State Level Strategies and Policies for Closing the Achievement Gap

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Introduction

The commitment to close California's achievement gaps poses an unprecedented challenge to policy-makers, for two main reasons. First, the scale of the task is greater in California than in other states. The gaps are bigger in California than they are in comparable states, and average achievement at both the bottom and the top of California's achievement gaps lags behind achievement in other states. Moreover, a large majority of the state's students are on the low rather than the high end of the gaps, which means that closing the gaps requires relative improvement in the educational performance of most of the state's students and not just a few.

Second, there is no proven policy prescription for closing achievement gaps. Other states have made progress in closing gaps, as has California, but the opportunity to learn from what other states have done is nevertheless limited, for two main reasons. First, there is no state that offers a clear example of consistent, sustained success in closing achievement gaps; all states continue to wrestle with the challenge of improving the performance of initially disadvantaged groups of students. Second, the diverse and idiosyncratic mix of policies adopted in each state makes it virtually impossible to identify the specific contribution of any single policy or set of policies to closing gaps at the state level. A review of policies that have been implemented in other states and other nations can help to develop a menu of potentially effective policy options, from which California might profitably borrow, but it cannot tell us which of these—or what mix of these—will "work" in California.

A review of state policies to close achievement gaps yields three main lessons for California:

- The policy instruments that are likely to prove effective in closing achievement gaps are the same as those that are required to improve the quality of education more generally: support for excellent teaching, sufficient time for learning, curriculum and instruction aligned to uniformly administered high standards, and early intervention for students in danger of falling behind.

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Many states have also made investments in early childhood and preschool education, in an effort to close achievement gaps before children enter school.

- Students whose performance consistently falls short of the state's expectations may need *more* of these resources than their more privileged peers (e.g., high-quality preschool, supplementary time for learning), but for many students the resources that they need are not fundamentally different from those required by other students or in other schools. In many states including California disadvantaged students often receive *less* of these critical resources than better-off students. For some students, including English Learners (ELs), addressing achievement gaps may require different resources, including specialized professional development for teachers and the development of appropriate instructional materials and assessment instruments for students.
- No single policy adopted in isolation is likely to produce much progress in closing gaps. Instead it will require the state to adopt a coherent policy framework aimed at improving educational opportunities for all students, with a particular focus on those who are falling behind; to target resources to the schools and students who need them most, in order to ensure that these students receive at least their fair share if not more of critical resources; and to invest in learning what works and what does not through the design, implementation, and evaluation of local policy experiments.

In this paper we survey the policy frameworks adopted in other states in their efforts to close achievement gaps, with a particular focus on states that are comparable to California in terms of size and demographics. We begin the paper with a brief historical account of achievement gaps at the national level, noting that policy options that may have proven effective in the past including school desegregation and various forms of affirmative action are no longer as readily available to policymakers as they once were. We then review the data on how three achievement gaps (between African American and white students, between Hispanic and non-Hispanic white students, and between students eligible for free and reduced-price lunch and other students) in California compare to those in other states on three dimensions: the *level* of achievement, the *size* of the gaps, and the recent *rate of change* in the gaps. On all three dimensions California's performance is inferior to the national average, and to performance in comparable states as well. We then discuss the main policy levers available to the state and identify promising policies adopted elsewhere, with a particular focus on Florida, New York, and Texas. We conclude the paper with a discussion of the critical importance of *policy learning* in the effort to close the achievement gap.

Historical Background

The Black-white achievement gap was first documented in the 1960s, when James Coleman collected the first national sample of data that contained both performance and race measures for his report on the Equality of Education Opportunity [1]. Hedges and Nowell [1] demonstrated a closing in the gap across different student achievement measures over time. Their study compared composite scores across the following

surveys: Equality of Education Opportunity (1965), NLS (National Longitudinal study of the High School Class of 1972), High School and Beyond (1980, 1982), NLSY (National Longitudinal Survey of Youth 1980) and NELS (National Educational Longitudinal Study 1992). They also looked at National Assessment of Education Progress (NAEP) trend samples through the mid-80s. They noted that, for NAEP scores, the racial gap narrowed throughout the 80s, but began to widen again after 1988 or 1990 in science and math. All NAEP gaps were smaller in 1994 than in 1971 and there were significant decreases in the reading and science gaps by decade, though the changes in reading and math scores were not statistically significant. The math gap appeared to increase between 1990 and 1994, but not significantly. Likewise, Mullis et al. [2] showed a closing of the Black-white test score gap on the NAEP since the '70s.

Hedges and Nowell [1] also note that on the non-NAEP exams they examined in their study, Blacks are almost always overrepresented in the lower ends of the test-score distributions and under represented in the upper ends. That is, relative to their proportion in the general student population, more Black students than expected earned low scores and fewer than expected earned high scores. Over time, the overrepresentation in the low score range has moderated, but the proportion of Blacks with high scores on state assessments remains conspicuously low.

The convergence of socioeconomic status (SES) between racial groups was investigated as a possible explanation of the convergence of test scores, but it did not fully account for the convergence in the racial test gap [1]. The decrease in the SES-adjusted gap between 1965 and 1972 was larger than in other years. Richard Rothstein [3] also points to differences in social and economic status as an important cause of the achievement gap; other scholars have in contrast noted that the decrease in the achievement gap through the 1980s parallels an increase in SES for minority students, but that SES continued to increase for this population during the 1990s as the achievement gap began to grow again [4].

Grissmer, Flanagan, and Williamson [5] looked at other reasons why the gap may have closed. They standardized all NAEP scores since 1971 to a mean of 0 and a standard deviation of 1 to the base year of 1971. Overall, they found deceases in achievement gaps similar to those described by Hedges and Nowell [1], but Grissmer, Flanagan and Williamson [5] point out that the largest reduction in the achievement gap occurred in the reading scores of 17-year-olds, while the gap among younger adolescents was rising again during the 90s. They also observed an independence of cohorts. That is, gains in math scores among 9-year-olds did not predict gains among 17-year-olds, although reading gains did tend to precede math gains. The most significant test score gains for Black students occurred in cohorts entering school from 1968-72 though 1976-80. Black cohorts entering since 1980 have registered small gains or declines.

Early childhood intervention was discounted as an explanation because those gains tend to fade with age, while some of the most significant reductions in achievement gaps were seen nationwide among older students. Increased enrollment in preschool and kindergarten may have an effect on the scores of 9-year-olds, but there is no evidence that this effect carries on to scores for 13- and 17-year-olds. Increases in parent education accounted for only a small part of gains (less than a quarter). There was a similar lack of support for the hypotheses that tracking, elementary classroom grouping (mixed classrooms), or an increase

in math course-taking had a significant impact on closing the achievement gap.

Desegregation measures proved significant in predicting test score gains for Black but not white students. Results were particularly interesting at the regional level. The largest test score gains among African American students occurred in the South, where segregation decreased the most; the lowest test score gains occurred in the Northeast, where segregation actually increased. Desegregation cannot account for all gains for African Americans, as their scores increased in the Northeast as well, despite increased segregation. It appears then that desegregation had its main effect in the South, and that the effect was immediate rather than cumulative. Because there were other social policies (e.g., antipoverty and affirmative action programs) implemented around this time, however, desegregation may have been part of a broader, national signal that Black students' education was a national priority. This could have translated to a change in motivation and attitudes among African American families leading to improved academic performance.

Student-teacher ratios decreased steadily between 1960 and 1980, which is correlated with improvements in test scores of African American students. These correlations are not as strong for reading as for math. All effects were smaller for white students. The general decrease in the student-teacher ratio flattened out during the 80s, however. In the south student–teacher ratios declined more for Blacks than for whites, but comparable data are not available to measure this difference nationwide.

There is some evidence which suggests that teacher education is significantly correlated with NAEP score increases, but there is little existing data or experimental evidence that can confirm or reject this finding.

Finally, increasing violence among Black teenagers was posited as a reason for why all scores drop after 1988 for African American students. The increase in murder rate of Black teenagers (which increased dramatically from 1985 to 1990) was seen as a proxy for changes in Black neighborhoods. Grogger [6] found some evidence to indicate that school violence did correlate with lower math scores among African American students. This hypothesis is somewhat weakened, however, since Black students surveyed in 1990 reported feeling safer at school than Black students surveyed in 1980. Furthermore, NAEP scores show a decrease in reading, but not math, although this could be accounted for by increased math course-taking as noted above.

Harris and Herrington [7] suggest that the policy levers used during the 1960s, 70s and 80s may have been more effective than those that are currently in vogue. They note that during the 1950s-70s there was a strong focus on improving time and content standards as well as providing additional resources to schools that served disadvantaged students. These policy changes resulted in the lengthening of both the school day and year, as well as increased course taking requirements for all students with particular respect to mathematics courses. Moreover, the additional resources provided to schools with high populations of disadvantaged students helped achieve some parity in resources among all public schools (e.g., student-teacher ratios were effectively equal across racial groups by 1989 [8], though inequity persists, in particular, with respect to teacher quality.

By the end of the 1970s, many of the policies aimed at providing equal resources and increasing time and content standards had reached their practical limit. They were succeeded in the 1980s by a trend toward government-based accountability policies, under which state governments monitored

student and school achievement through standardized testing and applied rewards and punishments as appropriate in order to induce higher student performance. There is some evidence that a large part of the closing of the achievement gap during the 1980s occurred where promotion and graduation exams were being utilized ([9] as cited in [7]).

In the 1990s, policies aimed at strengthening market-based accountability were also brought to bear on closing the achievement gap. Implicit in both government-based and market-based methods of accountability was the assumption that schools have the internal capacity to improve student achievement but need inducement to raise effort and teacher expectations for students. Another possibility, however, is that only schools that have the capacity to respond will do so while schools that do not have the resources to respond to the inducements will fall further behind. Ladd and Walsh [10] have shown, for example, that identifying a school as "failing" may reduce internal capacity by making it more difficult to recruit highly qualified teachers. Thus it is possible that both types of accountability have actually served to increase inequality with respect to the capacity schools have to address the achievement gap.

As a result of the above findings, Harris and Herrington [7] suggest that a reexamination of promotion and graduation exams, even with their flaws, and a determined focus on teacher training and higher teacher salaries for teachers working with initially disadvantaged students may help to resume progress in closing achievement gaps.

Rationale for Relying on the NAEP Assessment

There are significant gaps in achievement and attainment across many different indicators of educational performance. A partial list would include: 1) achievement and vocabulary gaps that exist before students even start kindergarten, 2) grade point averages of students within schools, 3) scores on state assessments, 4) nationwide test scores as measured by the NAEP, 5) access to advanced placement classes and passing rates on AP exams, 6) graduation and drop-out rates, and 7) college attendance and completion.

All of these gaps require urgent policy attention, in California as in other states, but problems of measurement and comparability make nearly all of them inappropriate for the analysis of success in closing achievement gaps across states. For the purposes of this paper we therefore rely on data from the NAEP, which remains the only nationally representative assessment of student achievement. The NAEP measures student knowledge in a variety of areas, but in this analysis we focus on the mathematics and readings assessments in grades 4 and 8 because school improvement efforts and accountability systems place heavy emphasis on these subjects. Moreover, mathematics and reading are generally recognized as core academic subjects, essential to student success across the curriculum.

The NAEP consists of two nationally representative assessments of mathematics and reading achievement: NAEP long-term trend (NAEP-LTT) and Main NAEP. The NAEP-LTT is administered approximately every four years to a nationally representative sample of 9, 13, and 17 years olds. The assessment is well suited to measuring long term achievement trends because the tests used have remained the same since their inception in the 1970s. The only drawback is that results are not available at the state level. The Main NAEP

is administered every two years to students in grades 4, 8, and 12. The content of this test is updated regularly to reflect what is taught in school. In the 1990s, NAEP results were available for participating states; separate state representative samples were drawn for participating states in addition to the sample constructed for the national assessment. Since 2002, a combined sample of public schools was selected for both the state and national NAEP following the 1998 recommendations of the National Center for Educational Statistics and the National Assessment Governing Board. The 2002 sampling change meant that for the first time NAEP results were available for all 50 states and the District of Columbia and not only for those states choosing to participate. Therefore, the Main NAEP will serve the primary data source for examining trends in the achievement gap at the state level.

An issue that has been raised with regard to cross-state analyses of NAEP results is the potential impact of variable exclusion rates, which are relatively low in California and significantly higher in other states, including Texas. The National Center for Educational Statistics concluded that the relationship between average achievement levels and exclusion rates in 2005 was close to zero, but that the correlations between exclusion rates and success in closing achievement gaps between 2003 and 2005 were moderately positive [11].

National Trends in the Achievement Gap

As noted above, both Black-white and Hispanic-white achievement gaps narrowed in reading and math during the 1970s and 1980s, but widened in the 1990s. Recent results from 2004 NAEP-LTT indicate some closing of the gap between 1999 and 2004 as illustrated in Figure 1.

Results from the Main NAEP also show a narrowing of the gap between Black and white students between 2000 and 2007. For example, the Black-white gap in grade 4 mathematics decreased from 30 to 26 points, which is a statistically significant difference. The gap narrowed by approximately seven points on the 4th grade reading assessment during the same period, from 34 points to 27 points. The Hispanic-white gap experienced a similar narrowing of 5 points in mathematics and 9 points in reading between 2000 and 2007; both changes are statistically significant.

The NAEP-LTT does not break out results by socioeconomic status as measured by free- or reduced priced meal eligibility, but the Main NAEP does provide evidence of the narrowing of the achievement gap over the last seven years. The socioeconomic gap narrowed by 4 points in mathematics and 7 points in reading between 2000 and 2007. Only the narrowing in reading is statistically significant.

State Trends in the Achievement Gap

Given the results at the national level, we would expect to see states closing the gap with rates that fall above, around, or below the national average. The subsequent analyses will not delve into the relative change in gaps for all the states. Instead, the analyses will focus on California and the "peer" states of Florida, New York, and Texas that are similar to California in terms of size and demographic diversity.

The relative change or percent change will serve as the primary indicator for

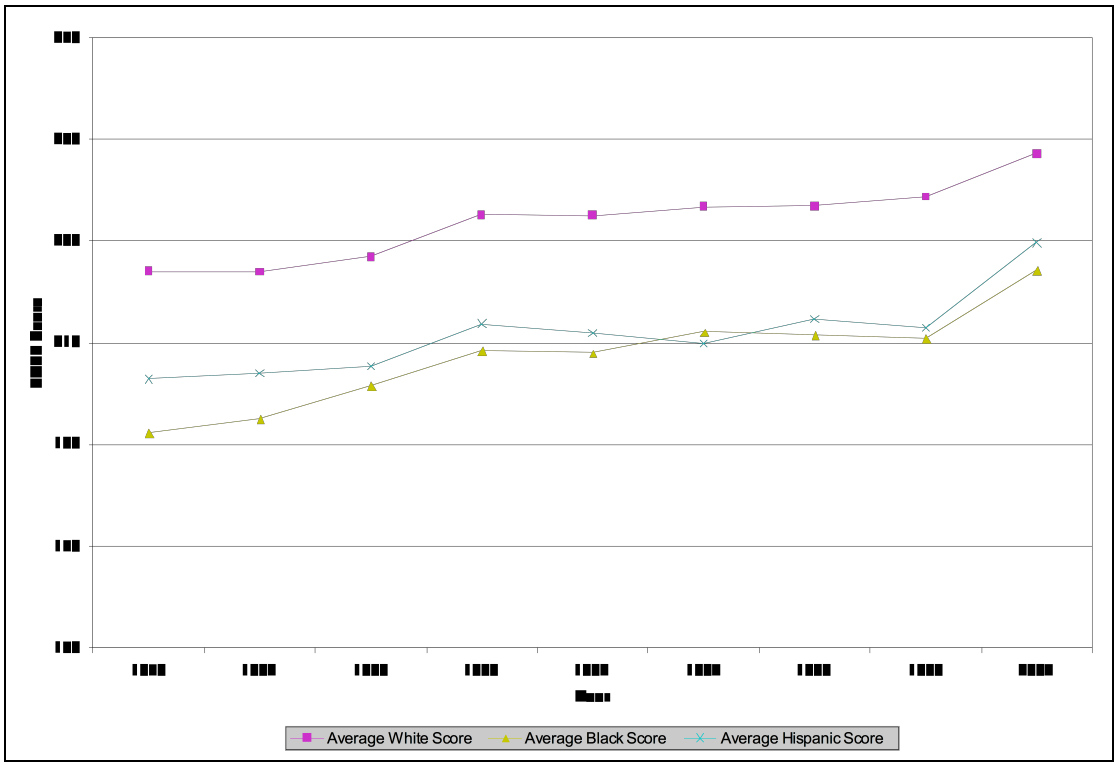

Figure 1. NAEP long term trend scores in grade 4 mathematics by race/ethnicity

determining by how much states narrowed (or increased) achievement gaps between 2003 and 2007. However, relying solely on the percent change in the gap does not provide an accurate picture of the achievement landscape. For example, Figure 2 shows the variation in subgroup performance by relative change in the achievement gap. As Figure 2 shows, there is only a weakly positive association (.25) between the rate of change in the achievement gap and the level of student performance. In other words, it is possible to have two states experiencing the same relative narrowing or widening of the gap at very different levels of student achievement. The relative change measure may even disproportionately favor states with very low levels of achievement because they have much more room to improve than higher performing states.

The analyses that follow will therefore supplement the relative change measure with indicators of subgroup performance and the magnitude of the gap in the most recent year of analysis.

Subgroup Performance

Overall, average NAEP scores for all racial/ethnic and socioeconomic subgroups in California were lower than scores in peer states and the national average. This result was consistent across grade levels and subjects tested. Figures 3-4 and Tables 1-4 serve as example of the trends described above. For example, white students in California achieved an average score of 247 on the 4th grade mathematics assessment—less than the averages for Florida, New York, Texas, and the US (250, 251, 253, and 248 respectively).

In addition, the various subgroups for each of the peer states achieved average scores that met or exceeded the national average,

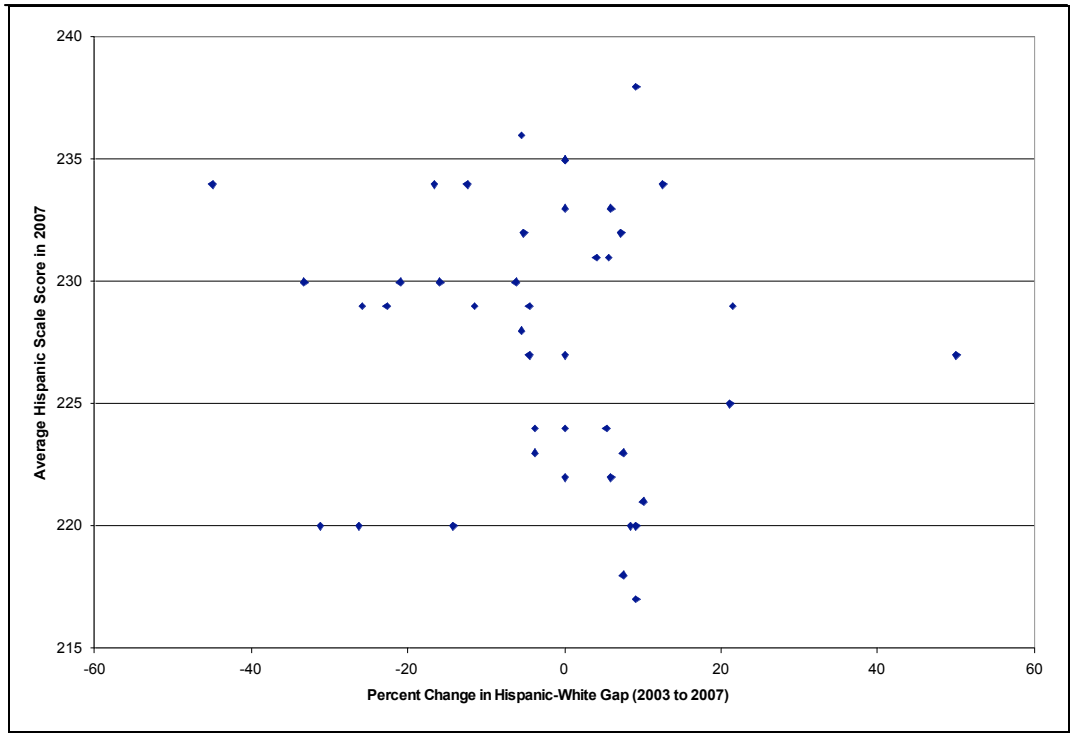

Figure 2. Average Hispanic score in 2007 (grade 4 mathematics) by percent change in Hispanic-white gap from 2003 to 2007

while scores for students in California consistently fell below the national average.

Among the states in the analysis, Texas tends to have some of the highest scores for White students across the grade levels and subjects tested. Texas also tends to have the highest scores for Black students. Florida tends to have the highest Hispanic scores among California, peers states, and the nation.

Magnitude of Achievement Gaps

Similarly, California has achievement gaps that are consistently larger than those in peer states and the nation, across grade levels and subjects tested. For example, the Black-white gap on the 4th grade mathematics assessment is approximately 29 points, which is three points higher than the national average. Among California's peer states, Texas has the smallest gap (23 points) and New York has the largest gap (26 points). The Hispanic-white gap is 29 points in California, which is also three points higher than the national average. Florida has the smallest gap (12 points) among peer states and New York has the largest (21 points). The socioeconomic gap in California is about 24 points, which is two points above the national average. Texas has the smallest gap (17 points) and New York has the largest gap (19 points) among peer states.

Changes in Gaps over Time

California is in fact closing some achievement gaps, but the rate of change in California generally falls short of the rates in peer states and national averages. In California the Black-white Gap in 4th grade mathematics fell by 3.33 percent between 2003 and 2007. Florida and the nation posted better results, while Texas experienced a 4 percent *increase* in the Black-white gap. New York, Texas, and the nation reduced the Hispanic-white Gap between 2003

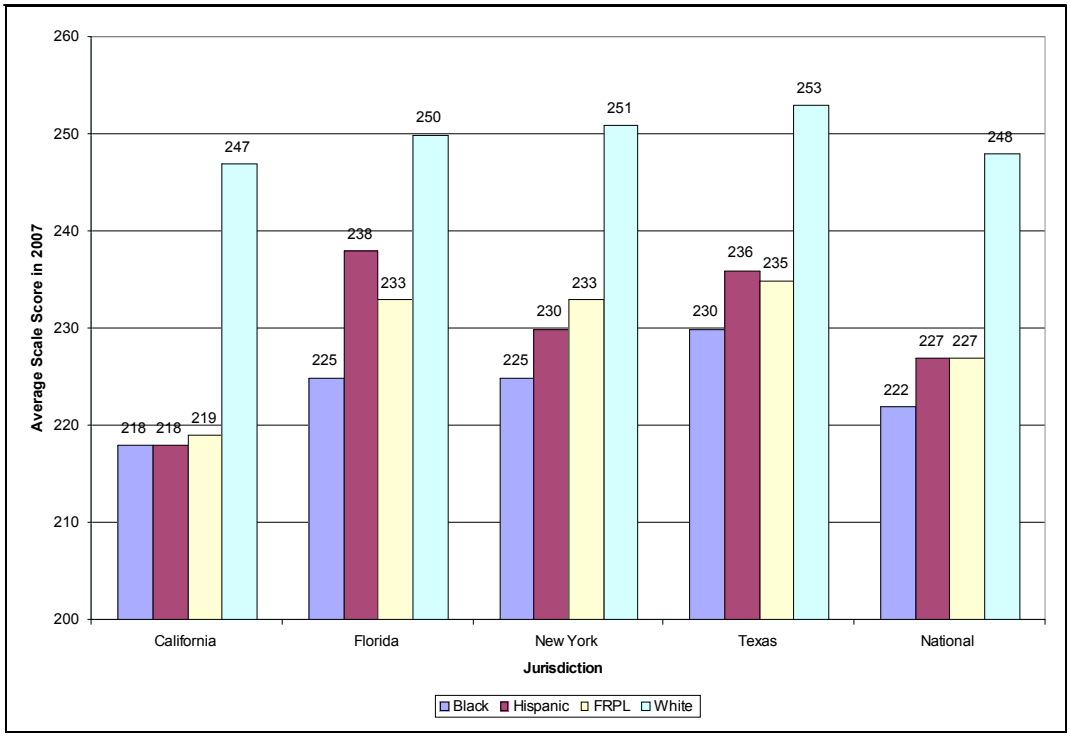

Figure 3. Average score in 2007 (grade 4 mathematics) by subgroup and jurisdiction

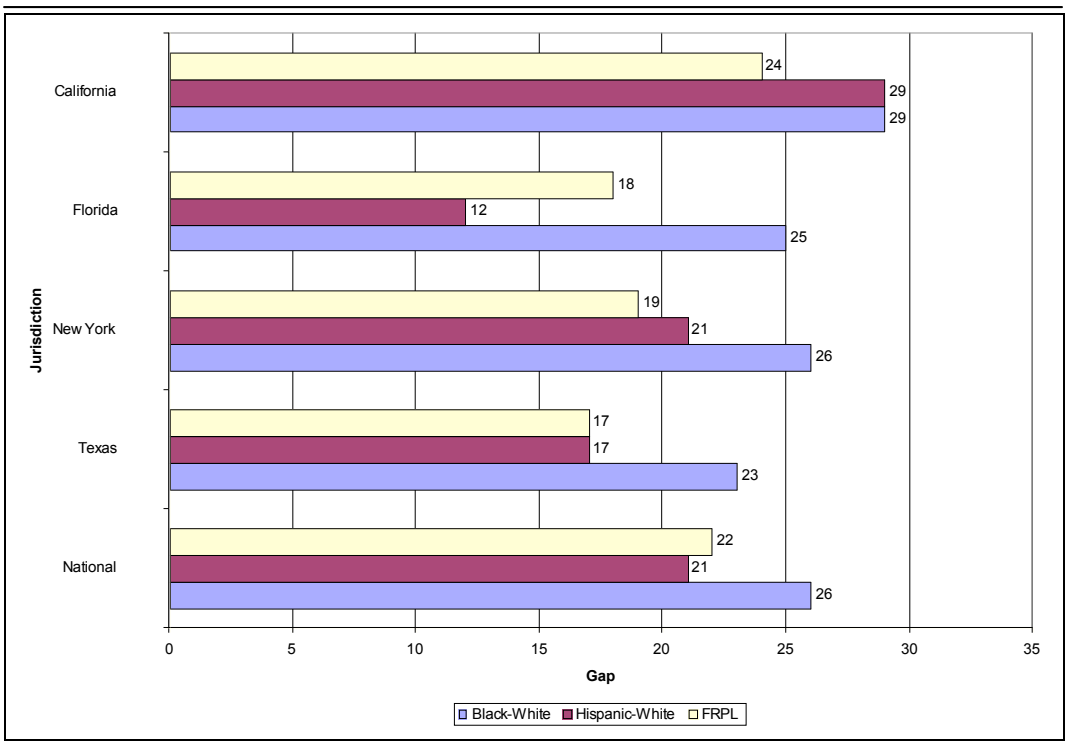

Figure 4. Average score in 2007 (grade 4 mathematics) by subgroup and jurisdiction

Table 1

Percent change in gaps from 2003 – 2007 (grade 4 mathematics) by jurisdiction

		Black-white	Hispanic-white	FRPL
4th Grade Mathematics	California	-3.33	7.41	-4.00
	Florida	-10.71	9.09	-21.74
	New York	-3.70	-16.00	-13.64
	Texas	4.55	-5.56	-5.56
	National	-3.70	-4.55	0.00

Table 2

Percent change in gaps from 2003 – 2007 (grade 4 reading) by jurisdiction

		Black-white	Hispanic-white	FRPL
4th Grade Reading	California	-12.90	-3.03	-3.23
	Florida	-22.58	-22.22	-19.23
	New York	-18.75	3.70	-6.67
	Texas	0.00	-9.09	9.52
	National	-10.00	-7.14	-3.57

and 2007, while both California and Florida experienced substantial *increases* in the gap. In terms of the socioeconomic gap, California and its peers narrowed the gap between 2003 and 2007, while the trend remained flat nationally. California reduced all three gaps on the 4th grade reading assessment, but did not experience the largest gains. Florida posted double-digit percent decreases in all three gaps, which were the largest among the states in this analysis.

California experienced a narrowing of all three gaps on the 8th grade mathematics assessment, with the largest reduction in the socioeconomic gap. Florida and New York led the way with substantial decreases in all gaps, with some surpassing 20 percent.

California experienced mixed results on the 8th grade reading assessment. The Black-white gap *increased* by almost 12 percent between 2003 and 2007, but the Hispanic-white and socioeconomic gaps decreased over the same period. Florida stood out once again for large reduction in gaps, with an almost 30 percent reduction in the Hispanic-white gap.

California is making progress in closing achievement gaps, but progress is sporadic, with variation in the scope and sometimes even the direction of change depending on the specific tests and time periods under investigation. This is equally true in other states, although Florida has demonstrated more consistent success in closing gaps than other large, diverse states.

Table 3

Percent change in gaps from 2003 – 2007 (grade 8 mathematics) by jurisdiction

		Black-white	Hispanic-white	FRPL
8th Grade Mathematics	California	-8.11	-6.06	-13.33
	Florida	-18.92	-13.64	-21.43
	New York	-15.79	-10.34	-22.58
	Texas	-3.33	-16.13	-8.33
	National	-11.43	0.00	-10.34

Table 4

Percent change in gaps from 2003 – 2007 (grade 8 reading) by jurisdiction

		Black-white	Hispanic-white	FRPL
8th Grade Reading	California	11.54	-3.57	-7.41
	Florida	-17.24	-29.41	-13.64
	New York	-9.68	3.70	-13.79
	Texas	4.00	-4.00	4.35
	National	0.00	-7.69	-4.00

Policy Instruments

Three decades of research on unusually effective schools have demonstrated that improvements in school performance must be accomplished school by school (e.g., [12,13]. Features internal to the school, including leadership, parental involvement, professional community, and high expectations for all students, must be present for schools to accomplish the learning gains necessary to boost the achievement of poor and otherwise disadvantaged students and close achievement gaps. This body of research has simultaneously made it clear that these attributes are absent in many schools, and states must therefore focus policy attention on the problem of how to increase internal capacity for improvement in schools where it is currently lacking.

States have relied on five principal policy instruments in their efforts to strengthen capacity in their schools and close achievement gaps: 1) the establishment of high standards and an aligned curriculum, 2) improvements in teacher quality, 3) extra learning opportunities for students in danger of falling behind, 4) interventions to encourage and support college attendance, and 5) early childhood education.

High Standards and Aligned Curriculum

It is clear that setting high and uniform expectations for what students need to be learning in the classroom and aligning grade-level curriculum with high standards can help to reduce the achievement gap.

Students cannot be expected to master what they have not been taught, and minority and low-income students are often subject to lower expectations in terms of school curriculum and classroom instruction. A state focus on delivering a rigorous curriculum for all students is a necessary condition for ensuring that minority and low-income students have access to high-quality learning. NCLB requires that all states set standards for the curriculum in the classroom, but these are often vaguely defined and may set the bar for student learning very low [14]. Setting state standards low may increase the share of students who meet NCLB "proficiency" standards, but produce little in the way of learning gains for otherwise disadvantaged students [15].

The introduction of high-stakes accountability systems that include meaningful penalties for schools that fail to meet performance targets has had positive consequences for student achievement gains, according to several studies, but the consequences for achievement gaps remain uncertain. Carnoy and Loeb [16] found that states with strong accountability systems raised achievement more for Black and Hispanic students than for others. In contrast, Hanushek and Raymond [17] found that high-stakes accountability may actually widen Black-white achievement gaps, while reducing the performance gap between white and Hispanic students. A RAND study [18] concluded that the introduction of high-stakes accountability increases teachers' focus on student achievement, but at the potential cost of a narrowed curriculum and lower morale among educators.

New York

New York has led the way in setting high expectations for all students and aligning the delivered curriculum with those standards. Every student must take the Regents exam to receive a high school diploma, which has created a more structured and higher quality educational experience for all New York students. In the past, student could opt to take a Regents curriculum that was very rigorous, or they could get a local diploma that was much less demanding. Currently, however, all students must pass the Regents exam to receive their high school diploma. To receive a regular high school diploma in New York, students must pass with a score of 65 or better on five Regents exams, which include: Math, Global History and Geography, U.S. History and Government, Comprehensive English and Biology/Living Environment. Students can still opt to get an Advanced Regents Diploma and then must also pass an additional science, math and language exam. One consequence of New York's high standards is that more students take and pass Advanced Placement courses in New York than in any other state [19].

Texas

In Texas, the Recommended High School Program (RHSP) college preparatory curriculum has been the "default" curriculum since 2001. Parents must explicitly opt out of the RHSP on behalf of their children, with the explicit approval of a school counselor. The RHSP and a series of state assessments seek to ensure that curriculum and instruction are clearly focused on the achievement of state standards, but there are persistent complaints that the state's standards remain relatively low and undemanding [14].

Improving Teacher Quality

A focus on improving teacher quality is an integral component to closing the achievement gap. Due to the fact that teachers are the direct link between students and their achievement, guaranteeing highly qualified and high-quality teachers in schools with low-performing students is an

effective state policy that can reduce racial and socioeconomic achievement gaps [20]. NCLB requires a highly qualified teacher be in every classroom. Education Trust researched the inequitable distribution of effective teachers throughout districts [21]. Often the most effective and highly experienced teachers choose to teach in high-achieving, white schools. Weaker teachers are then required to fill the harder positions in low-income and minority schools where the students are already significantly behind their peers. States can focus resources on improving the quality of teachers in the classrooms of low-income schools through incentives and stronger training programs.

In California there is a particular need for specialized professional development and additional support for teachers who work with ELs, as the teachers themselves acknowledge [22].

Florida

Florida's most notable, and controversial, teacher quality policy is the Special Teachers Are Rewarded (STAR) program, a merit pay program that began in 2006. Under STAR, districts must devise a system of evaluating teacher performance, primarily based on the FCAT (Florida's state student assessment exam) scores of their students. At least the top 25 percent of teachers in a district are then given five percent bonuses. To ensure that this did not simply result in a redistribution of current teacher salary funds, the state allocated $147 million for the program. Florida also offers salary bonuses for teachers whose students score well on International Baccalaureate (IB) and Advanced Placement (AP) exams.

Also in 2006, the Florida legislature enacted policies that prevent districts from assigning less-qualified teachers to schools that serve large proportions of at risk-students. Districts must ensure that the share of new, temporarily certified, or out-of-field teachers and teachers designated in need of improvement is similar across schools. That is, low-performing schools or schools serving an at-risk population cannot have a higher proportion of such teachers than the district average. The goal of this plan was to try to increase teacher quality at low performing schools, traditionally home to small proportions of high quality teachers.

New York

New York established a requirement of highly qualified teachers in every classroom before it was required by NCLB in 2001. This dates back to the 1980s, when middle school teachers had to achieve subject-specific certification. New York, relative to other states, has a low percent of out-of-field teaching in core subjects. New York State's Revised Plan to Enhance Teacher Quality [23] outlines the policies and programs implemented to improve the quality of teachers in New York State. The Regents Teaching Policy includes systematic reforms that focus on high standards in the following areas of teacher quality: preparation, certification, induction, ongoing professional development, recruitment and retention of teachers. Not only are they focused on improving in all areas, they also are focused on measuring the results through outside research.

There are two specific state goals that are aligned with NCLB. First is that "all classes in core academic subjects are taught by highly qualified teachers" and second that "low income and minority children have the same access as all other children to appropriately certified, highly qualified and experienced teachers." The New York state education department has nine areas of focus in attempting to increase the number of highly qualified teachers within the system: 1) data and reporting systems, 2) pre-service

teacher preparation and specialized knowledge and skills for high poverty districts, 3) certification and out-of-field teaching, 4) recruitment and retention of certified, highly qualified and experienced teachers; 5) professional development; 6) working conditions in schools; 7) monitoring and technical assistance; 8) policy coherence; and 9) limiting the use of alternative standards under HOUSSE.[a]

In a direct push to close the achievement gap, New York has created systems of support for teachers in low-performing districts. Regional School Support Centers (RSSCs) provide direct technical assistance to low-performing schools and districts. They have also created additional incentives for teachers who choose to teach in hard-to-staff areas, such as loan forgiveness and housing programs.

Not only has New York required that all teachers be highly qualified. As of September 2005 New York banned all uncertified teachers and set higher standards for all new teachers. Teacher preparation programs must meet the Board of Regents high standards that include having a curriculum with a general core, a content core and a pedagogical core. Students must have a pass rate of 80 percent or higher in all their certification exams and are required to take content in literacy regardless of what subject they will teach. The standards also require field experience in high needs schools that include low-socioeconomic students, ELs and students with special needs. The New York state department also tracks new teachers in the field and measures the effectiveness of different teacher preparation programs on student learning.

Texas

Texas is focusing increased policy attention on the distribution of teachers and the availability of excellent teachers in the schools where they are most needed. A recent report from the Education Trust shows that the most experienced and well-qualified teachers in Texas are now disproportionately teaching in the most affluent and highest-performing schools [24]. The Governor has just announced a $100 million program to provide incentive pay for teachers who demonstrate success in improving student performance in economically disadvantaged schools. The program is still in the initial planning stages, but it reflects a commitment to design and implement policies that are likely to improve the educational opportunities provided to poor and minority students.[b]

Extra Learning Opportunities

Extended learning helps to not only keep young students safe after school, but when implemented well can produce higher academic achievement and engagement. A meta-analysis of after school programs found that the programs had a positive impact on students' grades, achievement, and self-esteem [25]. Extended learning opportunities cannot simply be an extension of the school day (or more of the same activities that fill the regular day) or students will continue to be disengaged [26]. Instead, they must provide new and innovative experiences through which students can master academic skills and accelerate learning, as occurs in some innovative charter schools including KIPP.[c]

Since NCLB was authorized in 2001, there are now more resources and emphasis on extra learning opportunities for students in need. States can use these resources to pinpoint and address the specific needs of the populations that are struggling. These programs can take many different forms, from extra tutoring to after school activities in language or the arts. By creating a more well-rounded curriculum and extra learning

opportunities, the differences that exist between the curriculum and experiences of minority students and their more affluent peers can be diminished. Extra learning opportunities are not just a policy option at the state level, they are also now a requirement. States must provide Extra Learning Opportunities through the mandated federal after school program "21st Century Community Learning Centers" (CCLC). The CCLC has a budget of a billion dollars to target programs in low-performing schools in urban and rural communities [27]. In addition, states are required under NCLB to provide resources for students in low-performing schools to obtain Supplemental Educational Services from a variety of public and private providers, but thus far these programs have not been sufficiently targeted, regulated, or evaluated [28].

Massachusetts

Massachusetts is the state at the forefront of providing extended-learning opportunities within their schools. The state is funding a public-private partnership to lengthen the school day by an additional 300 hours a year in a steadily increasing number of schools and districts [29]. The additional time is for classroom use, as well as enrichment activities that are done in collaboration with the community and nearby businesses. The state has also provided supplementary funding to three urban districts to provide supplementary tutoring and small-group instruction for students who are in danger of falling behind [30].

Early Intervention to Encourage and Support College Attendance

In a world where the economy demands higher education levels, a key component to closing the achievement gap will be in policies that address and support minority and low-income students attending postsecondary education and graduating. In the U.S., however, there is a large disparity in who attends college based on race and socio-economic status. An Education Trust study outlines the reasons that many minority and low-income students do not have the same opportunities to attend college as their peers. Many students are not qualified or prepared to attend college, based on a weak elementary and secondary school education. In some cases they are not even offered the courses at their high schools that are necessary for college admission. They also do not have the resources or the knowledge to navigate the college application process and the financial aid system [31]. Early intervention programs that give students the opportunity to take college-preparatory courses including Advanced Placement courses, and provide them with full and accurate information about what it takes—academically, financially, and otherwise—to prepare themselves for post-secondary education, can significantly increase educational attainment, especially among the least advantaged students.

Florida

The Florida Partnership for Minority and Underrepresented Student Achievement, a partnership between the state of Florida and the College Board, began in 2000. The partnership's ultimate goal is to increase minority student motivation and preparation for attending college. As stated by the College Board, this is accomplished by the four following activities:

- Expanding participation in AP courses. Each year since 1999, more than 4,000 Florida educators received professional development in College Board programs, with a focus on recruiting minority teachers and students.

- Working in inner-city and low-income communities. The Partnership provides college admissions testing to more than 2,500 students in churches, community centers, and educational institutions.
- Organizing community programs. These programs link college students and faculty with high school students. In addition to partnering with Florida community colleges and universities, the College Board works with and provides funding to the Urban League, the Florida Education Fund, and faith-based partners to provide tutoring and supplemental education services to students.
- Providing early diagnostic test information. PSAT/NMSQT (Preliminary Scholastic Aptitude Test/National Merit Scholarship Qualifying Test) results provide students with individual assessments of their academic strengths and weaknesses. The students' results also assist counselors in supporting and encouraging students to enroll in and successfully complete greater numbers of AP courses. Is there just one state that has moved in this direction?

Early Childhood Education

In addition to the policy instruments discussed above, many states are working to expand access to early childhood and pre-school education programs. High-quality early childhood programs have demonstrated strong promise for improving the academic and life chances of children facing initial disadvantage, but the large payoffs to high-quality programs are the product of large initial investments [32,33,34]. During the first five years of life, children develop basic learning and language patterns. By the first day of kindergarten, minority and low-income students are already scoring behind their peers in cognitive assessment scores. A study by Hart & Risley [35] shows that students from professional and working-class families come into kindergarten with a vocabulary size of 1,116 words compared to students from welfare families, who, on average, have a vocabulary of half that size of 525 words. These differences in vocabulary on the first day of school are the beginnings of the achievement gap that continues to grow throughout school.

Studies of programs including the Perry Pre-School, the Abecedarian Project and the Chicago Child-Parent Center show that a child who is exposed to a nurturing and stimulating environment during the first five years of life achieves higher results in achievement tests throughout school [36]. Their language ability and math skills are also greatly enhanced through preschool or a quality childcare setting. Differences in early education can have effects long into a child's life. Long-term effects include a significantly higher high school graduation rate for children who attend preschool or quality childcare, higher employment rates and fewer teen pregnancies [37,38]. In fact, a study by Phillips, Crouse & Ralph [39] found that if the achievement gap is eliminated at school entry, it results in a reduction by half of the achievement gap by the end of high school. Due to the strong influence of early childhood environments on a student's future learning experience, a state policy intervention during early childhood can lead to larger returns on their investment than other policy options [33]. By addressing the needs of families to nurture and educate their children through preschool or more resources at home, a state can help limit the extent of the achievement gap that exists before students begin kindergarten.

Most state policies that address the challenge of early childhood education have focused on universal programs that

guarantee access to preschool for all students, but targeting resources and programs to the neediest children could have a far greater impact on closing achievement gaps.

Florida

In 2002, the Florida legislature passed a law requiring universal, voluntary pre-kindergarten for four year olds who live in the state [40]. The program provides a base amount of funding amounting to $2500 per student. Both public and private child care facilities are eligible to provide voluntary pre-kindergarten services provided certain quality criteria are met. Providers are required to provide at least 540 hours of instructional time for school year programs and at least 300 hours for summer programs. Additionally, any pre-kindergarten instructor must meet rigorous certification standards.

Texas

Texas has also focused policy attention on increasing access to high-quality early childhood education, with a focus on poor children and children who do not speak English. The state is working toward the establishment of model program quality standards, and toward increasing teacher quality in all preschools, both public and private, under the auspices of the Texas Early Childhood Education Coalition (TECEC) [41]. The goal is to integrate local pre-K, Head Start, and child care programs in the context of community partnerships, and to provide full-day, full-year childcare and early education to eligible children "whenever possible."

New York

In 1997, the state established universal pre-kindergarten. The policy was intended to provide pre-kindergarten to every four year old in New York by the year 2002. However, due to a lack of funding, nearly 125,000 four-year-olds and nearly all of the state's three-year-olds currently do not have access to public preschool. However, the 2008 education budget provides more financial support for the pre-kindergarten program, as funding will increase by 50 percent over last year.

Lessons from Abroad

Recent reports from the OECD (Office for Economic Co-Operation and Development) and from McKinsey, looking at national rather than state education systems, have concluded that the second and third of these instruments are the most important [42,43]. Countries where students achieve exceptional educational results, including Singapore, Finland, Australia, Japan and the Netherlands, have policies in place that are similar in several important respects. They seek to recruit talented teachers, to provide teachers with the support they need (including time for collaboration and professional learning), and to make sure that all students have at least equal access to excellent teachers and teaching. They also intervene immediately with students in danger of falling behind, by providing them with supplementary help including tutoring, before- and after-school programs, and summer instruction [42].

To hire the right people, the highest performing school systems make entry into teacher training highly selective. England, for example, uses marketing and recruitment techniques from the business world to increase the supply of high-quality applicants. The top-performing school systems also have stronger selection processes for admission into teacher training programs. They acknowledge the

importance of teachers having strong literacy and numeracy skills. But beyond that, an effective teacher also needs strong interpersonal and communications skills, a willingness to learn, and the motivation to teach. The most effective systems also acknowledge that they may choose incorrectly, and therefore have established procedures to remove low-performing teachers from the classroom.

After recruiting the most highly-qualified and effective teachers, the top-performing school systems continue to provide support in improving instruction. They focus on the quality of the interaction between the student and the teacher. Many focus on interventions such as coaching classroom practice, teacher-training that takes place within the classroom, the role of strong school leaders, and the importance of teachers learning from each other.

The highest performing systems go beyond just providing high quality teachers and instruction in the classroom, they also ensure that every child is able to benefit from these systems. High expectations are in place in every classroom and for every child, and if a child or a school is failing to achieve, additional support is provided promptly to improve students' performance. These systems seek to prevent the emergence of achievement gaps before they appear, rather than seeking remedies after children have fallen behind.

In addition to policies aimed at ensuring high-quality education for all students, the OECD also argues for policies that seek to prevent the emergence of achievement gaps among different groups of students [43]. These include limitations on early tracking in elementary schools, and that regulations on school choice policies to insure that they do not increase inequity in the educational system.

Conclusion: The Importance of Policy Learning

When compared to similar states, California has higher standards but has weaker interventions to support schools and students in achieving at high levels. The state has particularly lagged in targeting resources to the students who need them most.

For example, while making strides in reducing its number of under-prepared teachers, the state has not instituted incentives for attracting the best teachers to hard-to-staff schools. The state invests $1.8 billion annually in K-3 class size reduction to support early-grade teaching and learning, but the program does not target the poor and minority children that the Tennessee STAR studies suggest will benefit most from smaller class sizes. Current preschool programs do target low-income children, but these programs lag behind many states in terms of funding, consistent quality, and families' access to them [44].

As the preceding discussion makes clear, California can learn from the experiences of other states, but the unprecedented scale of the challenge that California faces and the lack of consistent, sustained success in closing achievement gaps elsewhere means that California will have to make significant investments in learning what works, rather than simply implementing policies that have been proven to work in other settings. Some immediate steps toward this goal might include:

Rationalize Resource Distribution

California can do a much better job of ensuring that scarce resources are allocated in ways that support the accomplishment of

the state's policy priorities, including closing achievement gaps. This might include: 1) policy initiatives that support moves toward the implementation of a weighted student formula that provides additional financial support to schools and districts that educate students with greater needs; 2) financial and other incentives to encourage the state's best teachers to accept assignment to the most challenging schools; and 3) policies that target programs including pre-school, extended school days and years, and reduced class sizes to the students who need them most.

Accelerate Development of a State-Level Data System

The essential first step in transforming California's education system into a system that is capable of continuous, sustained improvement in the performance of students and schools is the creation of a comprehensive, student-level data system. States that have such systems—including Florida, New York, and Texas—are way ahead of California in their ability to analyze what's working and what isn't. New ideas are put into practice in classrooms every day with little information about whether any of them is effective. States that can track students by identification numbers no matter where in the system they attend school are able to learn more about the quality of teachers, the effectiveness of schools, and the strengths and weaknesses of various programs. They can track students as they move from school to school, or out of the system. To target resources effectively in support of effective programs, policymakers need reliable data.

Support Local Policy Experimentation

In the light of how little we know about closing achievement gaps, the state should make significant investments in policy learning. In addition to building a comprehensive data system, this argues for deliberate policy implementation, including the design of explicit policy experiments, in which new initiatives are initially adopted on a relatively small scale in a carefully selected sample of schools and subjected to rigorous evaluation to identify which work and which do not. Policy experimentation could prove especially fruitful in areas where our current knowledge about what works (and what doesn't) remains weak, including: 1) policies that address teachers' careers (preparation, recruitment, evaluation, and compensation); 2) supplementary services and extended learning time; and programs; and 3) practices to improve instruction for ELs. The state will also need to develop robust mechanisms for disseminating new knowledge about effective policies and practices to educators in classrooms, schools, and school districts. California can learn from policy innovations adopted in other states, but the scale of the challenge to be faced and the lack of solid evidence about how specific policy changes affect the performance of schools and students affect achievement gaps mean that the state will have to make substantial investments in policy learning aimed at identifying effective strategies for closing achievement gaps.

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Notes

[a] The High Objective Uniform State Standard of Evaluation allows states to use criteria alternative to those specified in NCLB to determine whether teachers are "highly qualified."
[b] Julia Koppich, personal communication.
[c] KIPP (Knowledge is Power Program) schools have demonstrated significant success in improving the achievement and attainment of otherwise disadvantaged students by focusing on high expectations and increased time in school to ensure that students have the opportunity to achieve at high levels.

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