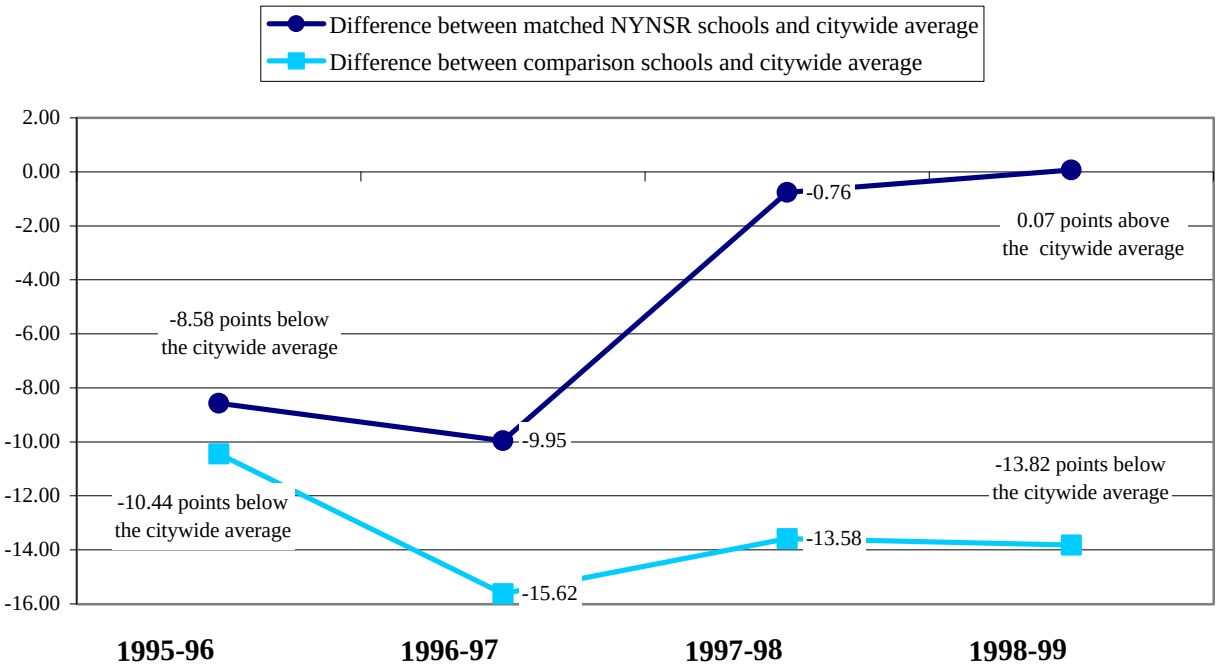
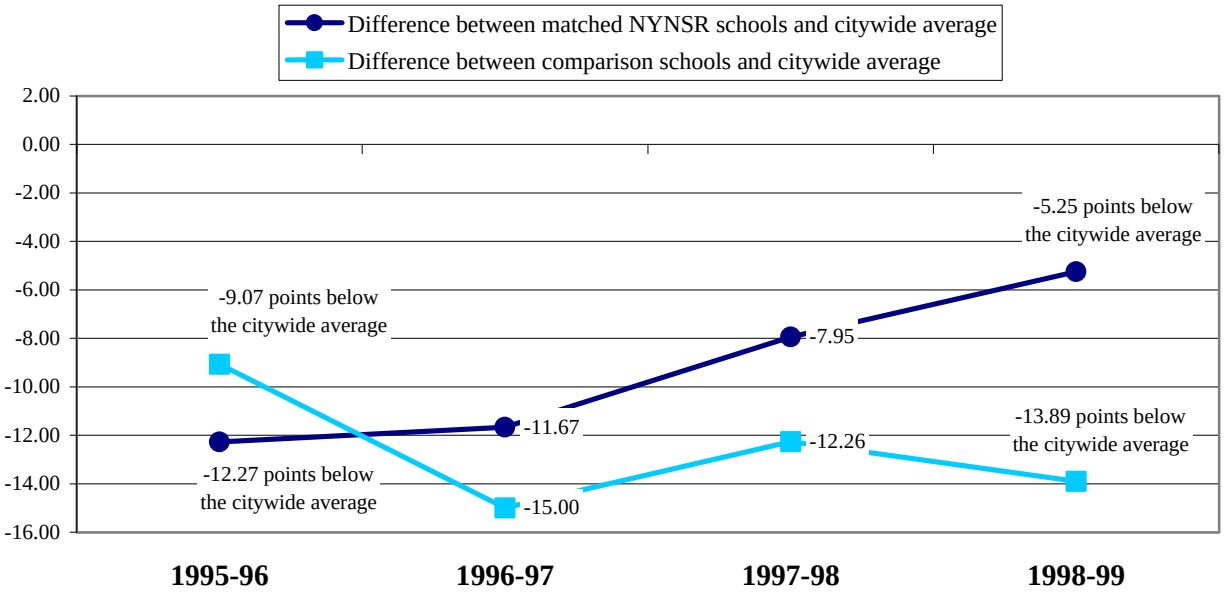


Chart 8

Difference between Matched NYNSR and Comparison Schools Scores and the Citywide Average on the Citywide Math Exam



Quartile Analysis

This analysis examines the matched NYNSR and comparison students' performance on standardized tests by following a decreasing cohort of students across the three years of the analysis. Charts 9 and 10 show the movement between quartiles of the students who remained in the matched NYNSR schools over the three years and the students who remained in the comparison schools over three years.[18] The charts indicate the percentage of students in the top and bottom quartile for 1995-96, 1996-97 and 1997-98 for NYNSR matched students and comparison students.

Among the students who remained in the matched NYNSR schools and the comparison schools, there was substantial movement of students among the quartiles on the CTB reading exam. Chart 9 indicates that the percentage of matched NYSNR school students who were in the bottom quartile on the CTB reading exam decreased between 1995-96 and 1997-98, going from 39.7% to 30% of the students. There was also a decrease in the percentage of students in the bottom quartile on the CTB reading exam for students who remained in comparison schools. However their decrease between 1995-96 and 1997-98 was not as great as the decrease for those students who remained in the matched NYNSR schools. Between 1995-96 and 1997-98 the percentage of students in the top quartile increased for both students who remained in matched NYNSR schools and students who remained in comparison schools. However, there was greater movement for students who remained in NYNSR schools, going from 10.8% to 18.9% of the students in the top quartile. The percentage of students who remained in the comparison schools who were in the top quartile over the three years increased from 8.1% to 11.9%.

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[18] As was the case with our previous quartile analysis in this report, without a systematic examination of the students who left the NYNSR schools, we cannot be sure that the increase in scores does not reflect a higher attrition rate among low-scoring students. This issue will be explored in greater depth in our final report.

On the CAT math exam, like the CTB reading exam, there was a decrease in the percentage of students in the lowest quartile and an increase in the percentage of students in the highest quartile for both stable students in the matched NYNSR schools and stable students in the comparison schools between 1995-96 and 1997-98. In 1995-96, 31.9% of students in matched NYNSR schools were in the bottom quartile. Across three years, among the students who remained in the matched NYNSR schools, the percentage of students in the bottom quartile dropped to 25.1% in 1997-98. The percentage of matched NYNSR students in the top quartile on the math exam increased from 18.3% to 24.2% for students who remained in the schools, while the percentage of students in the top quartile among students who remained in the comparison schools increased from 17.8% to 22% over the same period.

Chart 9

Distribution of Students in the Bottom Quartile and Top Quartile on the CTB Reading Exam
Matched NYNSR and Comparison Students

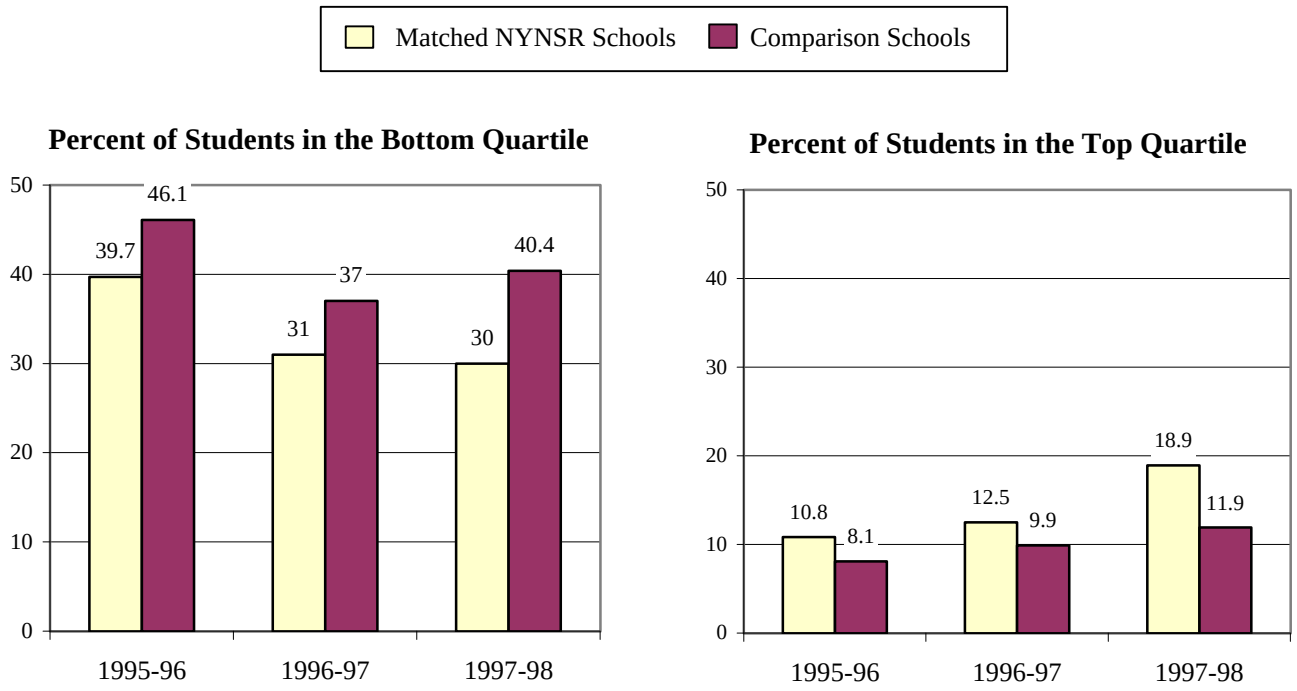
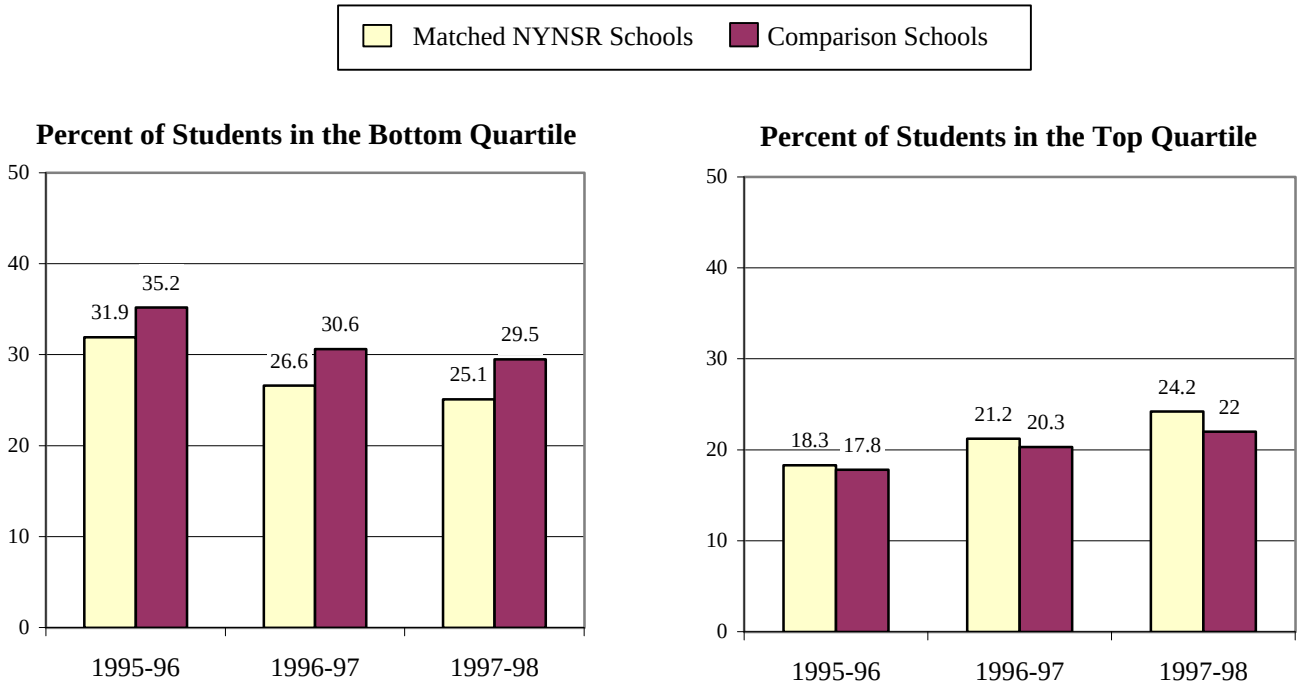


Chart 10

Distribution of Students in the Bottom Quartile and Top Quartile on the CAT Math Exam
Matched NYNSR and Comparison Students



Tables 2d and 2e are based on the same data presented in Charts 9 and 10 but indicate the percentage of stable students in matched NYNSR and comparison schools scoring at or above grade level on the citywide math and reading exam. Table 2d shows a greater increase in the percentage of students at or above grade level on the citywide reading exam in matched NYSNR schools than in comparison schools. While there was a 12.8% increase in matched NYNSR schools in the percentage of students at or above grade level, the comparison schools saw only a 7.2% increase in students at or above grade level.

Table 2d
Reading Results (CTB Exam)
Percentage of Students At or Above Grade Level
Matched NYNSR and Comparison School Students
1995-96, 1996-97, 1997-98

	1995-96		1996-97		1997-98	
	Number of Students	Percent of Students	Number of Students	Percent of Students	Number of Students	Percent of Students
Matched NYNSR	1937	30.8	1348	37.6	725	43.6
Comparison	1814	26.3	1143	30.4	627	33.5

Although the difference between the progress of matched NYNSR school students and comparison school students is not as distinct on the citywide math exam, the results still show that those students who remain in matched NYNSR schools make more progress than the students who remain in comparison schools. Students who remained in the matched NYSNR schools had an increase of 9.1 percentage points in the percent of students at or above grade level on the math exam. Students who remained in the comparison schools had an increase of 7.4 percentage points in the percent at or above grade level on the CAT math exam.

Table 2e
Math Results (CAT Exam)
Percentage of Students At or Above Grade Level
Matched NYNSR and Comparison School Students
1995-96, 1996-97, 1997-98

	1995-96		1996-97		1997-98	
	Number of Students	Percent of Students	Number of Students	Percent of Students	Number of Students	Percent of Students
Matched NYNSR	2684	42.0	1680	46.0	858	51.1
Comparison	2768	39.1	1650	42.2	890	46.5

Class of 1999

As part of the construction of the comparison sample, NYNSR high schools were matched with other New York City high schools on geographic location, size, student demographic characteristics and students' previous test scores. But because some NYNSR high schools were too unique to pair with comparison schools, not all NYNSR high schools are included in the matched subset.[19]

The data from the Board of Education's *Class of 1999 Four-Year Longitudinal Report* indicate that in matched NYNSR high schools, a higher percentage of students graduated in four years, fewer students dropped out, and more students were still enrolled after four years than in the group of comparison schools. This was true for both the academic and articulated matched NYNSR schools and the transfer matched NYNSR high schools.

Table 2f
Four-Year Graduation Report
Matched NYNSR High Schools and Comparison High Schools
Class of 1999

	Academic and Articulated High Schools Less Transfer				*Transfer High Schools***			
	Number of Schools	Percent Graduated	Percent Dropped Out	Percent Still Enrolled	Number of Schools	Percent Graduated	Percent Dropped Out	Percent Still Enrolled
Matched NYNSR High Schools	21	56.3	8.3	35.5	6	21.4	17.5	61.1
Comparison High Schools	19	53.9	11.4	34.7	5	18.1	19.0	62.9

** Articulated alternative high schools enroll a majority of their students from junior high/intermediate schools at the ninth grade and expect that those students will graduate within four years. Transfer alternative schools only enroll students who are transferring from other educational settings from which they may have dropped out or have been suspended. These are often "last chance" schools.

[19] See Appendix C for the list of NYNSR schools that were not matched.

Teacher Characteristics--Matched NYNSR and Comparison High Schools

Teachers in NYNSR matched high schools are consistently less likely to be fully licensed and permanently assigned, to have more than five years of teaching experience and to have a master's degree or higher than the teachers in the comparison high schools.[20] While the percentage of teachers in the comparison schools who are fully licensed and permanently assigned has increased in Table 2g, the matched NYNSR high schools show decreasing percentages of teachers fully licensed and permanently assigned, as well as decreasing levels of teachers with more than five years of teaching experience. However, the matched NYNSR high schools have slightly lower levels of teachers' absences, in spite of their high levels of inexperienced staff, and finding of higher attendance for NYNSR teachers holds against either the school system as a whole, or against the subset of comparison schools.

Table 2g
Teacher Characteristics
Matched NYNSR and Comparison High Schools
1996-97, 1997-98, 1998-99

	1996-97		1997-98		1998-99	
	NYNSR Matched High Schools	Comparison High Schools	NYNSR Matched High Schools	Comparison High Schools	NYNSR Matched High Schools	Comparison High Schools
Percent of teachers fully licensed and permanently assigned	62.8	69.9	63.2	73.7	59.6	72.3
Percent of teachers with more than 5 years of teaching experience	40.8	50.9	33.4	45.2	32.6	43.7
Percent of teachers with master's degrees or Higher	83.9	87.4	67.3	76.3	70.4	79.1
Average number of days teachers are absent during the school year	5.2	6.3	6.9	7.0	8.0	8.8

In 1996-97, data was available for 31 out of 31 matched NYNSR high schools, in 1997-98, 30 out of 31, in 1998-99, 28 out of 31. In 1996-97, data was available for 24 out of 24 comparison high schools, in 1997-98, 24 out of 24, in 1998-99, 22 out of 24.

[20] The data for the teaching staff in matched NYNSR and comparison elementary or middle schools were not included in this segment of the report because so few of the matched NYNSR elementary or middle schools had data.

III. NYNSR HIGH SCHOOLS

High School Graduation Rate: Class of 1999

Each year the New York City Board of Education reports the number and percentage of graduates for each public high school, based on an analysis of the progress and ultimate status of the student cohorts that begin in the 9th grade. In this section we use disaggregated data for the NYNSR high school graduating Class of 1999 from the Board of Education graduation reports. (The data for the Class of 1999 indicate whether the students who entered high school in the 1995-96 school year have graduated, dropped out, or are still enrolled.)

The information we present below is also disaggregated by type of high school. *Academic or articulated alternative high schools* enroll students who graduate from junior high or intermediate schools, and program their students on the assumption that they will graduate high school within four years. *Transfer alternative high schools* enroll students from other high schools from which they may have dropped out or been suspended; they are the school system's "second chance" high schools.

As Table 3a indicates, a total of 36 NYNSR high schools had a graduating class in 1999-- 30 academic and articulated high schools and 6 transfer alternative high schools.[21] The NYNSR academic and articulated schools had a slightly lower percentage of students graduating in four years than the citywide average. However, NYNSR high schools had a substantially higher proportion of students still enrolled and a lower percentage of students dropping out than the rest of the city high schools. This pattern of slightly lower graduation rates, lower rates of dropping out, and higher rates of students still enrolled is similar to the pattern we found for the NYNSR high schools' Class of 1997 and the Class of 1998.[22] The

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[21] The Board of Education does not include schools in its *Four-Year Longitudinal Report* that have a very small cohort of students.

[22] See the ***October 1999 Outcomes Report*** for data for the Class of 1997 and the Class of 1998.

NYNSR transfer high schools had a lower rate of graduation and a higher rate of students dropping out than did the other transfer high schools in New York City for the Class of 1999.

Table 3a
Four-Year Graduation Report
NYNSR High Schools and All Other City High Schools
Class of 1999

	Academic and Articulated High Schools Less Transfer				*Transfer High Schools***			
	Number of Schools	Percent Graduated	Percent Dropped Out	Percent Still Enrolled	Number of Schools	Percent Graduated	Percent Dropped Out	Percent Still Enrolled
NYNSR High Schools	30	54.0	7.8	38.2	6	21.4	17.5	61.1
All Other High Schools*	135	57.9	12.6	29.5	10	24.2	13.7	62.1

* The "All Other High Schools" category includes specialized and vocational high schools. GED and other non-diploma granting programs are not included.
** Articulated alternative high schools enroll a majority of their students from junior high/intermediate schools at the ninth grade and expect that those students will graduate within four years. Transfer alternative schools only enroll students who are transferring from other educational settings from which they may have dropped out or have been suspended. These are often "last chance" schools.

Educational-Option Analysis

To evaluate the effects of size on NYNSR high schools' performance, a comparison group of *large* high schools was selected at the start of the data collection phase of the evaluation, and student-level data was collected throughout the evaluation for these high schools. The large comparison high schools were chosen because their student selection criteria, educational-option, is nominally the same selection system used by many NYNSR high schools.

High schools using the educational-option (ed-op) selection criteria must choose a mix of students at different performance levels: half the students are selected randomly by computer and half by the school, from three pools of students stratified by test score results -- 16% of selected students must score above average on the citywide reading test, 68% must score within the average range, and 16% score below average. So, in theory, NYNSR schools using ed-op selection criteria and large high schools using ed-op selection criteria should have similar student composition.

Table 3b
Profile of Entering 9th and 10th Graders*
NYNSR Ed-Op and Large Ed-Op High Schools
1995-96, 1996-97, 1997-98

	1995-96		1996-97		1997-98	
	Large Ed-Op High Schools	NYNSR Ed-Op High Schools	Large Ed-Op High Schools	NYNSR Ed-Op High Schools	Large Ed-Op High Schools	NYNSR Ed-Op High Schools
Student Characteristics						
Percent Female	65.6	52.9	63.6	56.2	63	52.0
Special Populations						
Percent Receiving Resource Room Services	5.5	8.5	4.6	6.4	3.9	6.5
Percent English Language Learners	17.3	11.9	20.3	11.0	17.4	13.9
Percent Overage for Grade	22.9	32.2	21.3	26.8	20.7	26.7
Percent in Special Education**	6.3	2.3	5.7	0.0	6.2	1.8
8th Grade Test Scores						
Percent at or above Grade Level on Math Exam	53.5	35.6	61.8	51.9	64.9	46.3
Percent at or above Grade Level on Reading Exam	52.4	39.9	48.4	40.9	55.3	38.1

* This data is for students who were on register as new 9th and 10th graders on October 31 of each school year, and students who had come from another school.
** Includes only students in self-contained classrooms, but not those in District 75 special education programs.
*** Due to changes in test, the test score data is not comparable across years.
Source: 1995-96, 1996-97, and 1997-98 Annual School Reports

But when we compared the 1995-96 data on the schools' student demographic charcteristics, and their entering 9th and 10th grade classes, we found that the two groups of schools have substantially differing student populations. In 1995-96, the large comparison ed-op schools have a entering 9th and 10th grade classes that are substantially different in many ways from the entering class of the NYSNR ed-op high schools (see Table 3b). First, consider the scores of incoming students on the citywide standardized reading and math tests given in the eighth grade. While only 35.6% of the incoming 9th and 10th grade students in NYNSR ed-op high schools scored at or above grade level on the citywide math exam and 39.9% scored at or above grade level on the citywide reading exam in 1995-96, 53.5% of the incoming students in the large comparison ed-op schools scored at or above grade level on the math exam and 52.4% scored at or above grade level on the citywide reading exam in the same year.

Additionally, the large ed-op schools serve a student population with a much higher percentage of females, as well as students who are less likely to be overage for grade than the students entering NYNSR ed-op high schools. Together these suggest that any differences in outcomes, such as graduation rates or attendance rates, between the large ed-op schools and the NYNSR ed-op schools may be due to the substantial differences in the student populations, since the large ed-op schools have an entering pool much more academically prepared than the students entering the NYNSR ed-op high schools. Given these differences, we decided that comparisons between NYNSR ed-op high schools and large ed-op high schools were inappropriate. (Tables detailing the outcome data for NYNSR ed-op and large ed-op high schools are included in Appendix D of this report.)

Large Zoned High School Analysis

Because the NYNSR high schools seem to enroll students similar to those enrolled in the city's large zoned high school, we decided to compare NYNSR high schools to a group of large zoned high schools to see if we could analyze the effect of school size.

In examining the data for the entering classes of the NYNSR high schools and the large zoned high schools, we found that the entering student populations of both types of schools appear quite similar. Table 3c shows the data for the entering classes of the two groups of schools across three years.

Table 3c
Profile of Entering 9th and 10th Graders*
Large Zoned and NYNSR High Schools**
1995-96, 1996-97, 1997-98

	1995-96		1996-97		1997-98	
	Large Zoned High School	NYNSR High Schools	Large Zoned High School	NYNSR High Schools	Large Zoned High School	NYNSR High Schools
Student Characteristics						
Percent Female	51.3	54.5	50.1	56.2	50.5	53.3
Special Populations						
Percent Receiving Resource Room Services	5.1	7.2	4.6	6.0	4.8	6.2
Percent English Language Learners	15.0	14.7	15.9	13.8	16.0	16.1
Percent Overage for Grade	31.2	31.5	29.1	26.0	28.0	27.0
Percent in Special Education	6.1	1.9	6.1	0	6.3	1.5
8th Grade Test Scores						
Percent at or above Grade Level on Reading Exam	46.9	44.0	41.5	40.3	43.4	38.6
Percent at or above Grade Level on Math Exam	46.2	40.3	52.8	51.4	52.0	46.5

* This data is for students who were on register as new 9th and 10th graders on October 31 of each school year, and students who had come from another school.
** Data for NYNSR High Schools do not include the transfer alternative NYNSR High Schools.
Source: 1995-96, 1996-97, and 1997-98 Annual School Reports

Though these two groups of schools have quite similar entering classes, some differences emerge. The large zoned high schools have a substantially higher percentage of entering students in special education classes than do the NYNSR high schools, and the NYNSR high schools have a somewhat higher percentage of students receiving resource room services. On their 8th grade reading and math exams, fewer students in NYNSR high schools scored at or above grade level than did the students in the large zoned high schools on math and reading; however, the difference is not very substantial.

Table 3d presents the student demographic characteristics of the two groups of schools for the 1995-96 through 1997-98 years. One key difference is the larger percentage of White and Asian or Other students in the large zoned high schools and the much higher proportion of Black students in the NYNSR high schools. (The profile of the entering class on the Annual School Report does not provide race-ethnicity data for the incoming students). Unfortunately, there is no accurate measure of high school students' socio-economic status, because the free lunch data available at the high school level are notoriously inaccurate.

Table 3d
Student Characteristics
Large Zoned and NYNSR High Schools*
1995-96, 1996-97, 1997-98

	1995-96		1996-97		1997-98	
	Large Zoned High School	NYNSR High Schools	Large Zoned High School	NYNSR High Schools	Large Zoned High School	NYNSR High Schools
Average enrollment of schools	3861	251	3914	326	3975	347
Student Characteristics						
Percent Female	50.0	54.2	49.7	54.1	49.4	54.5
Ethnicity/Race						
Percent Latino	36.8	40.3	36.3	39.5	36.2	43.1
Percent Black	24.1	42.8	23.9	42.7	23.6	38.4
Percent White	24.1	10.7	23.7	10.9	23.4	11.1
Percent Asian or Other	15.0	6.2	16.1	7.0	16.9	7.3
Special Populations						
Percent Receiving Resource Room Services	3.6	6.7	3.5	5.0	2.3	3.4
Percent English Language Learners	18.6	14.4	16.8	13.6	18.3	12.8
Percent in Special Education	5.9	1.8	5.9	2.4	6.5	1.5

* Data for NYNSR High Schools do not include the transfer alternative NYNSR High Schools.
Source: 1995-96, 1996-97, and 1997-98 Annual School Reports

Because student race/ethnicity is so tightly correlated with poverty in New York City and other urban districts, the higher percentage of students of color in NYNSR schools most likely means that NYNSR schools have a higher percentage of poor students who are more at risk of dropping out than students in the large high schools. Thus, it is not entirely surprising that the large zoned schools have a somewhat higher four-year graduation rate. What is encouraging, given the race/ethnicity differences between the two groups of schools, is the lower rate of students dropping out of NYNSR schools and the higher rate of students remaining enrolled.

Table 3e
Four-Year Graduation Report
Large Zoned and NYNSR High Schools*
Class of 1999

	Number of Schools	Percent Graduated	Percent Dropped Out	Percent Still Enrolled
NYNSR High Schools	30	54.0	7.8	38.2
Large Zoned	20	60.3	12.3	27.4

*Data for NYNSR High Schools do not include data for the transfer alternative high schools.

Comparisons of data on teacher characteristics also reveal substantial differences between NYNSR schools and large zoned high schools. As Table 3f indicates, NYNSR teachers are considerably less likely to be licensed and permanently assigned, experienced, and have master's degrees than teachers in large zoned schools. Again, NYNSR teachers are absent less often than their counterparts in large zoned high schools.

Table 3f
Teacher Characteristics
NYNSR* and Large Zoned High Schools
1996-97, 1997-98, 1998-99

	1996-97		1997-98		1998-99	
	Large Zoned High Schools	NYNSR High Schools	Large Zoned High Schools	NYNSR High Schools	Large Zoned High Schools	NYNSR High Schools
Percent of teachers fully licensed and permanently assigned	84.7	61.9	85.2	62.2	84.8	59.0
Percent of teachers with more than 5 years of teaching experience	72.0	39.6	66.6	32.4	69.3	31.8
Percent of teachers with master's degrees or higher	91.6	84.1	83.3	68.6	82.0	71.3
Average number of days teachers are absent during the school year	6.4	5.3	6.9	6.6	7.9	7.9

* The NYNSR high schools included in this table do not include the transfer alternative high schools.
Source: 1996-97, 1997-98, 1998-99 Annual School Reports

IV. APPENDICES

APPENDIX A

Three important decisions have produced substantial changes in this report's student-level data, as compared to the student-level data presented in our ***January 1999 Outcomes Report*** and *the* ***October 1999 Outcomes Report***. We changed our method for assigning students to schools, we excluded students who do not have attendance data, and we calculate the percent of students eligible for free lunch differently. The following section details the adjustments we have made and the modifications that result.

Changing the Assignment of Students to Schools

The data in this report are based on a new method of assigning students to a particular school. For every student, there are three points in each school year (October, March and June) when their school identification code is entered into their datafile. Therefore we receive three codes for every student for every school year, and the codes indicate the school each student attended in October, March and June. To conduct our analyses, we must define yearly school membership for each student; in the past we assigned students to a NYNSR school if they had been in a NYNSR school in any *one* of the three points in time. This method sometimes attributed students to NYNSR schools who spent the majority of a school year in a non-NYNSR school.

For the analyses included in this report and all future analyses, each student is now assigned to a school if they were in that school for *two* out of the three points in time. Students who were in three different schools in one school year have been removed from our analyses. Because of this new assignment method, the number of students for both our comparison group of schools and for NYNSR schools is now smaller than in previous analyses.

Below we have included three tables indicating how the data has changed from our previous analyses.[23] For both the NYNSR group and the comparison group, we now have a smaller number of students. The data in each table indicating the former method of assigning students to schools come directly from our last outcomes report, the ***October 1999 Outcomes Report***. The percentage eligible for free lunch has not been included for our former data because we have a new method of calculating this percentage (see below).

Table A1
NYNSR Student Characteristics
Former Method of Assigning Students to Schools and Current Method
1995-96

	Former Method N=24,468	Current Method N=19,140
Student Characteristics		
Percent Female	51.5	51.3
Ethnicity/Race		
Percent Latino	45.4	46.4
Percent Black	39.1	38.9
Percent White	10.5	9.7
Percent Asian or Other	5.1	5.0
Other Characteristics		
Percent Eligible for Free Lunch*	N/A	76.4
Percent Stable Students	91.1	98.2
Special Populations		
Percent English Language Learners	12.9	13.5
Percent in Special Education	4.0	4.6

*Free lunch data are unreliable for high school students. The free lunch data presented here represent free lunch eligibility of elementary and middle school students only. Our calculations for free lunch eligibility has also changed since our October Report. See the next section of Appendix A for further details.

[23] There are a number of students (both NYNSR and comparison) in our student-level files who have data that indicate they are enrolled in a particular school, however their attendance data indicates that they have not attended a single school day over the course of the school year. In past reports, we have included these students in our analyses, however we now suspect that these students are long-term absentees and thus have removed them from all analyses in this report. For NYNSR students, approximately 4-6% of students have no attendance data in any given school year. (This percent is similar for comparison school students as well). The "Current Method" column in these tables reflects the counts once these students have been removed.

Table A2
NYNSR Student Characteristics
Former Method of Assigning Students to Schools and Current Method
1996-97

	Former Method N=48,945	Current Method N=42,350
Student Characteristics		
Percent Female	50.5	51.3
Ethnicity/Race		
Percent Latino	39.7	39.9
Percent Black	39.9	38.7
Percent White	11.6	12.3
Percent Asian or Other	8.7	9.1
Other Characteristics		
Percent Eligible for Free Lunch*	N/A	72.3
Percent Stable Students	89.2	94.8
Special Populations		
Percent English Language Learners	11.5	11.0
Percent in Special Education	5.3	4.5

*Free lunch data are unreliable for high school students. The free lunch data presented here represent free lunch eligibility of elementary and middle school students only. Our calculations for free lunch eligibility has also changed since our October Report. See the next section of Appendix A for further details.

Because we applied our new method of assigning students to schools to both the NYNSR students and the comparison students, the data for comparison students also differ from what was released in our ***October 1999 Outcomes Report***. Note that the stability rate for both comparison and NYNSR school students has gone up considerably, and that the percent female, for both groups of schools, has increased, indicating that male students are less likely to remain in the same school for two out of three points in time.

Table A3
Comparison Student Characteristics
Former Method of Assigning Students to Schools and Current Method
1995-96

	Former Method N=23,504	Current Method N=18,555
Student Characteristics		
Percent Female	50.8	51.9
Ethnicity/Race		
Percent Latino	44.8	48.0
Percent Black	41.4	40.9
Percent White	7.8	6.2
Percent Asian or Other	6.0	4.9
Other Characteristics		
Percent Eligible for Free Lunch*	N/A	83.2
Percent Stable Students	80.5	89.2
Special Populations		
Percent English Language Learners	N/A	11.4
Percent in Special Education	6.1	5.6

*Free lunch data are unreliable for high school students. The free lunch data presented here represent free lunch eligibility of elementary and middle school students only. See the next section of Appendix A for further details.

Data on student outcomes have also changed slightly due to the new method of assigning students to schools. However the change is not generally more than one or two percentage points. The "Former" table below (Table A4) reports reading test results from the ***October 1999 Outcomes Report***. The "Current" table which follows (Table A5) contains the same data, but based on our new method of assigning students to schools

Table A4
FORMER Outcomes
Three Years of Reading Test Results (CTB), by grade level
Core NYNSR and Comparison Students
Percent At or Above Grade Level
1995-96, 1996-97, 1997-98

NYNSR (students in schools that were matched)				Students in Comparison Schools			
Number of Students	Year 1 1995-96	Year 2 1996-97	Year 3 1997-98	Number Of Students	Year 1 1995-96	Year 2 1996-97	Year 3 1997-98
2054	34.4	40.6	43.8	2395	29.9	34.4	37.3

Note: Core students missing test scores in any year are excluded from this analysis. Students may be exempt from testing if their Special Education IEPs so designate or if they are English language learners (ELL/LEP) and have been in an English language school system for less than 20 months.

Table A5
CURRENT Outcomes
Three Years of Reading Test Results (CTB), by grade level
Core NYNSR and Comparison Students
Percentage At or Above Grade Level
1995-96, 1996-97, 1997-98

NYNSR (students in schools that were matched)				Students in Comparison Schools			
Number of Students	Year 1 1995-96	Year 2 1996-97	Year 3 1997-98	Number Of Students	Year 1 1995-96	Year 2 1996-97	Year 3 1997-98
1853	34.5	41.5	48.0	2246	30.5	33.9	36.5

Note: Core students missing test scores in any year are excluded from this analysis. Students may be exempt from testing if their Special Education IEPs so designate or if they are English language learners (ELL/LEP) and have been in an English language school system for less than 20 months.

Free Lunch Calculations

The data on student free lunch eligibility is available to us in two forms: the school-level Annual School Reports files which are publicly accessible and the student-level files which we request directly from the Board of Education. Because of some anomalies in the free-lunch school-level data over time, and because the calculation for the free-lunch data in the Annual School Reports has not been consistent over the years of the project, we decided to recalculate free lunch data directly from our student-level databases. For each student in our student-level database there are four possible values that can be present in the free lunch variable: a number 1 indicating a student is eligible for *free* lunch, a number 2 indicating a student is eligible for *reduced* price lunch, a number 3 indicating a student is not eligible for free or reduced price lunch, and a 4 indicating that the student's information is missing. Additionally some students have no value in the free lunch variable. The table below indicates the distribution of data in this variable in our student-level files for NYNSR elementary and middle school students in the 1995-96, 1996-97, and 1997-98 school year.

Table A6
Eligibility for Free Lunch
NYNSR Elementary and Middle School Students
1995-96, 1996-97, 1997-98

	1995-96 N=12,532	1996-97 N=29,176	1997-98 N=29,373
1-percent eligible for free priced lunch	57.8	55.8	72.0
2-percent eligible for reduced price lunch	3.7	4.9	6.5
3-percent not eligible for free or reduced price lunch	7.7	11.4	14.8
4-percent with missing data	6.5	5.1	6.6
Percent with no data at all	24.4	22.8	.1

In our ***October 1999 Outcomes Report*** we calculated the percentage of students eligible for *free or reduced* price lunch by adding students with a value of 1 or 2 and dividing that by the number of students who had a value of 1, 2, or 3 (all students who had data on whether they were eligible or not). All students with missing data, whether they had a value of 4 for the free lunch variable or whether they had nothing entered in that field, were excluded from the calculation. Our rationale was that we did not know if students who did not have data were eligible or not, and therefore they should be excluded. But we consistently found our calculations of student eligibility to be very different from the Board of Education's school-level calculations. Board staffers subsequently indicated that students who had a value of 4 in the free lunch variable (students with officially recorded missing data) were included in the free lunch calculation that is released in the Annual School Reports.

Therefore, in this report we use a new method of reporting and calculating free lunch eligibility. In our previous reports using student-level data, we described what percentage of students are eligible for *free or reduced* price lunch. In this report we report what percentage of students are eligible for free lunch, and exclude students eligible for reduced price lunch. Secondly, we include the students who have a value of 4 in the free lunch variable in the denominator of the calculation. Thus our calculation is the number of students who have a 1 in the free lunch variable divided by the students who have a 1, 2, 3, or 4. Based on our conversations with staff at the BOE, this appears to be close to the method they use to report school-level data in the Annual School Reports.

APPENDIX B

NYNSR Schools without BDS codes in Board of Education Files

Table A7
NYNSR Schools without BDS Codes in the Board of Education Files

Year Entered Project	School Name
1995-96	Bridges to Brooklyn – Brooklyn College Academy (middle grades) Business Leadership Institute @ South Shore Community Service Academy John V. Lindsay Wildcat Academy Muscota New School New Program at P.S. 261 Rockaway New School Satellite Academy – Forsythe Satellite Academy – Schomburg Science School University Heights High School (middle grades)
1996-97	Adam Clayton Powell School KIPP Academy @ PS 156 Mott Haven Village School (PS 30) REACH Community School
1997-98	Active Learning Prep School (ALPS)/JHS 180 Community Center School Jonas Bronck Academy
1998-99	Shuang Wen Academy

List of Schools Dropped from NYNSR Project

Table A8
Schools Dropped From NYNSR Project
By Year School Entered Project

Year Entered	School Name	Year Dropped
1995-96	BLISS @ South Shore HS	1999
	Health Opportunities HS	1998
	Local 1199 School for Change	1998
	Mohegan School	1998
	Margaret S. Douglas School	1997
	Ocean Hill-Brownsville School	1997
	Rockaway New School	1996
	Zora Neale Hurston Academy	1998
1996-97	Fred R. Moore School (CS 133)	1998
1997-98	Chaney, Goodman & Scherner	1998
	New York Settlement School	1999

APPENDIX C

Details of NYNSR Matched Schools and Comparison Schools

NYNSR schools were not matched on a one to one basis with comparison schools. In the table below, the schools lined up next to each other are *not* the set of matched schools. The comparison schools were selected on the basis of their similarity to NYNSR schools in geographic location, size, demographic characteristics, and student outcomes.

Table A9
List of NYNSR Schools that Are Matched and Comparison Schools

NYNSR Schools that are Matched		**Comparison Schools**	
104821	Academy of Environmental Science	319171	Abraham Lincoln School
178479	Beacon HS	210306	The Arts Village Complex @ 306
378670	Benjamin Banneker Academy	278525	Bronx Leadership
378555	Bridges to Brooklyn / Brooklyn College	278480	Bronx Regional
278680	Bronx Coalition Community School	478496	Business, Computer Apps. & Entrepreneurship
210051	Bronx New School	104109	Century School
315146	Brooklyn New School	178509	Chancellor's Model/CMSP
378429	Brooklyn School for Global Studies (HS portion)	101361	Children's Workshop School
103843	Center School	102881	Clinton School
104815	Central Park East I	104822	East Harlem Career Academy
104809	Central Park East II	378409	East New York Family Academy
104816	Central Park East Secondary (Middle Schl portion)	378545	EBC/DHS Public Service (Bushwick)
178409	Coalition School for Social Change	378645	EBC/P. Service East N.Y.
103844	Columbus Academy	178489	HS of Economics and Finance
103846	Crossroads School	323263	Esther C. Hunter School
101364	Earth School	278520	F.L.A.G.S. (Foreign Lang. & Global Studies)
101450	Eastside Community HS (Middle School portion)	103842	Gwen P. Brown Computer School
178450	Eastside Community HS (High School portion)	101134	Henrietta Szold School
378685	El Puente Academy for Peace and Justice	105175	Henry Highland Garnet School
103841	Family Academy in PS 76	478498	Humanities and Arts Magnet
278682	Fannie Lou Hamer Freedom HS	102892	I.S. 892
178499	Frederick Douglass Academy (High Schl portion)	178529	Jacqueline Kennedy Onassis
278670	Health Opportunities HS	103199	Jesse Isador Straus School/P.S. 199
378565	High School for Redirection	178425	HS for Leadership and Public Service
178407	Institute for Collaborative Education	103848	Lincoln Academy
207043	Jonas Bronck/Clearpool Academy	478494	Magnet School for Law and Government
104833	Julia De Burgos School	478492	Math, Science Research & Technology Magnet
178419	Landmark High School	278690	Monroe Business and Law
178429	Legacy School for Integrated Studies	278692	Monroe Visual Arts and Design
278675	Local 1199 School for Social Change	207065	Mother Hale School (P.S. 65)
207162	Lola Rodriguez de Tio (I.S. 162)	101060	Ottilia M Beha School
101315	Lower East Side School	378520	Pacific High School
320314	Luis Munoz Marin Elementary (P.S. 314)	178495	Park East
103853	Manhattan School for Children	207183	Paul Robeson School
178439	Manhattan Village Academy HS	478680	Queens Gateway to Health Sciences

378530	Metropolitan Corporate Academy
378590	Middle College HS at Medgar Evers
212067	Mohegan School
101363	Neighborhood School
278686	New School for Arts and Sciences
102889	NYC Museum School
323055	Oceanhill-Brownsville Secondary School
178531	Public School Repertory Company
319302	Rafael Cordero JHS/I.S. 302
478675	Renaissance School
478670	RFK Community HS
104827	River East
478560	Robert F. Wagner Jr. Institute for Art
178570	Satellite Academy, Chambers"
103856	School for Academic & Athletic Excellence
102887	School for Physical City (Middle School portion)
178690	School for Physical City (High School portion)
102878	School of the Future (Middle School portion)
378419	Science Skills Center for Science
133670	Thurgood Marshall Academy(Middle Schl portion)
178670	Thurgood Marshall Academy (High Schl portion)
278495	University Heights High School
178449	Vanguard High School
278684	Wings Academy

104818	Rafael Cordero Bilingual School
178580	Richard Green HS of Teaching
102893	Riis Upper School for Labor
378575	Street Academy
315169	Sunset Park School
178695	Urban Peace Academy
178415	Wadleigh
212006	West Farms School
178505	West Side High School
315154	Windsor Terrace School

Unmatched NYNSR Schools

Table A10
Founding NYNSR Schools with BDS Codes that Are Not Matched

BDS Code	School Name
333333	Beginning with Children
378439	Brooklyn International HS
315429	Brooklyn School for Global Studies (Middle School portion)
178555	Central Park East Secondary School (High School portion)
315820	The Children's School (PS 372)
375372	The Children's School (PS 372)
103845	Computer School
102875	Early Childhood Center
105010	Frederick Douglass Academy (Middle School portion)
104829	Harbor Academy for Science and the Art
478530	International HS
104826	Isaac Newton School for Math & Science
178675	Leadership School
104820	Manhattan East
178459	Manhattan International HS
319292	Margaret Douglas School
478520	Middle College HS at LaGuardia
322245	P.S. 245
430675	Renaissance School
178878	School of the Future (High School portion)
178565	Urban Academy
104831	Zora Neale Hurston Academy

APPENDIX D

List of Schools included in the Ed-Op Analysis

Table A11
High Schools Included in Educational-Option Analysis

NYNSR Ed-OP High Schools	
BDS	**School Name**
178635	Academy of Environmental Science
178479	Beacon HS
378670	Benjamin Banneker Academy
278680	Bronx Coalition Community School for Tech.
378439	Brooklyn International HS
378429	The Brooklyn School for Global Studies
178555	Central Park East Secondary School
178409	Coalition School for Social Change
178450	Eastside Community HS
378685	El Puente Academy for Peace and Justice
278682	Fannie Lou Hamer Freedom HS
278670	Health Opportunities HS
178407	Institute for Collaborative Education
178419	Landmark High School
178675	The Leadership School
178429	Legacy School for Integrated Studies
178439	Manhattan Village Academy HS
278686	New School for Arts and Sciences
478675	Renaissance School
478670	RFK Community HS
478560	Robert F. Wagner Jr. Institute for Arts & Tech.
178690	School for the Physical City
378419	Science Skills Center for Science, Tech. & Arts
178670	Thurgood Marshall Academy for Learning and Social Change
178449	Vanguard High School
278684	Wings Academy

Large Ed-Op Schools	
BDS	**School Name**
378600	Clara Barton
378525	Edward R. Murrow
178420	HS for Health Professions and Human Services
378540	John Dewey
178520	Murry Bergtraum
178620	Norman Thomas
378485	Telecommunication Arts and Technology

Detailed Tables from Ed-Op Analysis

Table A12 shows the average student enrollment and the student characteristics of the NYNSR and large ed-op high schools for 1995-96, 1996-97, and 1997-98. Across these three years, differences in student composition are striking; the large ed-op schools have a much higher proportion of female than male students as compared to the NYNSR ed-op high schools. (Closer investigation reveals that all but one of the large ed-op schools has a higher proportion of female students, and two of the large ed-op schools have an *extremely* high percentage of female students– more than 70% in 1995-96.[24] The student composition of these schools has helped to skew the gender composition across all the large ed-op high schools.)

Table A12
Student Characteristics
NYNSR Ed-Op and Large Ed-Op High Schools
1995-96,1996-97, 1997-98

	1995-96		1996-97		1997-98	
	Large Ed-Op High School	NYNSR Ed-Op High School	Large Ed-Op High School	NYNSR Ed-Op High School	Large Ed-Op High School	NYNSR Ed-Op High School
Average number of students enrolled	2,350	144	2,481	266	2,410	303
Student Characteristics						
Percent Female	63.7	54.5	62.9	54.9	62.8	54.1
Ethnicity/Race						
Percent Latino	31.7	46.5	32.6	48.6	32.6	49.3
Percent Black	37.2	37.9	34.9	34.7	34.5	33.9
Percent White	18.8	11.2	19.1	11.8	19.5	11.7
Percent Asian or Other	12.3	4.4	13.3	4.9	13.5	5.1
Other Characteristics						
Percent Stable Students	96.7	94.9	97.3	94.1	97.8	95.6
Special Populations						
Percent English Language Learners	13.1	9.0	14.7	9.1	14.5	11.5
Percent in Special Education	6.5	1.5	6.2	1.8	6.0	1.6

Source: 1995-96, 1996-97, and 1997-98 Annual School Reports.

[24] The two schools with very high percentages of female students are Clara Barton in Brooklyn, a school that offers specialized programs in health careers such as nursing, and High School for Health Professions and Human Services, another school that offers programs in health careers. Clara Barton has 82% female students and HS of Health Professions and Human Services has 71% female students in 1995-96.

Table A12 also indicates that while the NYNSR ed-op high schools are serving a higher percentage of Latino students, the large ed-op high schools are serving a higher percentage of White students as well as Asian or Other students. The large ed-op schools also serve higher percentages of students in self-contained special education classes and English Language Learners than the NYNSR ed-op schools.

As such data would predict, Tables A13 and A14 indicate that the large ed-op high schools have higher rates of attendance and higher rates of four-year graduation than the NYNSR ed-op high schools. Unfortunately however this comparison between the NYNSR ed-op schools and the large ed-op schools does not help us analyze the effects of membership in NYNSR and small size, because of the substantial differences in the entering classes of these schools.

Table A13
Percent Average Daily Attendance
NYNSR Ed-Op and Large Ed-Op High Schools
1995-96, 1996-97, 1997-98

	1995-96		1996-97		1997-98	
	Large Ed-op High School	NYNSR Ed-Op High School	Large Ed-op High School	NYNSR Ed-Op High School	Large Ed-Op High School	NYNSR Ed-OP High School
Average Daily Attendance	88.4	88.3	88.9	87.7	88.7	86.8

Table A14
Four-Year Graduation Report
NYNSR Ed-Op and Large Ed-Op High Schools
Class of 1999

	Number of Schools	Percent Graduated	Percent Dropped Out	Percent Still Enrolled
Large Ed-Op	7	65.6	10.4	23.9
NYNSR Ed-Op	24	56.8	9.2	34.0

As indicated above, comparisons between the NYNSR ed-op high schools and the large ed-op high schools are limited because student composition varies considerably between the two groups of schools. NYNSR ed-op schools are smaller, have a more equal gender mix, a higher percentage of Latino students and lower percentages of White and Asian or Other students than the large ed-op high schools.

Student attendance rates are comparable for both groups, though NYNSR attendance shows a pattern of decline across the three years. The graduation rates of the large ed-op schools are considerably higher than in NYNSR schools.

APPENDIX E

NYNSR Cost-effectiveness Study--Annotated Bibliography

This annotated bibliography surveys recent research on the costs of schools and the effect of school size on performance. The research on both costs and achievement has a long and varied history, which we surveyed in our previous research review of school size, achievement and costs studies. This annotated bibliography updates our previous research review.

COST-EFFECTIVENESS

Dyer, Philip C. 1992. Reading Recovery: A Cost-Effectiveness and Educational-Outcomes Analysis. *ERS Spectrum* 10 (Winter): 10-19.

Dyer compares Reading Recovery to three alternatives: grade retention, Chapter 1 programs, and special education programs. Costs are measured in terms of instructional hours needed for the varying time-spans of the interventions. This study is not a traditional cost-effectiveness study comparing the costs and effects of alternative programs, but a cost analysis that estimates the costs of Reading Recovery against the savings from avoiding the three other interventions.

Hummel-Rossi, Barbara and Jane Ashdown. 2000. The State of Cost-Benefit and Cost-Effectiveness Analyses in Educational Evaluation. New York University. Photocopied.

The authors review cost-effectiveness literature in education and health fields. The latter has a stronger history of analyzing the cost-effectiveness of interventions, because there have been industry-wide efforts to standardized common metrics of effects, such as Quality Adjusted Life Years – an interval scale measure that reflects an individual's health. Conceptual/methodological issues impede a similar

development in education. Hummel-Rossi and Ashdown stress the need for distinguishing between costs required by the programs and costs that can be absorbed as part of the overall budget.

Kee, James Edwin. Harvard Family Research Project. 1999. At What Price? Benefit-Cost Analysis and Cost-Effectiveness Analysis in Program Evaluation. *The Evaluation Exchange,* V. 5 no. 2/3.

"*Cost-effectiveness* is an alternative to benefit-cost analysis that relates the cost of a given alternative to specific measures of program objectives." This article reinforces the tenets of the traditional cost-effectiveness framework and argues that direct, indirect, and intangible costs should all be included in the analysis. Cost-effectiveness studies do not place values on the benefits (effects) as is done in cost-benefit analyses. Difficulties arise in the measurement of outcomes and the difficulty of integrating multiple benefits of interventions and programs.

King, Jennifer A. 1994. Meeting the Educational Needs of At-Risk Students: A Cost Analysis of Three Models. *Educational Evaluation and Policy Analysis* 16 (Spring): 1-19.

King compares three whole school reform programs: Success for All (Slavin), Accelerated Schools (Levin), and School Development Program (Comer). Focusing on the additional costs associated with the programs, King omits measured effects by assuming that all three programs are equally effective. Only marginal (additional) costs are analyzed and integrated into two broad categories – additional budgetary expenditures and additional time requirements of existing personnel. Because some components of the programs, such as additional demands on existing personnel, will vary from site to site, King constructs low and high estimates of costs. The article is geared toward providing a better understanding of the costs of the programs rather than identifying the most cost-effective program.

Levin, Henry M., Gene V. Glass, Gail R. Meister. 1987. Cost-Effectiveness of Computer-Assisted Instruction. *Evaluation Review* 11 (Februrary): 50-72.

In this study Levin continues his work on the cost-effectiveness of computer-assisted instruction (CAI). As an early proponent of cost-effectiveness analysis in education, Levin develops a framework for analyzing costs and effects. Marginal costs, the only costs considered, are the additional costs that are incurred because of the existence of the program. As estimates of effects, Levin et al. cull the literature on CAI, and three other alternative interventions that have the same goals as CAI, to arrive at a reasonable estimate of effect. Levin et al find that peer tutoring is more cost effective and warn against using effect size without consideration of costs to aid policy decisions.

SMALL SCHOOLS/COST

Funk, Patricia E. and Jon Bailey. 1999. Small Schools, Big Results: Nebraska High School Completion and Postsecondary Enrollment Rates by Size of School District. Nebraska Alliance for Rural Education (www.cfra.org/small_schools_big_results.htm August, 11, 2000)

The authors analyze small schools in Nebraska, and find that rural small schools cost more but produce better outcomes in terms of high school completion and postsecondary enrollment. Argues for the inclusion of societal costs of non-graduates when weighing costs and outcomes.

Public Education Association (PEA). 1992. *Small Schools and Savings: Affordable New Construction, Renovation and Remodeling.*

PEA offers practical arguments rebutting the traditional economies of scale claims that costs are lower with increases in the scope of operations. Often, the large scale of schools exceeds organizational capacity to run such schools. In terms of site selection, larger parcels are harder and more costly to assemble in urban areas. Renovation is a lower cost alternative to construction from the ground up, because labor market cost is less expensive. Smaller schools have more flexibility in terms of organizing space and attracting partners for mixed use of the space.

Stiefel, L., Robert Berne, Patrice Iatarola and Norm Fruchter. 2000. High School Size: Effects on Budgets and Performance in New York City. *Educational Evaluation and Policy Analysis* 22 (Spring): 27-39.

This study incorporates costs and outcomes to assess the effects of school size, and finds that small high schools, with enrollments under 600, cost slightly more but have higher graduation rates. The authors construct a metric that incorporates costs and outcomes – a four-year cost per graduate. On the basis of four years of cost per graduate, small schools cost the same as large schools (enrollment greater than 2000).

Thompson, John A. 1994. Scale Economies on Student Performance in Hawaii. *Journal of Education Finance* 19 (Winter): 279-291.

Thompson analyzes the costs and performance of Hawaiian schools on the basis of reading and math. Smaller schools have higher costs and higher achievement in 6th grade reading and math. There is a tradeoff between diseconomies in expenditures and small size and economies in achievement and small size. The achievement in 3rd grade is unaffected by enrollment and per pupil costs as well as other factors such as the proportion of students receiving free lunch and teachers' experience (five years of teaching experience). Methods used include univariate, bivariate and multivariate analysis.

LITERATURE REVIEWS ON THE EFFECTIVENESS OF SMALL SCHOOLS

Cotton, Kathleen. 1996. School Size, School Climate and Student Performance. School Improvement Research Series, X. Northwest Regional Educational Laboratory. (http://www.nwrel.org/scpd/sirs/10/c020.html)

Cotton compiles results from 69 studies of which 25 relate in part to elementary schools with the balance relating to secondary schools. The author provides historical perspective about the debate on school size; from Conant to Barker and Gump, few studies address the cost of small schools. Findings: small schools are superior to large on a number of dimensions, such as achievement of students with low socio-economic status, student and teacher attitudes, student attendance, student participation in extracurricular activities, and student's concept of self and sense of belonging. The traditional view that larger schools have greater and more varied curricular offerings is not supported by research that fails to find a direct relationship to size.

Fowler, Jr., William J. 1992. What Do We Know About School Size? – What Should We Know? Paper presented at the annual meeting of the American Educational Research Association, San Francisco, CA.

Fowler reviews the effects of school size in elementary and secondary schools, and deems conclusive the research that demonstrates achievement effects at the elementary school level when family background is controlled. Research on secondary schools examines the effect of school size on student outcomes and school curriculum. It is possible to offer a full range of curriculum at a school size of 400. Outcomes including student attitudes favor small schools. Levels of students' voluntary participation may be higher in large schools, but there are longer lasting effects in small schools.

Gladden, Robert. 1998. The Small School Movement: A Review of the Literature. In *Small Schools, Big Imaginations: A Creative Look at Urban Public Schools*. Edited by Michelle Fine and Janis I. Somerville. Chicago: Cross City Campaign for Urban School Reform.

Gladden reviews literature on school size, organizing the findings by students and teachers' social environment and students' academic achievement. Findings: social environment may directly and indirectly affect student achievement. Students in small schools are less alienated, therefore there is less violence as measured by suspensions and drug uses. This finding is even stronger for at-risk students as are most of the other results. As others have also noted, dropout and attendance rates, participation in extracurricular activities, and students' attitudes are better in smaller schools. The environment for teachers is also better in smaller schools than in larger ones – from stronger collegiality to better and more efficient administrative relationships. In terms of student achievement, small schools have higher levels of achievement than large schools, due for the most part to the improved social environments of small schools. Achievement is more equitable in small schools -- the learning gap between white and minority students is smaller, as is the gap between students of higher and lower socioeconomic status.

Raywid, Mary Anne. 1999. Current Literature on Small Schools. ERIC Digest (http://www.ed.gov/databases/ERIC_Digests/ed425049.html)

Raywid reviews the current research on small schools, and cites Lee and Smith's large quantitative studies of high schools and their findings that small schools are better for poor students as the core of the latest research on the effects of school size. This more recent research takes new directions such as identifying the most

effective size and governance and accountability systems, analyzing the equity effects of access to small schools, and estimating their cost-effectiveness. The range of directions expands to exploring the role of unions and the elements/traits of success. Case studies are an important methodological component that in conjunction with quantitative studies continue to inform the policy world and instructional reform.

RECENT STUDIES OF SMALL SCHOOLS/ACHIEVEMENT

Bickel, Robert and Craig Howley. 2000. The Influence of Scale on School Performance: A Multi-Level Extension of the Matthew Principle. *Education Policy Analysis Archives* 8 (May 10). Electronic Journal: http://epaa.asu.edu/epaa/v8n22/

This study expands the analysis of school size to include the interactive effect of district size on the student achievement in Georgia. Bickel and Howley are concerned in particular with differences in effect based on socio-economic status, hence their reference to a biblical passage from the Gospel of Matthew which is commonly interpreted as the rich get richer and the poor get poorer. In their multi-level analysis, district size has a positive effect on school-level student achievement. The equity of outcomes is worse in larger schools in large districts than in smaller schools in small districts. Equity is based on the variance in achievement. This research is part of a four-state study (Georgia, Montana, Ohio, and Texas) funded by the Rural School and Community Trust.

Howley, Craig and Robert Bickel. 2000. Results of Four-State Study: Smaller Schools Reduce Harmful Impact of Poverty on Student Achievement. Washington, D.C.: Rural School and Community Trust.

This study analyzes the effect of school size on student achievement and its relationship to poverty (termed the excellence effect) and the magnitude of the effect

of poverty on student achievement (termed the equity effect) in four states – Georgia, Montana, Ohio, and Texas – and includes all schools in each of the four states. The authors use average grade enrollment as a school size measure to control for differences across schools in the number of grades served. Findings: lower income students do better in small schools in three (Georgia, Ohio, and Texas) of the four states. The range of influence of poverty on student achievement is lower in smaller schools as measured by the amount of the variation in achievement attributed to poverty in all four states.

Howley, Craig. 1995. The Matthew Principle: A West Virginia Replication? *Education Policy Analysis Archives* 3 (November 15). Electronic journal: http://olam.ed.asu.edu/epaa/v3n18.html

Howley examines data on West Virginia schools and districts, replicating Freidkin and Nechochea's 1988 California school size study. His primary interest is in the interaction effect of school size and socio-economic status of students (see Bickel and Howley for reference to the Matthew Principle). Findings suggest that the interaction of size, as measured by cohort enrollment, and socio-economic status, as measured by free and reduced priced lunch eligibility, is significantly related to the achievement of the cohort. The effect of size on achievement is negative for poor students. Larger schools benefit non-poor students and are a detriment to poor students. This effect is stronger for students in ninth grade than for students in sixth grade. The size effect for students in third grade is not significant once socioeconomic status is controlled.

Lee, Valerie E. and Julia B. Smith. 1997. High School Size: Which Works Best and for Whom? *Educational Evaluation and Policy Analysis* 19 (Fall): 205-227.

Lee and Smith examine the effect of size on achievement and the equity of achievement by size. Findings: the optimal size for high schools is 600 to 900

students. Yet, schools larger than 2,100 students are less effective than those under 600. While this optimal size is larger than most advocate, Lee and Smith find that the effect of small size is stronger for disadvantaged (minority or low-income) students.

Wasley, Patricia A., Michelle Fine, Matt Gladden, Nicole E. Holland, Sherry P. King, Esther Mosak, and Linda C. Powell. 2000. *Small Schools: Great Strides, A Study of New Small Schools in Chicago.* Bank Street College of Education.

This expansive study focuses on the effects of small schools in Chicago on student attendance rates, persistence and achievement. The authors use qualitative and quantitative methodologies to examine historically small schools as well as a wave of newer small schools. The study includes small elementary and high schools. Findings: attendance and single year dropout rates are better in small high schools than the system at large. Retention rates in elementary schools are lower in the new smaller schools. Qualitative assessment of satisfaction finds both teachers and students more satisfied in smaller more collaborative school environments.