

THE RHEE DC RECORD:

**MATH AND READING GAINS
NO BETTER THAN HER PREDECESSORS
VANCE AND JANEY**

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EXECUTIVE SUMMARY

Overview

Former DC Chancellor of Schools Michelle Rhee has gained national attention for her tough but controversial reform policies focused on large-scale firing of DC teachers. Her teacher policies have been widely cited as a lever that enabled Rhee to produce an unprecedented turnaround in low DC students' scores. Notably, Rhee has been featured on the cover of Time magazine with a broom symbolic of sweeping out ineffective teachers and a movie, *Waiting for Superman*, has been made about her historic DC success. Based on her perceived extraordinary DC test score gains, she is spearheading a national effort *StudentsFirst* to raise a billion dollars to replicate nationally her DC policies.

Experts are divided over the merits of Rhee's tough teacher policies. Critics have cited their potential to weaken teacher morale and that "teachers deserve respect, not condemnation" (McGuire, 2010). Others see teacher firings and polarization as a necessary price for student progress (Rotherham, 2010).

Therefore, it is important to evaluate the effectiveness of Rhee's policies to determine just how much better DC students progressed under Rhee than under her predecessors. Her StudentsFirst web site claims that Rhee's record is one of "*Driving unprecedented growth in the DC public schools,*" in reference to test-score improvements during her tenure.¹ To assess these claims, this paper systemically compares the Rhee record of test score gain with student gains of her two predecessors since 2000, Paul Vance and Clifford Janey. Student gains are measured based on DC's math and reading scores on the federal government's independent and uniform National Assessment of Education Progress (NAEP).

This review of DC's public school NAEP scores since 2000 concludes that *Rhee did not initiate the DC schools' test-score turnaround when she took office in 2007. DC's NAEP scores had already steadily improved under her two predecessors, Superintendents Paul Vance and Clifford Janey. Moreover, the rates of DC score gains under Rhee were no better than the rates achieved under Vance and Janey.*

Methodology

The National Assessment of Education Progress (NAEP) is the best available measure of trends in DC students' math and reading performance since 2000. NAEP is carefully designed to provide "a clear picture of student academic progress over time" (NCES, 2010). DC's own assessment, the annual DC CAS, is not suitable as it was redesigned between 2005 and 2006 and performances levels for 2006 and afterwards are not comparable with those from prior years. (DC Office of the State Superintendent of Education, 2010).

¹ In addition to test score gains, StudentsFirst also claims Rhee produced improvements in the DC graduation rate. However, DC's own published graduation rate, currently in excess of 70 percent, is out of line with the official U.S. graduation rate from the National Center of Education Statistics (NCES). NCES calculates the DC graduation rate at 55.0% in 2008, the latest year available. This 55% rate for the end of Rhee's first year compares with the latest year for Janey at 54.9% 2007, which is essentially no change. Beginning with the class of 2011, DC will drop its own definition and move to the official NCES graduation rate definition. -

Consistently measured public school NAEP scores in math for grades 4 and 8 are available beginning with Vance's term as DC superintendent in 2000.² In reading, NAEP was not administered in 2000, so the first available score this decade is for 2003. This is the last year of the Vance administration and hence the comparison in reading score improvement is only between the Janey and Rhee administrations.³ Scores are for all DC public school students. NAEP break outs for the scores of charter and non-charter school students do not cover the Vance and Janey period. For example, grade 8 math and reading scores for non-charter public schools are available only since 2005.

The progress of DC students under Vance, Janey and Rhee is measured two ways. One is in terms of their respective shares in the total amount of NAEP score improvement that occurred during each administration. The second is by the annual rate of student gain during each of the three administrations, which adjusts for differences in the duration of DC leadership.

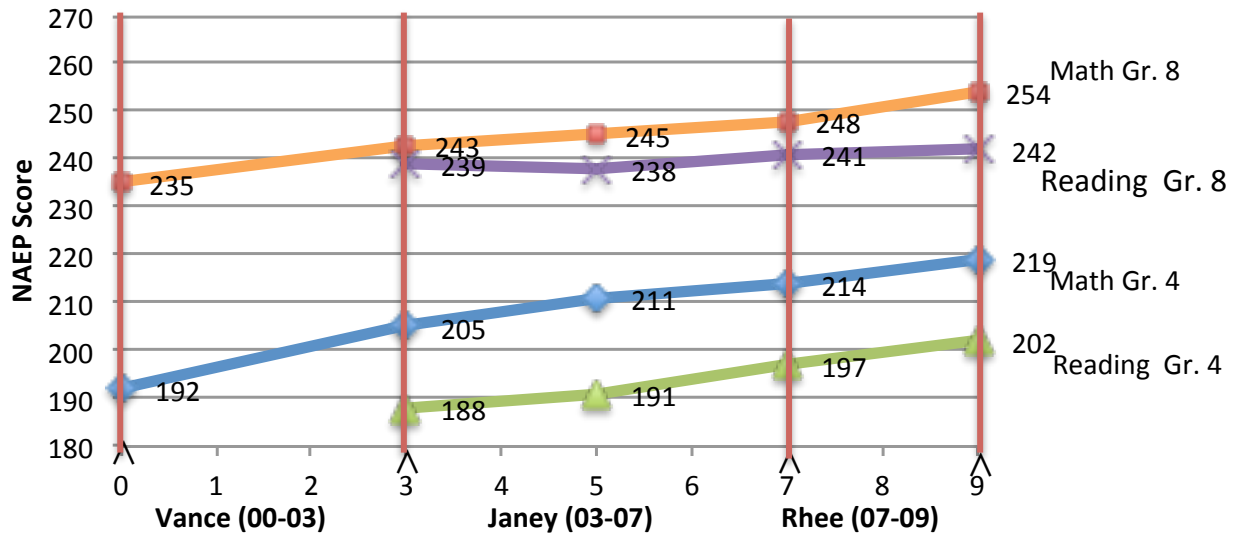
Findings

Exhibit I displays the NAEP scores for all public DC students in grades 4 and 8 for math beginning with 2000 and for reading beginning with 2003. Each of the 4 trends is upwards generally showing steady score improvement. Large NAEP increases occurred in math in grade 4 of 27 points and grade 8 of 19 points and in reading in grade 4 of 14 points. For example, the math grade 4 gain of 27 points is equivalent to .77 of a standard deviation increase or a 25-percentile point improvement for a student scoring at the 50th percentile. However, only a small 3-point increase in NAEP reading test scores occurred in grade 8 between 2003-09.

² Because of a change in NAEP's treatment of accommodations for special needs students, NAEP trends prior to 2000 may not be comparable with later scores.

³ Note that NAEP score trends beginning in 1998 under former DC superintendent Arlene Ackerman also show improvement. This would reinforce a conclusion of this paper that DC test score improvements were well underway prior to Rhee's takeover in 2007.

Exhibit I. DC NAEP Scores In Math And Reading For Vance, Janey and Rhee Administrations, 2000-09, All Students

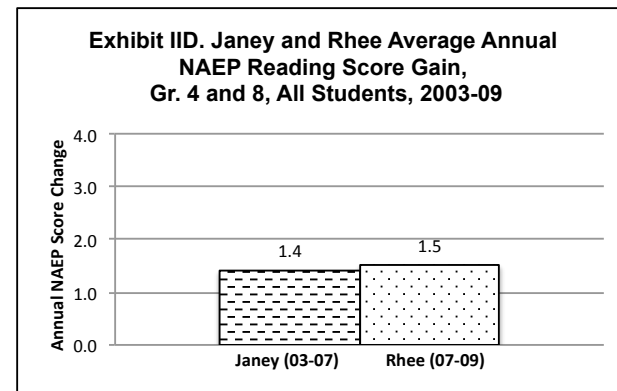
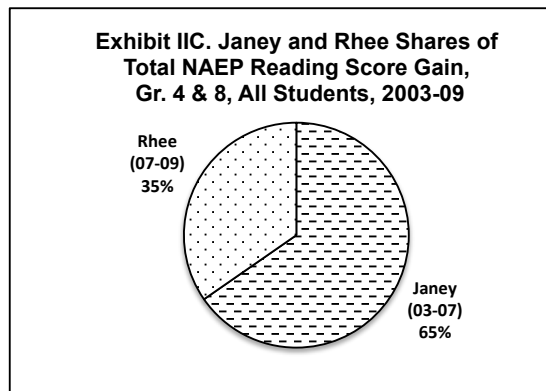
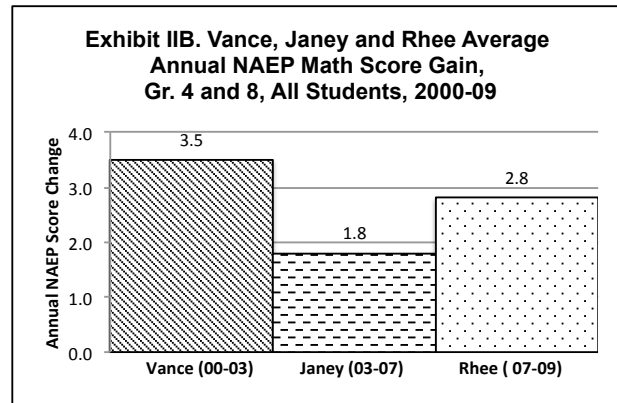
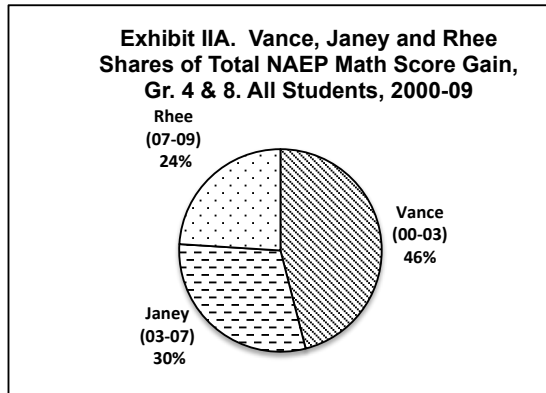


The slopes of the lines in Exhibit I show the annual rate of increase. The steepest slope is Vance’s grade 4 math gain.

The charts and tables in Exhibit II present the summary results for the analyses of the shares of the total gain and the annual rates of gains for all students during the Vance, Janey and Rhee administrations. (The full paper also displays results disaggregated by race/ethnicity.)

- With respect to the distribution of DC’s total gains in NAEP scores over grades 4 and 8 between 2000-09, Vance accounted for a 46% share of the total gain, Janey 30% and Rhee 24% (Exhibit IIA). In terms of average annual gains in NAEP math scores, Vance achieved the highest annual gain of 3.5 points, followed by Rhee’s 2.8 points and Janey 1.8 points (Exhibit IIB).
- With respect to the distribution of total gains in NAEP reading scores over grades 4 and 8 between 2003-09, Janey accounted for about a two-thirds share of total NAEP reading gains and Rhee about a one-third share (Exhibit IIC). On an annualized basis, the gains are approximately identical, with Rhee 1.5 points and Janey 1.4 points (Exhibit IID).

Exhibit II. Comparison of The Total And Annual NAEP Score Gains Among Vance, Janey and Rhee Administrations, All Students



Source: NAEP Data Explorer, January 2011

Analyses also show that DC gains since 2000 considerably outpaced those of the nation, although at present rates of progress it would still take DC another decade to catch-up to the current national average NAEP scores. Moreover, on the 2009 NAEP, DC scores still remain in the bottom quarter of urban districts participating in NAEP in reading and math.

Implications

The U.S. education system has a history of looking for “silver bullet” solutions to quickly solve deep-rooted educational problems, but these solutions, once tried on a large scale, never achieve their intended student gains. Based on the NAEP evidence to date, former DC Chancellor Rhee’s policies also do not appear to offer that “silver bullet.” Certainly removing poor performing teachers is necessary, but the DC evidence suggests that DC students also appear to have benefitted from a broad array of reforms initiated by prior DC superintendents. These include ending social promotion, extending learning time during summer and Saturdays, integrating education reforms into DC’s business plan and new and more rigorous content standards.

At a minimum, the NAEP results suggest a cautionary approach before launching nationwide replication of Rhee’s teacher policies. U.S. teacher reform policies would benefit from:

- The evaluation of the long-term effectiveness of large-scale removal of DC or other urban teachers as a strategy to improve the quality of teaching on student test scores and on urban systems ability to hire and retain effective teachers.
- Evaluation of a broader set of teacher development practices to improve teacher quality by improving teacher skills. Here, U.S. reformers would benefit from looking at the practices in countries with a track record of high scores on international assessments. Promising teacher interventions of high-performing countries include Korea's high-salaries that produce ten applicants per opening; Japan's lesson study to support continuous improvement in teaching; China's having teachers conduct their own classroom research to improve their teaching; Singapore's target of 100 hours of professional development; and New Zealand's strong mentoring programs coupled with a reduced eight-tenths work load for new teachers.

THE RHEE DC RECORD: MATH AND READING GAINS NO BETTER THAN HER PREDECESSORS VANCE AND JANEY

Former DC Chancellor of Schools Michelle Rhee has gained a national reputation because of the public perception that her get-tough teacher policies, including the firing of large numbers of DC teachers, turned around DC's dismal and stagnant student outcomes. However, this analysis of trends in DC student outcomes since 2000 on the National Assessment of Education (NAEP) progress, indicates the rate of student gains during Rhee's tenure was no better than the rates of gain since 2000 under her two predecessors, Paul Vance and Clifford Janey.

Rhee has received unprecedented coverage in the press as a rescuer of the DC school system. She was featured in a Time magazine article (2008) holding a broom symbolic of sweeping out large numbers of incompetent teachers. A 2010 movie, *Waiting For Superman*, chronicles "Michelle Rhee, the remarkable chancellor of the Washington, D.C., public schools, who is challenging tradition as she brings reform to a troubled system."

Building on the national spotlight, former DC Chancellor Rhee is spearheading a national organization to replicate her get-tough teacher policies. Her new *StudentsFirst* organization seeks to raise over one billion dollars to replicate DC's success. The StudentsFirst web site (2011) claims that Rhee's record is one of "*Driving unprecedented growth in the DC public schools*" test score performance.⁴

Education experts are more divided over the merits of Rhee's tough teacher policies. Critics have cited their potential to weaken teacher morale and that "teachers deserve respect, not condemnation" (McGuire, 2010). Others see teacher firings and polarization as a necessary price for student progress (Rotherham, 2010).

Ultimately, the test of Rhee's policies is whether DC public school students learned better during Rhee's tenure than during prior school chiefs, as is claimed. This paper gauges the effectiveness of Rhee's policies using DC scores on the federal government's National Assessment of Educational Progress (NAEP). NAEP is the only ongoing and uniform independent assessment of educational progress at the national, state and urban district levels. The multi-level NAEP also enables a comparison of DC's test score growth with that for the nation.

The paper is divided into five sections. Section I describes the methodology. Section II examines overall progress in DC's NAEP scores. Section III examines the distribution of total NAEP score gains for all students among Vance, Janey and Rhee Administrations. Section IV compares DC NAEP scores with the national and urban district scores. Section V concludes with a discussion of implications.

⁴ In addition to test score gains, StudentsFirst also claims Rhee produced improvements in the DC graduation rate. However, DC's own published graduation rate, currently in excess of 70 percent, is out of line with the official U.S. graduation rate from the National Center of Education Statistics (NCES). NCES calculates DC graduation rate at 55.0% in 2008, the latest year available. This 55% rate for the end of Rhee's first year compares with the latest year for Janey at 54.9% 2007, which is essentially no change. Beginning with the class of 2011, DC will drop its own definition and move to the official NCES graduation rate definition.

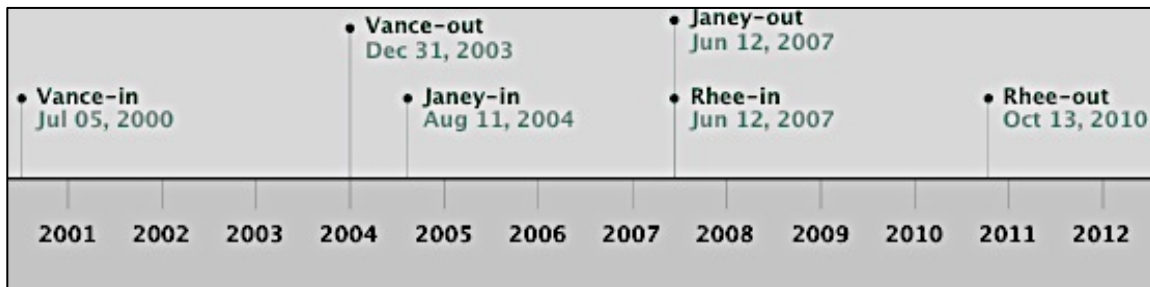
I. METHODOLOGY

The Vance, Janey and Rhee Administrations

Between the years 2000 and 2010, the DC public schools had three permanent school Superintendents/Chancellors⁵ (Exhibit 1). Paul Vance served as Superintendent the full school years 2001-03. Clifford Janey's term covered 2005-2007 and Michelle Rhee served as Chancellor during 2008-2010.

With the exception of the 2003-04, each school year since 2000 falls entirely within the leadership of one of the three superintendents. During the 2003-04, Vance served the first part of the year through December, but Janey did not start until after completion of the 2004 school year. Hence, no administrator has responsibility for the majority of months in 2003-04.

Exhibit 1. Timeline of DCPS Superintendents/Chancellors: Vance, Janey and Rhee (2000-2010)



NAEP

A measure of DC student test scores is needed which yields a comparable performance yardstick over time in the core subjects of reading and math. One possibility is to use the annual DC Comprehensive Assessment System (DC CAS) administered by the DC Office of the State Superintendent of Education. This assessment is given to all students in grades 3-8 and 10 in reading and mathematics. However, the DC CAS redesigned its assessment between 2005 and 2006 and performance scales after the redesign are not comparable with those in prior years and hence are inappropriate for trend analysis.

“In 2005 and before there were only two performance levels - proficient and not proficient. The percent proficient for 2005 should not be compared to the percent proficient and above for 2006 because performance standards and the tests for the two years are not statistically linked.”

DC Office of the State Superintendent of Education, 2010.

⁵ When the DCPS was placed under the authority of the mayor in 2007, the Title of the chief of the public schools was renamed from Superintendent to Chancellor.

Unlike the DC CAS, NAEP is administered by the federal government's National Center for Education Statistics (NCES) and NCES incorporates extensive statistical procedures to ensure the comparability of NAEP over time. "Since NAEP assessments are administered uniformly using the same sets of test booklets across the nation, NAEP results serve as a common metric for all states and selected urban districts. The assessment stays essentially the same from year to year, with only carefully documented changes. This permits NAEP to provide a clear picture of student academic progress over time." (NCES, 2010)

NAEP DC scores for public school students are available for reading and math in grades 4 and 8. DC score reporting under NAEP is unique among urban districts in that DC scores are reported both as a State and a district. In most years, State and district NAEP scores were identical, but in 2009 the urban district NAEP excluded the scores of students in public charter schools. This means that the 2009 DC scores reported by the urban district NAEP are not comparable with the DC urban NAEP scores reported for prior years that included charter schools. Specifically, NAEP break outs for the scores of charter and non-charter school students do not cover the Vance and Janey period. For example, grade 8 math and reading scores for non-charter public schools are available only since 2005. Because comparable scores for public school DC students under the State NAEP are available beginning with 2000, this paper reports trend comparisons using DC's State NAEP scores for public school students.

NAEP assessment intervals should ideally match the beginning and end points of the Vance, Janey and Rhee terms of office. The state NAEP for math was administered for school years 2000, 2002, 2003, 2005, 2007 and 2009. The NAEP testing interval 2000-03 is used to cover fully the Vance administration and the 2007-09 is used to cover the start of Rhee's tenure through the most recent NAEP assessment in 2009. However, Janey did not start office until the beginning of the 2005 school year, a date that falls within the middle of the NAEP 2003-05 testing interval. Because the 2003-05 NAEP interval covers one full year of Janey, but only 4 school months of Vance, the full 2003-05 NAEP change is assigned to Janey. Hence, the Janey math interval covers NAEP results from 2003-2007.

The frequency of the NAEP reading assessment is the same as the NAEP math assessment from 2003 and afterwards. However, the first assessment prior to 2003 is 1998. Between 1998 and 2000, Arlene Ackerman was DC superintendent of schools, not Vance. NAEP also changed its treatment of accommodations in 2000 so that results prior to 2000 may not be comparable with the post 2000 results. For these reasons, the assessment of the growth in DC's reading performance starts with Janey 2003-07 and Rhee 2007-09:⁶

The NAEP Data Explorer, the NCES online web tool, generated DC scores between 2000-09. The NAEP Data Explorer creates customized tables for different student groups and reports the statistical significance of score differences. NAEP sample sizes are large and nearly all DC score gains are significant at the .05 statistical level, so there is no need to show significance levels in the tables and charts. Along with producing customized tables showing progress for all DC students, DC scores are broken out for Black, Hispanic and White students.

⁶ NAEP reading scores improved in both grades 4 and 8 between 1998 and 2003, so the inclusion of the combined Ackerman-Vance period would actually reinforce the overall conclusion of this report that the turnaround in DC scores was well underway when Rhee took office.

Disaggregating test scores for different DC student populations is important for two reasons. One, the disaggregated breakouts show whether Black and Hispanic students are closing the achievement score gap with White students. Second, trends in the aggregate scores for all students can change over time because of a change in the mix of students and not because scores for each group improved. For example, during the Rhee Administration the proportion of grade 4 black students, a lower scoring DC group, decreased from 83% in 2007 to 77% in 2009⁷ and this shift in student composition alone would boost average DC scores even if scores for each disaggregated group remained unchanged.

Measuring and Distributing NAEP Score Gains Across DC Administrations

NAEP performance can be measured categorically or continuously. Categorical performance is measured in terms of the percentage of DC students achieving a score of proficiency or better on a NAEP reading or math assessment. A limitation to using the categorical measure of percent proficient is that DC would only receive credit for student progress if student scores cross from below proficiency to proficiency or above. No progress would be shown for improving scores if the improvement occurs entirely below or entirely above the proficiency threshold.

This study instead uses the continuous measure of DC students' average NAEP scores. To facilitate score interpretation, note that NAEP scores are set to approximately a standard deviation of 35 points. The importance of knowing the standard deviation is that a 3.5 NAEP point improvement is about of one-tenth of a standard deviation and or about a 3-percentile point increase for a student scoring initially at the 50th percentile.

The distributions of NAEP score progress among the Vance, Janey and Rhee administrations are computed two ways. One is the *share* of the total gain apportioned across each administration. This is calculated simply by the change in the NAEP score during that Administration divided by the total change in the NAEP score over all the administrations.

The second measure is the *annual rate* of NAEP score gain. This is computed by dividing the total NAEP score gain during an administration by the number of years over which NAEP scores are measured. The annual rate adjusts for differences in the duration of DC leadership among the Vance, Jane and Rhee tenures.

In addition to comparing NAEP score trends across the Vance, Janey and Rhee Administrations, DC student progress on NAEP will be compared to the NAEP trends for the nation beginning in 2000. NAEP scores prior to 2002 are unavailable for urban districts, so the growth in DC scores over the period cannot be compared with the NAEP gains of other urban districts. In order to gauge where DC students' performance has ended-up under Rhee, however, this study will compare DC scores for 2009 with the scores of the 17 other urban districts participating in the NAEP's Trial Urban District Assessment (TUDA).

⁷ Percentages are derived from DC public schools report cards for 2007 and 2009 available from the DC Office of State Superintendent January 2011 online at http://www.nclb.osse.dc.gov/dccas_reportcards.asp

II. OVERALL PROGRESS IN DC'S NAEP SCORES, 2000-09

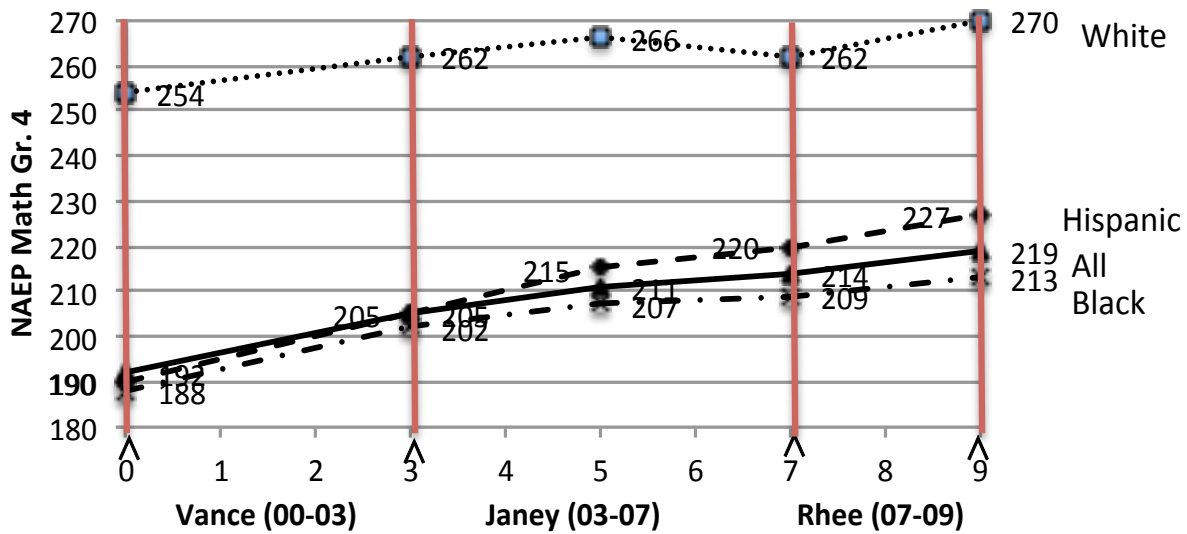
Exhibits 2-5 charts the full set of NAEP scores in reading and math for DC public school students in grades 4 and 8 across the 2000-09 school years. Separate charts are shown for mathematics and reading in each of grades 4 and 8. The charts display scores for all DC public school students and disaggregated scores for Black, Hispanic and White students, the three major racial/ethnic population groups served by the DC schools. Scores for White students are shown only for grade 4, as too few White students attend the DC public schools in grade 8 to yield a statistically reliable sample.

Key points to note about the overall NAEP score trends:

- The NAEP score gains for *all students* are sufficiently large to be educationally significant for mathematics between 2000-09 in grades 4 and 8 and in reading 2003-09 in grade 4, but not for reading grade 8. For example, the grade 4 mathematics score for all students improved 27 points. This is about three-fourths of a standard deviation, which, for a student at the 50th percentile, is equivalent to about a 25-percentile point gain. Grade 4 NAEP reading scores over the shorter 2003-09 period still improved 14 points, which represents about .4 of a standard deviation improvement or a 13 percentile point gain at the 50th percentile. However DC's NAEP grade 8 score improved only 3 points or only about .1 standard deviation.
- All *three racial/ethnic groups* improved their scores, but the overall score gains were relatively greater for Blacks and Hispanics. The Black and Hispanic gains closed the score gap with White students, but gaps with White students still remain very large. For example, White students made little progress (2 points) in grade 4 reading, while Black grade 4 scores improved 12 points and Hispanic scores increased 20 points. Yet, despite their relative improvements, DC's grade 4 Hispanic scores remained 49 points below White scores and Black students have a 60-point shortfall from White scores. In terms of NAEP proficiency levels, a 60-point gap is equivalent to moving from below basic up to the advanced reading level.

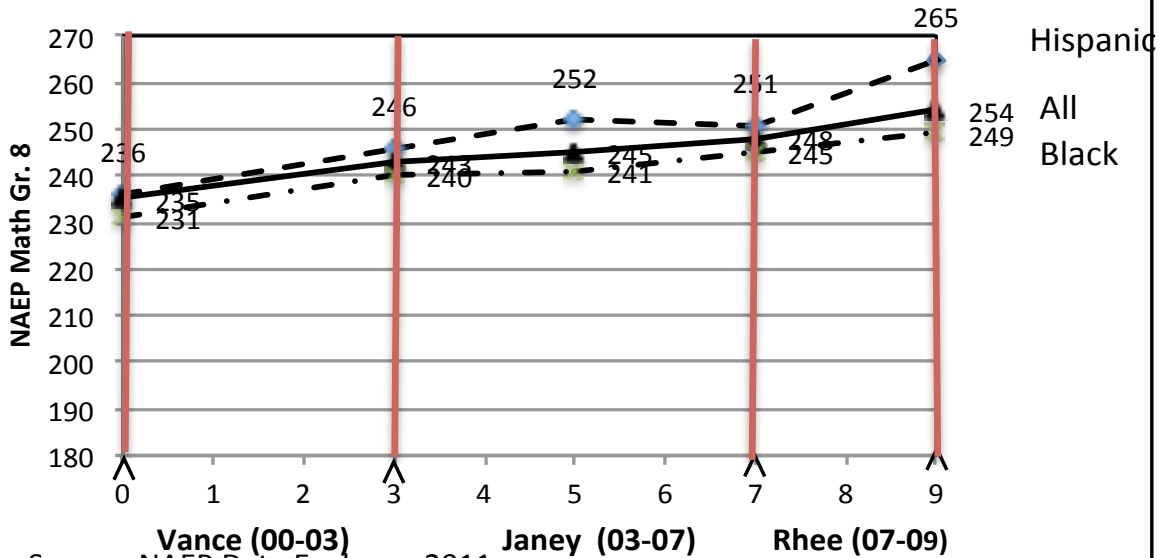
These overall gains demonstrate steady and broad improvements since 2000 in math and 2003 in reading, but they do not parcel the improvements out among the Vance, Janey and Rhee administrations. The following section examines their respective contributions to the score gains for all DC students and to the disaggregated gains of different racial/ethnic groups.

Exhibit 2. DC NAEP Scores Math Gr. 4: All, Black, Hispanic and White Students (00-09)



Source: NAEP Data Explorer, 2011

Exhibit 3. DC NAEP Scores Math Gr. 8: All, Black and Hispanic Students (00-09)



Source: NAEP Data Explorer, 2011

Exhibit 4. DC NAEP Scores Reading Gr. 4: All, Black, Hispanic and White Students (03-09)

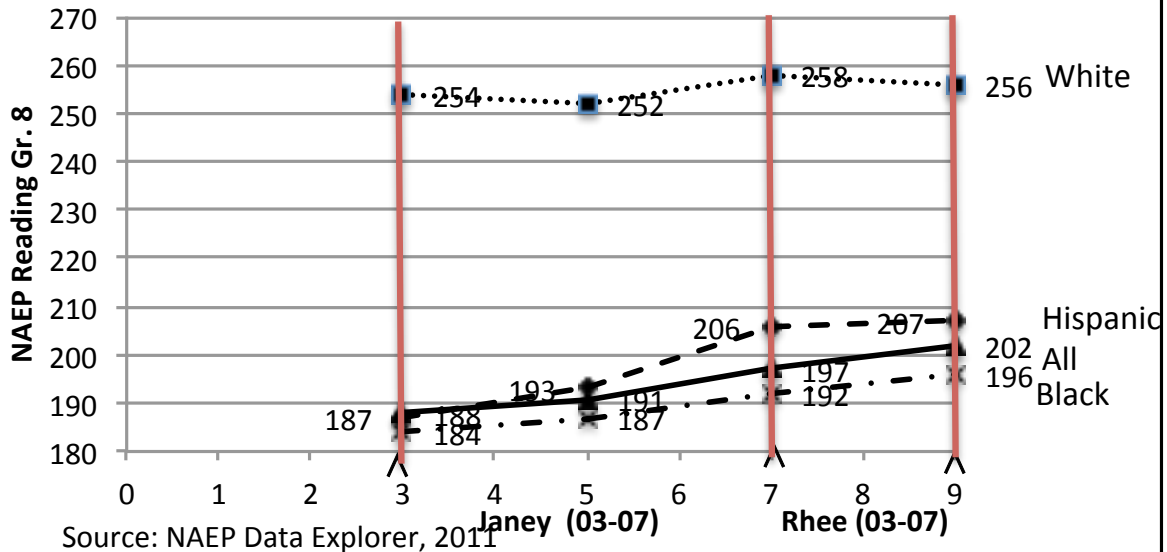
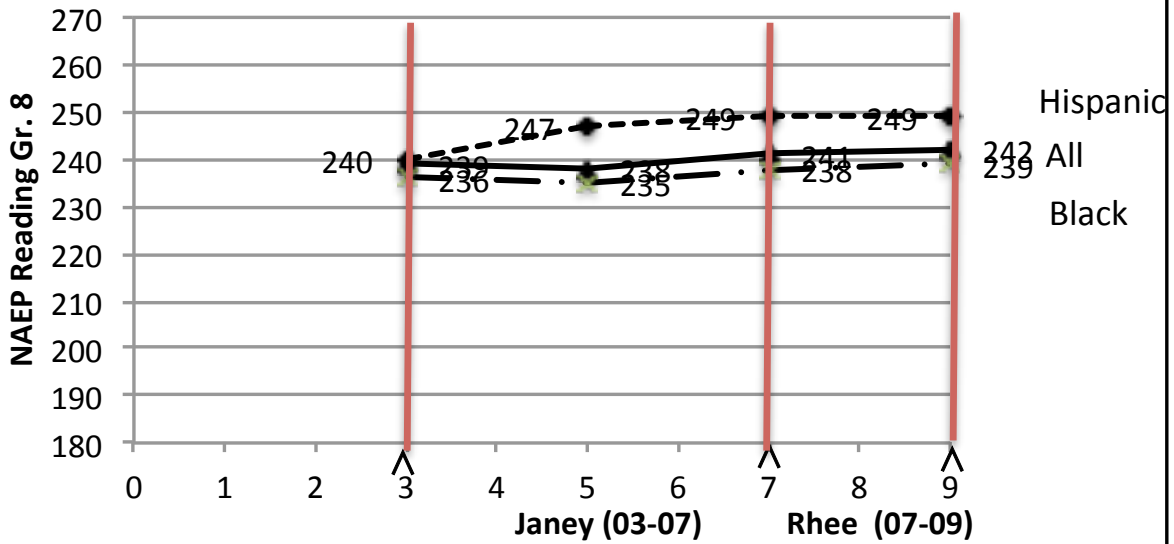


Exhibit 5. DC NAEP Scores Reading Gr. 8: All, Black and Hispanic Students (03-09)



III. DISTRIBUTION OF DC'S NAEP SCORE GAINS AMONG VANCE, JANEY AND RHEE ADMINISTRATIONS

As discussed in the methodology section, gains in DC students' NAEP scores are parceled out across the Vance, Janey and Rhee administrations using two measures of distribution. The first measure is each administration's share of the total gain in NAEP scores.⁸ The second measure is the annualized gain score that adjusts the total NAEP score gain during each administration for differences in years covered.

Overall Results: All DCPS Students NAEP Gains

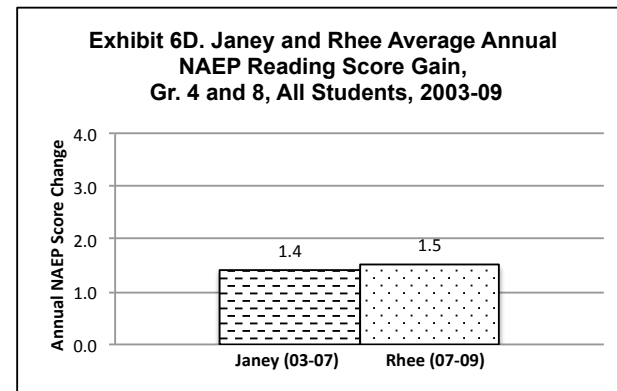
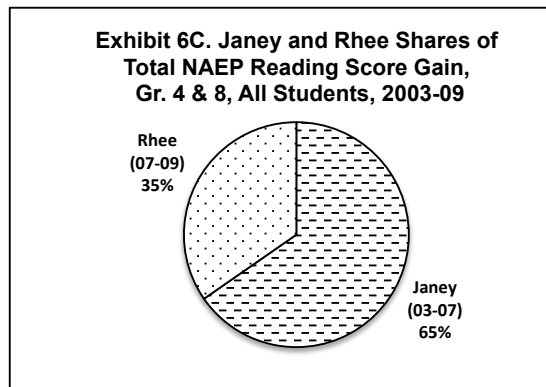
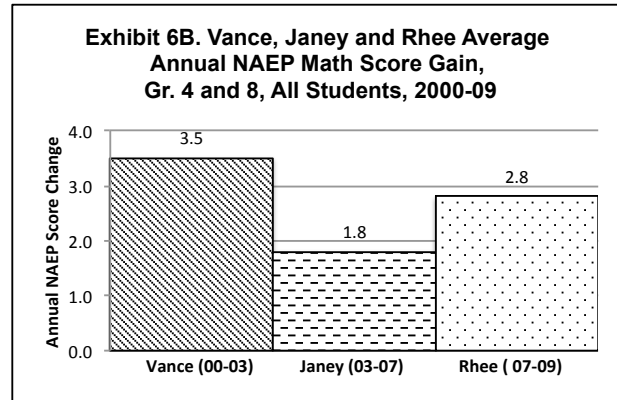
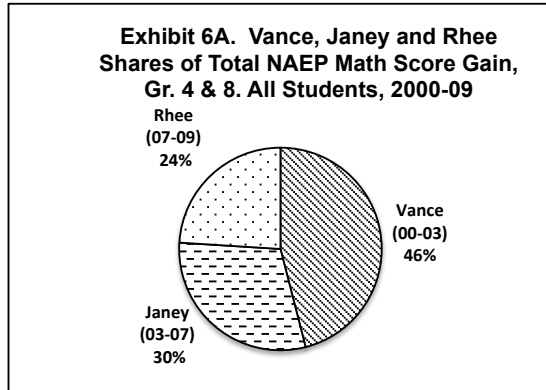
The results using the two measures of the distribution of math and reading gains during the Vance, Janey and Rhee administrations are summarized in Exhibit 6 (the table of actual numbers are in Exhibit A in the Appendix). The pie charts display the respective shares of the total NAEP score gain parceled out among the Vance, Janey and Rhee administrations. The bar charts compare the average annual rate of NAEP score gain across the administrations.

- For math between 2000-09, Vance accounted for 46%, of the share of the total gain in NAEP scores for both grades 4 and 8, Janey 30% and Rhee 24%. On an annual basis, the Vance administration produced an average 3.5 NAEP point gain each year, Rhee was in the middle at 2.8 points per year and Janey averaged the lowest at 1.8 points annually.
- For reading between 2003-09, Janey accounted for 65% of the total gain in NAEP scores over grades 4 and 8 and Rhee accounted for 35%. On an annual basis, this breaks out to approximately equivalent annual NAEP gains for Rhee of 1.5 points and Janey of 1.4 points.

Thus, in math Vance accounted for the largest overall gains both measured in terms of shares and annual rates. In reading, Janey had the largest share of the total gain and Janey and Rhee each produced similar annual NAEP improvements.

⁸ As previously noted, NAEP reading scores for 2000, the start of the Vance term were unavailable, so that reading scores are compared between 2003-09.

Exhibit 6. Comparison of The Total And Annual NAEP Score Gains Among Vance, Janey and Rhee Administrations, All Students



Source: NAEP Data Explorer, January 2011

Black Students' NAEP Gains

Black students achieved sizeable NAEP score gains since 2000 in both math grades 4 and 8 and reading grade 4 (Exhibit 7). The black students gain for math grade 4 of 25 points between 2000-09 is equivalent to a gain of 23 percentile points for a student scoring at the 50th percentile. The reading grade 4 gain of 12 points over the shorter interval between 2003-09 is still equivalent to an 11-percentile improvement at the median.

For Black students in math at grades 4 and 8, over half the total score improvement occurred during the Vance years. Average annual NAEP gains in math in grades 4 and 8 were also greater under Vance than either Rhee or Janey. In fact, the rate of score improvement in grade 4 math under Vance was more than double the gain occurring either during Rhee or Janey.

For Black students in reading at both grades 4 and 8, two-thirds of the total score gain in reading occurred during Janey's administration and one-third under Rhee. Given that the Janey interval between NAEP tests is twice as long as that for Rhee, their annual rates of NAEP score improvements are about equal in grades 4 and 8.

Exhibit 7. Share And Annual Measures Of The Distribution Of The Gain in DC's NAEP Scores Among Vance, Janey and Rhee For Black Students

DCPS Black Students	Tot. NAEP Score Gain	Share of Total NAEP Score Gain			Average Annual NAEP Score Gain			
		Vance (00-03)	Janey (03-07)	Rhee (07-09)	All Years	Vance (00-03)	Janey (03-07)	Rhee (07-09)
Math, Gr. 4 (00-09)	25	56%	28%	16%	2.8	4.7	1.8	2
Math, Gr. 8 (00-09)	18	50%	28%	22%	2	3	1.3	2
Average Math Gr. 4 & Gr. 8 (00-09)	22	53%	28%	19%	2.4	3.9	1.6	2.0
Reading, Gr. 4 (03-09)	12		67%	33%	2.3		2	2
Reading, Gr. 8 (03-09)	3		67%	33%	0.5		0.5	0.5
Average reading Gr. 4 & Gr. 8 (03-09)	8		67%	33%	1.4		1.3	1.3

Source: NAEP Data Explorer, January 2011

Hispanic Students' NAEP Gains

Although the NAEP score gains for black students were generally large, the gains for Hispanics were even more impressive (Exhibit 8). Hispanic students in math in grades 4 and 8 gained 37 and 29 points exceeding by half the substantial gains for Black students over the same period. Although the DC reading score improvements for Hispanics were again lower than for math improvements, even the minimum gain of 9 points in grade 8 reading represents an 8 percentile improvement for a 50th percentile student.

The Administration with the highest Hispanic gain in scores varied by subject and grade. With respect to annual rates of gain, Hispanic students improved most in math grade 4 under Vance, but in grade 8, the highest rate of improvement occurred under Rhee. In reading, gains were greatest under Janey for both grades. The shares of the total gain were similarly distributed except that Janey tied with Vance for the total share of the gain in grade 4 math. Overall, the Vance tenure produced a slightly greater share of the total Hispanic math gain and the Janey administration generated nearly all the reading gain.

Exhibit 8. Share And Annual Measures Of The Distribution Of The Gain in DC's NAEP Scores Among Vance, Janey and Rhee For Hispanic Students

DCPS Hispanic Students	Tot. NAEP Score Gain	Share of Total NAEP Score Gain			Average Annual NAEP Score Gain			
		Vance (00-03)	Janey (03-07)	Rhee (07-09)	All Years	Vance (00-03)	Janey (03-07)	Rhee (07-09)
Math, Gr. 4 (00-09)	37	41%	41%	19%	4.1	5	3.8	3.5
Math, Gr. 8 (00-09)	29	34%	17%	48%	3.2	3.3	1.3	7
Average Math Gr. 4 & Gr. 8 (00-09)	33	38%	30%	32%	3.7	4.2	2.6	5.3
Reading, Gr. 4 (03-09)	20		95%	5%	3.3		4.8	0.5
Reading, Gr. 8 (03-09)	9		100%	0%	1.5		2.3	0
Average Reading Gr. 4 & Gr. 8 (03-09)	15		97%	3%	2.4		3.6	0.3

Source: NAEP Data Explorer, January 2011

White Students

White students' trends in DC's NAEP scores are available only for grade 4, as too few White students attend DC public schools in grade 8 for NAEP to obtain a representative sample. Although White grade 4 students also exhibited total score progress, their total NAEP gains were significantly lower than the gains made by Black or Hispanic students. The total White gains for math grade 4 were only 60% of the Black gains and less than half the Hispanic gains. White grade 4 reading gains were small and not statistically significant.

In terms of total gains, Vance and Rhee each accounted for half the total math gain, with Rhee having the higher annual NAEP score gain. A small improvement in grade 4 reading occurred under Janey, but White NAEP reading scores actually show a small but not statistically significant decline under Rhee.

Exhibit 9. Share And Annual Measures Of The Distribution Of The Total Gain in DC's NAEP Scores Among Vance, Janey and Rhee For White Students								
DCPS White Students	Tot. NAEP Score Gain	Share of Total NAEP Score Gain			Average Annual NAEP Score Gain			
		Vance (00-03)	Janey (03-07)	Rhee (07-09)	All Years	Vance (00-03)	Janey (03-07)	Rhee (07-09)
Math, Gr. 4 (00-09)	16	50%	0%	50%	1.8	2.7	0	4
Reading, Gr. 4 (03-09)	2		100%	0%	0.3		1	-1

Source: NAEP Data Explorer, January 2011

IV. HOW DC COMPARES NATIONALLY AND IN RELATION TO OTHER URBAN DISTRICTS

To provide a context for assessing DC’s cumulative score improvements during the Vance, Janey and Rhee administrations, it is useful to compare DC gains with those nationally. The improvements in DC’s NAEP scores are compared with those for all U.S. public school students (Exhibit 10). Data for urban districts would also be a useful comparison, but NAEP breakouts for urban districts do not go back to 2000.

Exhibit 10. Change In DC’s NAEP Mathematics and Reading Scores Compared With All U.S. Public School Students, Grades 4 and 8			
	NAEP Score Change		
	DC Change	National Public School Change	DC Advantage Over National Public School Change
Math Gr 4 (00-09)	27	15	12
Math Gr 8 (00-09)	19	10	9
Reading Gr 4 (03-09)	14	4	10
Reading Gr 8(03-09)	3	1	2
Source: NAEP Data Explorer, January 2011			

Over the time period that NAEP DC scores rose, NAEP scores for all public school students also increased. Nonetheless measured against national improvements, the cumulative DC score gains during the Vance, Janey and Rhee administrations are still impressive. DC gains in math over grades 4 and 8 were nearly double the national average change between 2000-09. The reading gains in grade 4 between 2003-09 were two and half times the national average improvement. Neither national nor DC grade 8 reading gains were very large, although again DC’s improvements exceeded the national average.

Exhibit 11. The Shortfall in DC’s NAEP Mathematics and Reading Scores Compared With All U.S. Public School Students, 2009			
	NAEP Score Levels		
	DC 2009 NAEP Score	National 2009 Score	Shortfall in DC Scores Below National Average
Math Gr 4	219	239	20
Math Gr 8	254	282	28
Reading Gr 4	202	220	18
Reading Gr 8	242	262	20
Source: NAEP Data Explorer, January 2011			

Despite a decade of growth, continued and substantial score improvements are necessary if DC students are even to perform to the national average. Exhibit 11 displays the shortfall between DC’s latest NAEP scores for 2009 and the national average scores across the reading and math in grades 4 and 8. In 2009, the DC score gap below the national average ranged from 18 points in reading grade 4 to 28 points in math grade 8. It would take DC approximately another decade to reach the U.S. national average score provided they were able to maintain their historical rates of learning gains and U.S. students do not also improve.

Another perspective on DC’s current performance, Exhibit 12 compares DC 2009 scores with those of the 17 other urban districts that participated in grades 4 and 8 in the 2009 NAEP Trial Urban District Assessment (TUDA). The DC scores in Exhibit 12 differ slightly from those presented earlier in that they exclude charter schools in order to be comparable with the 2009 NAEP scores shown for other urban districts, which also excluded charter schools.

Exhibit 12. DC Rankings Among 18 Urban Districts Participating in the NAEP Trial Urban District Assessment, Mathematics and Reading in Gr. 4 and 8, 2009								
	Mathematics				Reading			
	Gr. 4		Gr. 8		Gr. 4		Gr. 8	
	Score	Rank	Score	Rank	Score	Rank	Score	Rank
	Atlanta	225	9	259	11	209	9	250
Austin	240	2	287	1	220	3	261	1
Baltimore City	222	10	257	14	202	11	245	12
Boston	236	4	279	4	215	5	257	5
Charlotte	245	1	283	2	225	1	259	3
Chicago	222	10	264	10	202	11	249	10
Cleveland	213	17	256	15	194	17	242	14
Detroit	200	18	238	18	187	18	232	18
Fresno	219	16	258	12	197	13	240	16
Houston	236	4	277	5	211	8	252	7
Jefferson Cty (Ky)	233	8	271	8	219	4	259	3
Los Angeles	222	10	258	12	197	13	244	13
Miami-Dade	236	4	273	6	221	2	261	1
Milwaukee	220	14	251	16	196	15	241	15
New York City	237	3	273	6	213	6	252	7
Philadelphia	222	10	265	9	195	16	247	11
San Diego	236	4	280	3	213	6	254	6
<i>District of Columbia</i>	220	14	251	16	203	10	240	16
<i>DC shortfall below the top</i>	-25		-36		-22		-21	
<i>DC excess above the bottom</i>	20		13		16		8	

Source: NAEP Data Explorer, January 2011

Despite DC’s significant improvements, DC’s public school students, with the exception of grade 4 reading, rank well below the 18-district median on the latest 2009 NAEP, as follows:

- Grade 4 math, DC ranked 14 out of 18
- Grade 8 math, DC ranked 16 out of 18.

- Grade 4 reading, DC ranked 10 out of 18.
- Grade 8 reading, DC ranked 16 out of 18.

The only urban districts consistently scoring consistently at or below DC's rank are Detroit, Cleveland and Milwaukee.

Exhibit 12 also displays the DC deficit from the top scoring urban district compared with the excess from the bottom-scoring district for grades 4 and 8 in reading and math. In all four comparisons, the DC shortfall below the top scorer is greater than the excess above the lowest scoring urban district. These shortfalls confirm that DC has to make considerable progress before it is among the better performing urban education systems.

V. IMPLICATIONS

The NAEP trends suggest exercising considerable caution in using DC scores as a basis to support extending nationally Rhee's policies of large-scale firing of teachers. Clearly, DC students' reading and math score improvements were well underway prior to when Rhee took office. Substantial gains in math scores occurred under Vance's term beginning in 2000 and continued under Janey and then Rhee. The earliest consistent NAEP reading data are from 2003 and these data also show that annual improvements under Janey were comparable to those Rhee achieved in reading. On an annual basis, Rhee's NAEP score gains were typically no better than those of her predecessors.

Moreover, the long-run consequences of major teacher firings are uncertain. At a minimum, a two-prong evaluation approach should be considered to guide assessment of the effectiveness of U.S. strategies to strengthen teachers and teaching.

1. A careful evaluation of the ongoing effectiveness of large-scale teacher replacement policies in DC or in other urban communities to identify whether there are:
 - Solid examples of higher performing urban or other school systems that have achieved their success through firing large numbers of teachers. (Note that a related policy of teacher pay-for-performance in a rigorous experimental design failed to yield positive impacts on student outcomes. Springer et al., 2010)
 - Available pools of large numbers of highly-qualified and effective teachers willing to take the place of released teachers.
 - Long-run consequences on teacher morale and retention of effective teachers from large-scale teacher replacements.
2. An examination of the potential in the U.S. to adopt teacher recruitment and development policies employed by high-scoring countries on international exams, including:
 - Korea pays its teachers high salaries relative to average Korean wages and receives ten applicants for every new teacher position (Barbara and Mourshed, 2007).
 - Singapore pays prospective teachers a beginning teachers salary while doing pre-service education coursework and draws applicants from the top third of their graduating class. Singapore teachers annually undertake 100 hours of professional development to hone and strengthen their skills (Ginsburg and Leinwand, 2008).
 - Japanese teachers employ lesson study – a process by which teachers present lessons to their peers who critique lessons to continuously improve lesson quality (Fernandez, C. and Yoshida, Makoto, 2001).
 - Chinese teachers are expected to conduct their own action-research investigations to better understand and continuously evaluate their own teaching strategies (Zhou, 2008).

- New Zealand allows new teachers a reduced workload supported by teacher mentors and has implemented professional development guided by best-evidence syntheses of effective teacher practices (New Zealand Teachers Council, 2011).

There are also deep-rooted educational problems in urban school systems that are not readily solved through even comprehensive teacher reforms. DC's school leaders prior to Rhee implemented a range of broad-based education reforms that appear to have contributed to improvements without large-scale attacks on the teacher force. Vance almost certainly benefited from the policies of his predecessor Arlene Ackerman, now Philadelphia superintendent, who introduced measures to end social promotion and initiated year-round (Saturday and Summer) learning opportunities for more than 40,000 students. Vance implemented the Business Plan for Strategic Reform and stressed a new institutional culture in the District of Columbia Public Schools to change employees' low expectations. Janey focused on major curriculum improvements through adopting new and well-rated content standards across all the core subjects. Also, the charter schools expansion may have contributed to improvements, although research on charters has not shown them generally to be better performing on average than public schools.

In conclusion, a get-tough teacher policy certainly has appeal because it appears to offer a straightforward and immediate intervention that does not seem to require tackling the difficult problems of comprehensive education reform in urban schools. Unfortunately, there is no hard evidence that replacing large numbers of teachers without taking-on the difficult problems many urban students bring to school will provide unprecedented growth in student math and reading scores, as Rhee's StudentsFirst website suggests.

DC and national policy might do well to heed the words of Patricia McGuire, (2010), President of Trinity College, a leading and respected producer of new teachers in the D.C. area, in commenting on Rhee's departure:

“Our methods are based on respect for both students and teachers, and a clear understanding of the total social context that students bring to class each day. It's hugely hard work, and there are no magic bullets. We must care for every student every day at the level that touches her most effectively.”

APPENDIX

Exhibit A. Share And Annual Measures Of The Distribution Of The Gain in DC's NAEP Scores Among Vance, Janey and Rhee, 2000 -09, All Students

DCPS All Students	Tot. NAEP Score Gain	Share of Total NAEP Score Gain			Average Annual NAEP Score Gain			
		Vance (00-03)	Janey (03-07)	Rhee (07-09)	All Years	Vance (00-03)	Janey (03-07)	Rhee (07-09)
Math, Gr. 4 (00-09)	27	48%	33%	19%	3	4.3	2.3	2.5
Math, Gr. 8 (00-09)	19	42%	26%	32%	2.1	2.7	1.3	3
Average Math Gr. 4 & Gr. 8 (00-09)	23	46%	30%	24%	2.6	3.5	1.8	2.8
Reading, Gr. 4 (03-09)	14		64%	36%	2.3		2.3	2.5
Reading, Gr. 8 (03-09)	3		67%	33%	0.5		0.5	0.5
Average Reading Gr. 4 & Gr. 8 (03-09)	9		65%	35%	1.4		1.4	1.5

Source: NAEP Data Explorer, January 2011

REFERENCES

- Aladjem, D., Birman, B., Orland, M., Harr-Robins, J., Heredia, A. Parrish, T. and Ruffini, S. (2010). *Achieving dramatic school improvement: an exploratory study*. U.S. Department of Education Office of Planning, Evaluation and Policy Development, Policy and Program Studies Services. <http://www2.ed.gov/rschstat/eval/other/dramatic-school-improvement/exploratory-study.pdf> (accessed January 2011).
- Barbara, M, and Mourshed, M. *How the world's best-performing school systems come out on top*. McKinsey (2007). http://www.mckinsey.com/App_Media/Reports/SSO/Worlds_School_Systems_Final.pdf (accessed January 2011).
- DCPS Watch (2003). *District of Columbia public schools superintendent paul. l. vance submits resignation effective, December 31, 2003*. Nov. 14, 2003. Available <http://www.dcpswatch.com/dcps/031114.htm> (accessed January 2011).
- DCPS Watch (2010). <http://www.dcpswatch.com/dcps/index.htm> (accessed January 2011).
- DC Office of the State Superintendent of Education (2010). The DC CAS is available at http://www.nclb.osse.dc.gov/dccas_reportcards.asp (accessed January 2011).
- Fernandez, C. and Yoshida, Makoto (2001). Lesson study as a model for improving teaching: Insights, challenges, and a vision for the future. In *The Eye of the Storm: Improving Teaching Practices to Achieve Higher Standards: Proceedings of a Wingspread Conference*, September 2000. Washington DC: Council for Basic Education.
- Ginsburg, A and Leinwand, S. (2005). Singapore math: can it help close the U.S. mathematics learning gap. *Mathematics curriculum in pacific rim countries — china, japan, korea and Singapore*. Proceedings of a Conference edited by Z. Usiskin and E. Willmore. The University of Chicago. Charlotte, North Carolina: Information Age Publishing, Inc.
- McGuire, P. (2010). “The next school superintendent” in President’s Blog. <http://www.trinitydc.edu/president/2010/10/the-next-school-superintendent/> (accessed January 2011).
- NAEP Data Explorer online data tool is available from NCES at <http://nces.ed.gov/nationsreportcard/naepdata/> (accessed January 2011).
- NCES (2010). *National Assessment of Educational Progress (NAEP)*. <http://nces.ed.gov/nationsreportcard/about/> (accessed January 2011).
- New Zealand Teachers Council. *Draft guidelines for induction and mentoring programmes and for mentor teacher development in aotearoa new Zealand* <http://www.teacherscouncil.govt.nz/prt/research/mentordraft.stm>. (accessed January 2011).
- Rhee, M. (2010). *What I’ve Learned*. Newsweek. December 13, 2010. pp. 36 – 41.
- Rotherham, A. (2010). *In D.C. schools, rhee and fenty learn that tough reforms bring tougher politics*. Washington Post. September 5. <http://www.washingtonpost.com/wp-dyn/content/article/2010/09/03/AR2010090302207.html?sid=ST2010111106146> (accessed January 2011).
- Springer, M.G., Ballou, D., Hamilton, L., Le, V., Lockwood, J.R., McCafrey, D., Pepper, M., and Stecher, B. (2010). *Teacher pay for performance: experimental evidence from the project on incentives in teaching*. Nashville, TN: National Center on Performance Incentives at Vanderbilt University.
- StudentsFirst (2011). “A movement to transform public education” is available at <http://www.studentsfirst.org/pages/about-michelle-rhee> (accessed January 2011).

Time magazine cover *How To Fix America's Schools*, December 8 2008 along with interior article, A Ripley "Rhee tackles classroom challenge."
<http://www.time.com/time/covers/0,16641,20081208,00.html> and
<http://www.time.com/time/magazine/article/0,9171,1862444-1,00.html> (accessed January 2011).