

**Evidence on Education under NCLB (and How Florida Boosted NAEP Scores and
Reduced the Race Gap)**

Walter M. Haney
Center for the Study of Testing, Evaluation and Education Policy
Lynch School of Education
Boston College
Chestnut Hill, MA 02467
617-552-4521
(haney@bc.edu)

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ABSTRACT

The No Child Left Behind (NCLB) Act has brought increased attention to the rating of school quality in terms of student performance on state math and reading tests. Because state tests are of uneven quality, the emphasis on test-based accountability has also focused more attention on the National Assessment of Education Progress (NAEP) as a check on state test results. In this paper I discuss why results on NAEP are dubious bases for reaching summary judgments regarding school quality. As one way of demonstrating this, I explain why the 2005 NAEP math grade 4 results for Florida are highly misleading. Implications for the reform of NCLB legislation are discussed.

I Introduction

The No Child Left Behind Act has brought increased attention to the rating of school quality in terms of student performance on state math and reading tests. However, many observers have noted the weakness of rating school quality simply in terms of such measures. Doubts arise not just because of the non-comparability of state reading and math tests and ratings based on them (Linn & Baker, 2002), but for the more fundamental reason that the goals of public education in the U.S. clearly extend beyond the teaching of reading and math skills. To address the former problem, many observers have suggested reliance on results of the state National Assessment of Education Progress (NAEP) results as providing a common metric of student performance in grades 4 and 8 in reading and math (and occasionally other subjects) across the states. The broader question of how school quality might be judged has been raised in the 2006 convention of the National Education Association (NEA). The NEA endorsed a system of accountability “based on multiple benchmarks, including teacher-designed classroom assessments, student portfolios, graduation statistics, and college enrollment rates, among other measures” (Honawar, 2006, p. 8). The problem of reaching summary judgments on school quality is also addressed at least implicitly in the exercise I distributed here, “Rating School Quality Exercise.” This is a sort of exercise I have used for 20 years and the results illustrate the perils and indeed the mathematical impossibility of reaching sound summary judgments on matters of educational quality and educational inequality. Before addressing these matters, I discuss the illusion of progress in Florida’s 2005 grade 4 NAEP results, and the value of examining rates of student progress through the K-12 grade span as evidence of school system quality. In conclusion, I suggest how the upcoming reauthorization of the NCLB Act might be shaped.

II. How Florida boosted NAEP Scores and “reduced the race gap”

When results of NAEP for 2005 were released, the state of Florida seemed to have made remarkable progress. The national and Florida results on grade 4 math NAEP may be summarized as follows.

Table 1: NAEP Grade 4 Math 2003 and 2005 Results, National and Florida

	2003	2005	Increase
<u>National</u>			
Total	235	237	2
White	243	246	3
Black	216	220	4
<u>Florida</u>			
Total	234	239	5
White	243	247	4
Black	215	224	9

Sources: Perie, Grigg & Dion, 2005, Braswell, et al., 2005.

These results seemed quite remarkable. Florida’s fourth graders seemed to have moved slightly ahead of fourth graders nationwide on the NAEP 2005 math results. But even more startlingly, Florida seemed to have made dramatic progress in reducing the “race gap” in achievement. While the Black-White race gap in grade 4 math NAEP scores nationwide remained about the same between 2003 and 2005 (26-27 points), Florida seemed to have made dramatic progress in reducing the race gap from 28 points in 2003 (243-215 =28) to 23 points in 2005 (247-224= 23). Black grade 4 students in Florida appeared to have improved nearly 10 points on average in just two years, from an average of 215 in 2003 to 224 in 2005. Given that

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the standard deviation on 2005 NAEP grade 4 math scores was 29, the increase in Florida results was almost one-third of a standard deviation ($9/29 = 0.31$). Anyone familiar with the literature on meta-analysis and effect sizes will realize how stupendous an increase Florida seemed to have made in just two years.

Florida's apparent success on NAEP, not surprisingly, has been touted by that state's Governor, Jeb Bush. In an August 13, 2006 essay in the *Washington Post* (with his improbable co-author Michael Bloomberg), the Florida Governor wrote:

The No Child Left Behind Act of 2001 sent an enormously important message to politicians and educators across America: Stop making excuses for low student achievement and start holding your schools accountable for results.

Florida and New York City are leaders when it comes to accountability in education. We have set high expectations for all students, and in key grades we have eliminated social promotion, the harmful practice of pushing unprepared students ahead. We grade schools based on student performance and growth so that parents and the public, as well as school administrators, know which schools are working well and which are not. Our emphasis on accountability is a big reason our schools are improving, our students are performing at higher levels and we're closing the achievement gap between poor and minority students and their peers. (Bush & Bloomberg, 2006)

The Bush-Bloomberg duo went on to say "The well-respected National Assessment of Educational Progress (NAEP), which is administered in every state, should become an official benchmark for evaluating states' standards."

But what had really happened in Florida? It turns out that the apparent dramatic gains in grade 4 NAEP math results are simply an indirect reflection of the fact that in 2003-04, Florida started flunking many more students, disproportionately minority students, to repeat grade 3. To help explain what happened, let me start with some national enrollment statistics. Before doing so, I note that these data are from the Common Core of Data (CCD), an NCES repository of education statistics. Colleagues and I at Boston College have been analyzing CCD and other

enrollment statistics, as part of our Education Pipeline project (see for example *The Education pipeline in the United States, 1970 to 2000*, available at:

<http://www.bc.edu/research/nbetpp/statements/nbr3.pdf> and Miao & Haney, 2004).

Table 2 below shows for 1995-96 through 2000-01 the total numbers of students enrolled in grades K-12 in public schools nationwide (in the top panel) and grade transition ratios (in the bottom panel), that is the number enrolled in one grade one year divided by the number enrolled in the previous grade the previous year.

Table 2: US Public School Enrollment By Grade 1995-96 to 2000-01 (in 1000s)

Grades/Year	95-96	96-97	97-98	98-99	99-00	00-01
K	3536	3532	3503	3443	3397	3382
1st	3671	3770	3755	3727	3684	3635
2nd	3507	3600	3689	3681	3656	3633
3rd	3445	3524	3597	3696	3690	3673
4th	3431	3454	3507	3592	3686	3708
5th	3438	3453	3458	3520	3604	3703
6th	3395	3494	3492	3497	3564	3658
7th	3422	3464	3520	3530	3541	3624
8th	3356	3403	3415	3480	3497	3532
9th	3704	3801	3819	3856	3935	3958
10th	3237	3323	3376	3382	3415	3487
11th	2826	2930	2972	3021	3034	3080
12th	2487	2586	2673	2722	2782	2799

Grade Transition Ratio (no. in grade /no. in previous grade previous year)

	95-96	96-97	97-98	98-99	99-00	00-01
K						
1st		1.07	1.06	1.06	1.07	1.07
2nd		0.98	0.98	0.98	0.98	0.99
3rd		1.00	1.00	1.00	1.00	1.00
4th		1.00	1.00	1.00	1.00	1.00
5th		1.01	1.00	1.00	1.00	1.00
6th		1.02	1.01	1.01	1.01	1.01
7th		1.02	1.01	1.01	1.01	1.02
8th		0.99	0.99	0.99	0.99	1.00
9th		1.13	1.12	1.13	1.13	1.13
10th		0.90	0.89	0.89	0.89	0.89

11th	0.91	0.89	0.89	0.90	0.90
12th	0.92	0.91	0.92	0.92	0.92

Source: CCD and Digest of Education Statistics

I will not comment on all of these results in detail, but note one key pattern. The grade transition ratios for grade 3, 4, and 5 are almost all exactly 1.00. This means simply that from grade 2 to 5, the national pattern for these years has been for 100% of students to be promoted from grade to grade.

Now let us look at analogous grade transition ratios for the state of Florida for the period 1999-2000 to 2003-04.

Table 3: Florida Grade Transition Ratios 1999-2000 to 2003-04

Grade Transition Ratios 1999-2000 to 2003-04	99-00	00-01	01-02	02-03	03-04
K					
1st		1.07	1.07	1.05	1.06
2nd		1.01	1.01	1.00	1.01
3rd		1.03	1.03	1.02	1.12
4th		1.03	1.03	1.03	0.92
5th		1.01	1.02	1.00	1.01
6th		1.05	1.05	1.04	1.04
7th		1.03	1.02	1.02	1.02
8th		1.00	1.00	1.00	0.99
9th		1.32	1.34	1.29	1.26
10th		0.76	0.72	0.74	0.77
11th		0.82	0.88	0.92	0.90
12th		0.84	0.90	0.92	0.91

Source: Boston College Education Pipeline project, based on CCD data

There are a number of interesting contrasts between these results for Florida and the national results presented in Table 2 above. First note that for the elementary grades most

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Florida transition ratios are above 1.00. This is an indirect reflection of the fact that the public school population has been increasing in Florida. The total K-12 public school population in Florida was 2.328 million in 1999-2000 and 2.538 million in 2003-04. This amounts to about a 2.1% annual increase in public school enrollments in Florida over this interval.

A second notable feature of results shown in Table 2 is for grades 9 and 10. These results indicate a large bulge in enrollments in grade 9 and correspondingly large attrition in student enrollments between grades 9 and 10. Since such changes in patterns of progress in the U.S. K-12 system are discussed at more length in our *Education Pipeline* report, I will not elaborate further just now, save to note that the grade 9 bulge and attrition between grades 9 and 10 are more than twice as bad in Florida as nationally.

But particularly notable regarding how Florida boosted NAEP grade 4 results in 2005 are the grade 3 and 4 results for 2003-04. What these results indicate is that in the 2003-04 school year Florida started flunking far more children – on the order of 10-12% overall – to repeat grade 3. Hence it is clear what caused the dramatic jump in grade 4 NAEP results for 2005. Florida had started flunking more children before they reached grade 4.

What caused the dramatic decrease in the race gap in NAEP results in Florida? Grade transition analyses of enrollment data make the answer abundantly clear. I will not present detailed results in the short time available here. But what I can say by way of summary is that analyses of grade enrollments in Florida by race (Black, Hispanic and White) make it clear that when Florida started in 2003-04 to flunk more children to repeat grade 3, these were disproportionately more Black and Hispanic children (15-20% of whom were flunked) than White ones (about 4-6% of whom were flunked in grade 3). Thus it is clear that the NAEP grade 4 results for 2005 reflected not any dramatic improvements in elementary education in the

state. Rather they were an indirect reflection of Florida policy that resulted in two to three times larger percentages of minority than White children being flunked to repeat grade 3.

This is, regrettably, a tragedy in the making. Research now makes it abundantly clear that flunking children to repeat grades in school is not only ineffective in boosting their achievement, but also dramatically increases the probability that they will leave school before high school graduation (see, for example, Shepard & Smith, 1989; Heubert & Hauser, 1999; Jimerson, 2001; Jimerson, Anderson & Whipple, 2002). I will not try to summarize here the abundant evidence on these two points, save to note that considerable research has found that among children who are overage for grade in grade 9 (regardless of whether they were flunked in grade 9 or earlier grades), 65-90% will not persist in high school to graduation.

III Evidence on Education Under NCLB

The Florida case – what might be called the Florida fraud – helps to illustrate a fundamental point about interpretation of test results in general and NAEP results in particular. Before trying to make meaningful interpretations of test results, one should always pay close attention to who is tested and who is not. Regarding state NAEP results, it is far too often overlooked that since state NAEP testing is based on samples of students enrolled in particular grades, namely grades 4 and 8, NAEP results are inevitably confounded with patterns by which children are flunked to repeat grades before the grade tested.

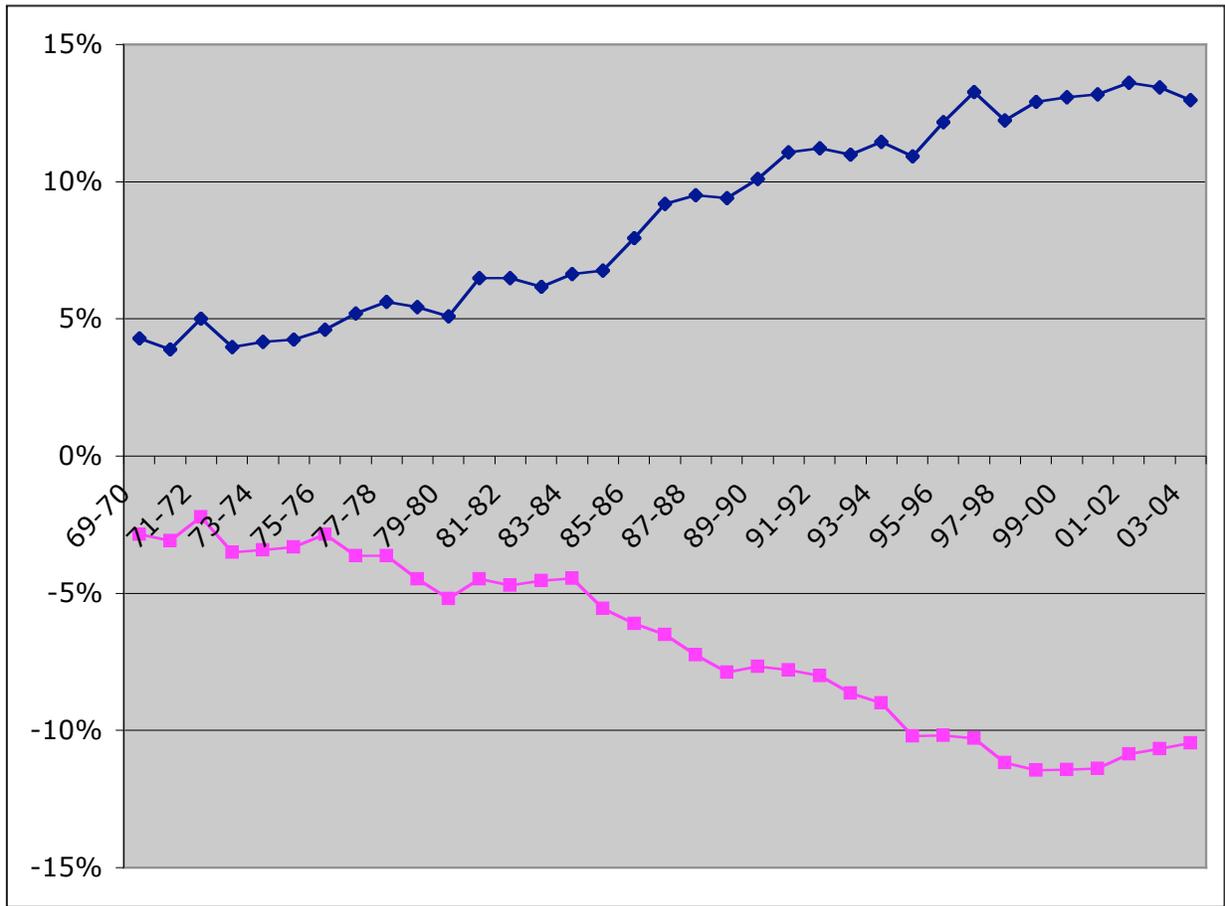
Since this is so, what other evidence is available to help us judge the condition of education in the U.S? I would argue that a much more robust indicator of the condition of education in the U.S., in the states, and in local education agencies (LEAs), are rates of student progress through the elementary-secondary educational system – as pointed out by Ayres (1909)

nearly a century ago. Rates of student progress through the grades represent a more robust measure of school quality than test results for the simple reason that they reflect a host of factors including not just test results, but also grades in courses, attendance and citizenship. And as we have shown repeatedly, as far back as “The myth of the Texas miracle in education” (Haney, 2000), if policymakers focus only on grade level test results, without paying attention to who is not tested (such as dropouts and students flunked in grade), they can be badly misled about what is happening in school systems.

So what do we know about rates of student progress through the grades before and after passage of the NCLB Act? I and colleagues have been analyzing enrollment data at national, state and LEA levels for some time and results are far more voluminous than can be presented here. Hence let me present here only evidence concerning two of the most worrisome trends we have identified, namely the increasing bulge of students in grade 9 and the corresponding increase in attrition of students between grade 9 and 10.

Figure 1 shows results on the grade 9 bulge and attrition between grade 9 and 10 for the last 30 years. As may be seen, during the 1970s there were only 5% more students enrolled in grade 9 than in grade 8 the previous year. The grade 9 bulge started increasing during the 1980s and has increased even more during the 1990s. These results indicate that the bulge of students in grade 9 has roughly tripled in size over the last three decades.

Figure 1: Grade 9 Bulge and Attrition between Grade 9 and 10, U.S. Public School Enrollment, 1969-70 to 2003-04



Correspondingly the rate of attrition of students between grades 9 and 10 has increased dramatically over this interval. During the 1970s there were about only 3.5% fewer students enrolled in grade 10 than in grade 9 the previous year. The rate of attrition of students between grades 9 and 10 increased a bit in the late 1970s and more sharply during the 1980s and 1990s. Since 1999-2000 there have been more than 10% fewer students enrolled in grade 10 than in grade 9 the previous year. These results show that attrition of students between grade 9 and 10 has roughly tripled over the last 30 years.

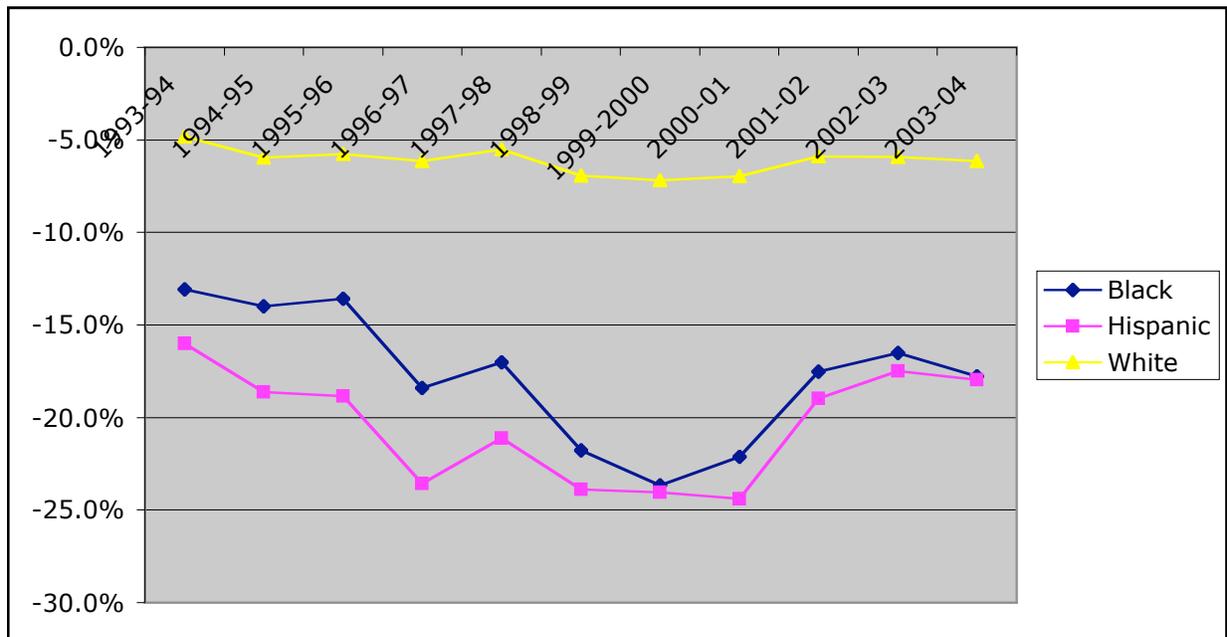
The causes for these long term changes in grade transition ratios are probably several. Given that these changes go back at least two decades, they obviously cannot have been caused by the NCLB Act of 2001 (actually not signed into law until January 2002). But as we discussed in our *Education Pipeline* report, “increases in attrition between grades 9 and 10 have been associated with the minimum competency testing movement in the 1970s, the academic standards movement in the 1980s, and so-called standards-based reform and high stakes testing in the 1990s” (Haney, et al. 2004, p. 60).

Though not discussed in our *Education Pipeline* report, more recent analyses make it clear that attrition between grade 9 and 10 is far worse for Black and Hispanic students than for White students. For the majority of states for which grade enrollment data are available by race, results show that grade 9 to 10 attrition for Black and Hispanics is on the order of 20% whereas for Whites it is less than 7%. These findings indicate that the grade 9 to 10 attrition rate for minority students is roughly triple that for White students.

To present results by race for just one state, Figure 2 shows patterns of attrition between grade 9 and 10 in New York for roughly the last 10 years, 1993-94 through 2003-04. As may be seen, the rate of attrition between grades 9 and 10 for White students in New York has been in the range of 5 to 7%. However, for Black and Hispanic students, rates of attrition have been far, far worse on the order of 15-25%. Attrition of minority students in New York worsened substantially in the late 1990s, but appears to have lessened slightly in recent years. Still, as of 2003-04, the last year for which enrollment data are available via the CCD, the attrition rate between grades 9 and 10 for Black and Hispanic students in New York (about 18%) was triple the rate of attrition for White students (6.1%).

These results illustrate dramatic racial inequalities in rates of student progress through the K-12 educational system. They also make clear that test results based on grade level samples (as in NAEP and most state testing programs) will mask underlying inequalities in our educational system. While much attention has been focused on the so-called “race gap” in test scores, far more severe and of much more consequence is the race gap in progress through the education pipeline.

Figure 2: Attrition of Students between grades 9 and 10 by race, New York, 1993-94 to 2003-04



IV Conclusion

High stakes testing – by which I mean making important decisions based on test results alone – has been increasing in recent decades in the U.S. This trend by no means began with the NCLB Act of 2001, but it certainly has been fueled by the NCLB legislation. The mania to make

test score averages appear to increase has resulted not just in fraud in Florida, but also to school administrators in at least three jurisdictions (in Texas, New York and Alabama) actually pushing young people out of school in order to make high school test results look better. (The three cases are documented in our report *The Education pipeline in the United States, 1970–2000*, Haney et al., 2004).

In addition to focusing attention on test results as measures of school quality, the NCLB Act also mandated measures of high school graduation rates as indicators of school systems' quality. This has helped promote considerable research, and a dose of controversy, on how best to calculate high school graduation rates (Greene, 2002a, 2002b, 2003; Young, 20002, Swanson, 2003, 2004; Warren, 2003; Swanson & Chaplin, 2003; Mishel & Roy, 2006). I will not comment here on the debates about how to calculate high school graduation rates save to mention two points. First, the Miao & Haney (2004) article compares a number of high school graduation rate measures that have been promoted by various parties. According to most measures, high school graduation rates in the U.S. have been declining in recent decades, remain far short of the “national education goal” of a 90% graduation rate, and are far worse for Black and Hispanic students than for White students. Second, two manuscripts I have recently reviewed for scholarly journals promise to help clarify debates about how to calculate high school graduation rates. Given the ground rules for blind peer review, I cannot cite the authors of these two forthcoming articles, but if editors follow my recommendations both articles will soon be published.

In conclusion what I wish to point out is that while graduation rates surely represent a better summary measure of school system quality than do test score averages, they have a fundamental weakness. Whether based on three, four or five years of data, high school

graduation rates always represent a limited and “rear view” look at what is happening in school systems. They are limited in that they have little potential to illuminate what happens to young people before they reach high school. And they are “rear view,” because whether based on three, four or five years of data, they tell us what has happened to students in the past, rather than what is happening to them now.

Hence in conclusion I suggest simply that in the re-authorization of NCLB legislation a very simple reporting requirement should be added. States and LEAs should be required to report not just on test scores but also on grade progression ratios. As I have argued here, rates of student progress through the grades are a more robust measure of educational quality than are test scores. Also, as I have demonstrated, such data are vital in order to interpret test results. The apparent dramatic improvement in 2005 grade 4 NAEP scores in Florida are illusory. Not only is Florida not reducing the race gap, but data on grade transition rates for that state reveal that with 3-4 times as many minority than White students being flunked to repeat grade 3. Florida’s policies are helping to cement educational inequalities in place for years to come. Msrs. Bush and Bloomberg are simply myopic and misguided. NAEP may provide some useful information on states’ educational progress, but as I have shown, if used in isolation as an “official benchmark for evaluating states’ standards,” NAEP results may mislead more than inform.

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Figure 3: Grade 9 Bulge and Attrition of Students between grades 9 and 10, New York City, 1986-87 to 2003-04

