



# Making the Connection

## A decade of standards-based reform and achievement

Christopher B. Swanson

January 2006

### **T**HREE QUESTIONS ABOUT ACHIEVEMENT AND POLICY

*Education Week* published the first edition of its annual *Quality Counts* reports in 1997. The annual report card on public education in the 50 states and the District of Columbia was conceived to help monitor state progress in adopting the core elements of standards-based reform, an approach to educational improvement that had started to take hold across the nation. Key levers of that strategy include establishing academic standards for what students should know and be able to do, aligning assessments to those standards, implementing accountability measures, and providing supports to improve teacher quality. In some respects, *Quality Counts* has spent the last decade focused primarily on answering one basic, but important, question: Have the states adopted policies that support standards-based education?

Over the same period, within *Quality Counts* and elsewhere, interest has grown in answering a second, equally important, question: Have the states made progress in improving the academic achievement of their students? For years, efforts to gauge state-to-state differences in performance were hindered by the lack of comparable state-representative data on student achievement. However, the advent of the National Assessment of Educational Progress (NAEP) State Assessment program in the early 1990s and its subsequent expansion have provided analysts with a rich source of reliable information on levels of student achievement across the states and over time.

It was perhaps inevitable that these two questions would converge to create a third line of inquiry investigating whether state policies have been responsible for gains in student achievement. In fact, a variety of studies have examined this issue, with high-stakes accountability policies receiving particularly intense attention in recent years. Despite such efforts, establishing a firm connection between state policy and student achievement has proven to be a rather elusive target. Different researchers have arrived at different, sometimes conflicting, findings. Studies of state-level policy effects are, unfortunately, not amenable to the kinds of more conclusive experimental methods that the education research

community increasingly has recognized as a gold standard for empirical investigations. So, a research-based consensus on the effectiveness of standards-based reform has yet to emerge.

For the 10th edition of *Quality Counts*, the Editorial Projects in Education Research Center conducted a special analysis to explore this policy-achievement connection. The results of this study are highlighted in *Quality Counts 2006* and presented in more detail in the current report.

We find strong evidence that implementing a solid program of standards-based-education policies has been associated with significant gains in mathematics achievement over the past decade, as measured by NAEP. Positive but less dramatic results are also found for achievement in reading. However, these benefits appear to be limited to certain elements of a standards-based approach—academic-content standards, aligned assessments, and accountability. Results suggest that policies related to improving teacher quality are negatively related to achievement growth, although the reason for this relationship remains unclear.

The current study, like any other, has certain strengths and limitations. So the results of this investigation are best viewed as informative rather than definitive. That said, care was taken to develop a research design that could maximize the reliability of the findings and strengthen our confidence in the results. For example, we employ a more extensive database of state policy indicators than most other studies, drawing from a decade of *Quality Counts* reports and supplementary sources. This allows us both to characterize the overall strength of standards-based-reform efforts and to delve deeper into the implementation of specific policy levers. Rather than concentrating on achievement in a single subject and grade level, this study also examines the relationship between state policies and four separate achievement outcomes. We conduct parallel analyses of achievement, using NAEP scale scores, in mathematics and reading at both the 4th and 8th grades.

In the following sections of this report, we first present descriptive information on trends in state policy and achievement over the past decade. This preliminary analysis

provides valuable context for the more sophisticated regression-based models that follow, where we measure policy effects. Through a step-by-step description of the results, we attempt to offer a clear explanation of what the findings at each stage are able to tell us. But we also take care to point out the limitations of the analysis—what the findings cannot tell us. The appendix to this report includes definitions of the state policy indicators used in this study as well as state data tables for the policy measures.

## CHARTING STATE POLICY

Since its first edition in 1997, *Quality Counts* has collected a wealth of information on state implementation of policies related to standards-based education. This information comes primarily from original surveys conducted by the EPE Research Center and is supplemented using reliable outside sources. Over this period, *Quality Counts* has also graded state policy implementation in four main categories—standards and accountability, efforts to improve teacher quality, school climate, and resource equity. These reports represent perhaps the richest source of state-by-state indicators on key elements of standards-based reform currently available.

However, *Quality Counts* has also evolved over the past decade in tandem with the reform movement itself. As new policy levers gained prominence among the states, new indicators were added to the reports. The way in which state policy grades are assigned has likewise been revised over the years. These changes introduce special considerations for conducting a rigorous trend analysis. For example, examining scores awarded to states in graded policy areas would not be appropriate because of changes in the grading rubric. Therefore, generating reliable trend data on state policies requires something of a departure from the familiar organization of *Quality Counts*.

The first step in characterizing state trends in standards-based policymaking involves identifying a set of policy indicators that can be consistently tracked over the past decade. The current study focuses on four policy dimensions central to a standards-based approach—academic standards for what students should know and be able to do, assessments aligned to those standards, accountability measures, and efforts to improve teacher quality. It should be noted that the broad “Standards and Accountability” category

in *Quality Counts* has essentially been subdivided into three more narrowly-defined areas. Policies on school climate are not examined in this study, as they are peripheral to a standards-based approach and have been less consistently tracked over time. *Quality Counts* also reports indicators of resource equity. But rather than capturing the adoption of actual state policies, these indicators use federal data to measure the distribution of school funding. Equity measures, therefore, will not be viewed as an element of standards-based policy efforts. But we do consider them as potential control variables for the regression analysis of policy effects on achievement.

A careful review identified a total of 24 specific policy indicators that have been consistently tracked since 1997. These indicators, listed in Exhibit 1, span the four core policy areas of standards-based reform described above—standards, assessments, accountability, and teacher quality.

### Exhibit 1: Policy-Trend Indicators

#### Standards

- State has adopted standards in the core academic subjects of English, mathematics, science, and social studies.
- English standards at all grade spans – elementary, middle, and high school – are clear, specific, and grounded in content.
- Mathematics standards at all grade spans are clear, specific, and grounded in content.
- Science standards at all grade spans are clear, specific, and grounded in content.
- Social studies standards at all grade spans are clear, specific, and grounded in content.

#### Assessments

- State tests go beyond multiple-choice items to include short-answer and extended-response questions.
- State English tests are aligned with state content standards.
- State mathematics tests are aligned with state content standards.
- State science tests are aligned with state content standards.
- State social studies tests are aligned with state content standards.

#### Accountability

- State provides report cards for all public schools.
- State imposes sanctions on low-performing schools.
- State provides rewards to high-performing or improving schools.
- State took part in the most recent cycle of the state-level National Assessment of Educational Progress.
- Student promotion is contingent on performance on statewide exams.
- High school graduation is contingent on performance on statewide exit or end-of-course exams.

#### Efforts to Improve Teacher Quality

- State requires a college major in the subject taught for initial teacher licensure at the high school level.
- Teachers must pass a basic-skills test for initial licensure.
- Teachers must pass a test of subject-matter knowledge for initial licensure.
- Teachers must pass a test of subject-specific pedagogy for initial licensure.
- State provides licensure incentives for teachers who earn certificates from the National Board for Professional Teaching Standards (NBPTS).
- State provides financial incentives for teachers who pursue or earn certificates from the NBPTS.
- State requires and finances mentoring for all novice teachers.
- Prospective educators must complete 11 or more weeks of student teaching.

Generally, these indicators are taken directly from *Quality Counts 2006* and prior editions of the report. In situations where policies were not tracked in the earliest issues of the report, comparable information was obtained from additional sources. Because the District of Columbia was first included in the 2002 edition of *Quality Counts*, the current study will be limited to the 50 states.

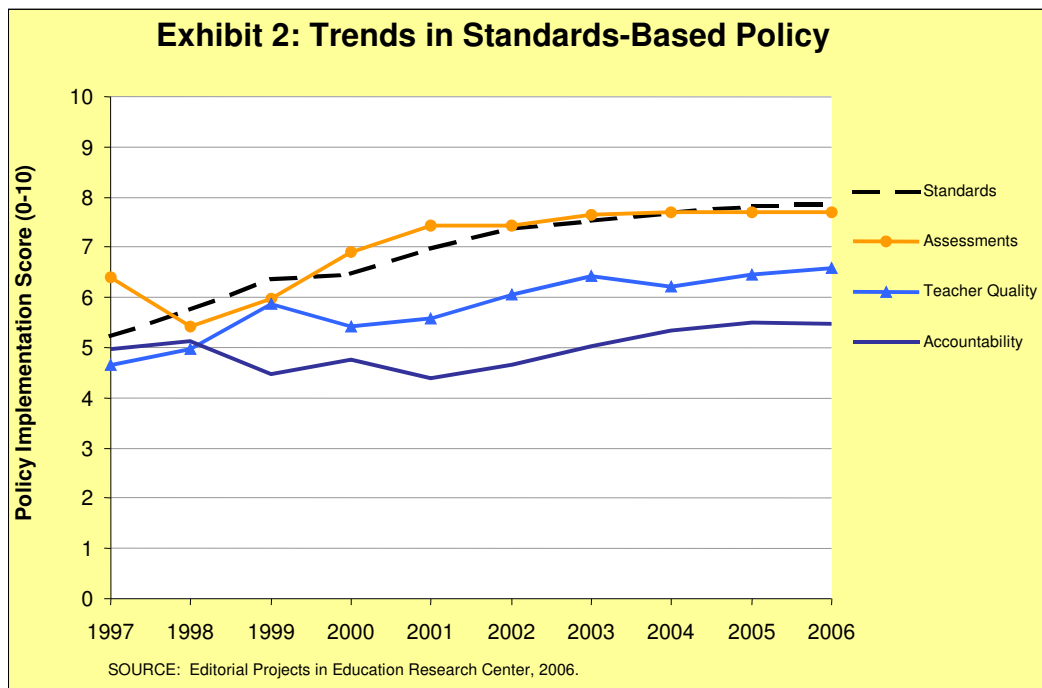
Most of the policy measures indicate whether or not a state has adopted a particular policy. States received 1 point for each year that they had a policy in place and no points if it was not in place. Some indicators, however, are more nuanced, able to capture a distinction between full and partial implementation of policy efforts. For example, a series of indicators in the standards category document the clarity of academic-content standards in various subjects. Available data are sufficiently detailed to distinguish between states that possess clear and specific standards in a given subject at the elementary, middle, and high school levels and those with clear standards at some (but not all) of those levels. For indicators of this kind, states received 2 points if they implemented the policy fully and 1 point if they did so in part.

For each year, an implementation score is calculated for each of the four policy categories. Point tallies for the respective areas are then converted to a 10-point scale. A score of 10 indicates that a state fully implemented all of the policies in the respective area. A score of zero is awarded if none of those policies were enacted. In a similar fashion, we also calculated an overall score for standards-based policy

implementation by taking the average across the four separate subcategories. This total score is also expressed on a 10-point scale.

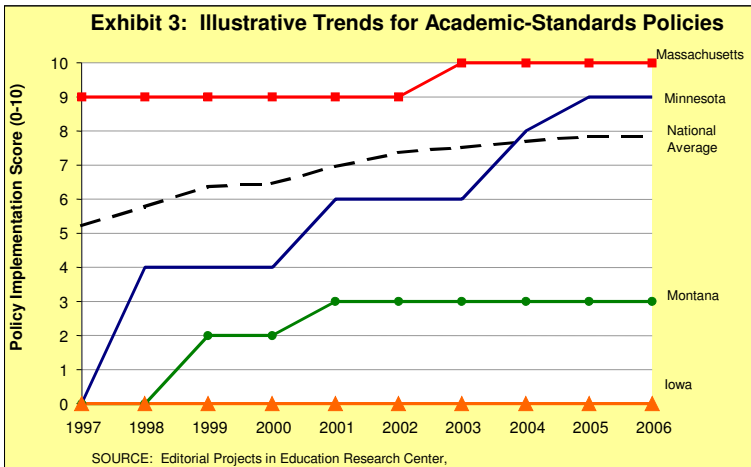
Exhibit 2 displays the national trend in state implementation of standards-based policies between 1997 and 2006. The values reported are 50-state averages. We find that the states have made the most progress in adopting policies related to academic standards and aligned assessments, two central elements of standard-based educational approaches. By 2006, the average state earned almost 8 points out of a possible 10 in these areas. States have also made considerable strides in efforts related to teacher quality over this period. By comparison, states' implementation of accountability measures has remained relatively steady during the past decade.

The patterns observed here, to some extent, reflect the particular slate of state policy indicators being considered. Of course, the same could be said for any such analysis of trend data. Because of this, the 24 specific policy indicators were selected with two goals in mind. First, we wanted to generate consistent data over time. In addition, we chose indicators that would represent the core elements of a standards-based approach across the four policy areas. Alternate measures might produce slightly different results. However, we believe that the indicators featured in this study offer both a meaningful view of standards-based reform and a consistent way to compare levels of implementation across the states and over time.



These trends are of interest, in part, because they help us to understand in a broad sense the progress the nation has made. But the basis of any state-level analysis exploring the connections between policy and achievement must be variations in policy at the state level. In fact, a closer examination of detailed trends for the individual states over the past decade reveals that they have embraced standards-based education to greatly different degrees.

Exhibit 3 provides an illustration of this variability around the national trend. At one extreme, Massachusetts emerged as an early leader in adopting standards-based education policies and has maintained that position over time. At the other extreme, Iowa remains the only state in the nation that has not adopted academic-content standards in any subject. Most states fall somewhere in between. Minnesota, for example, has gradually implemented a robust complement of standards-based-education policies, while early strides in Montana have stalled since 2001.

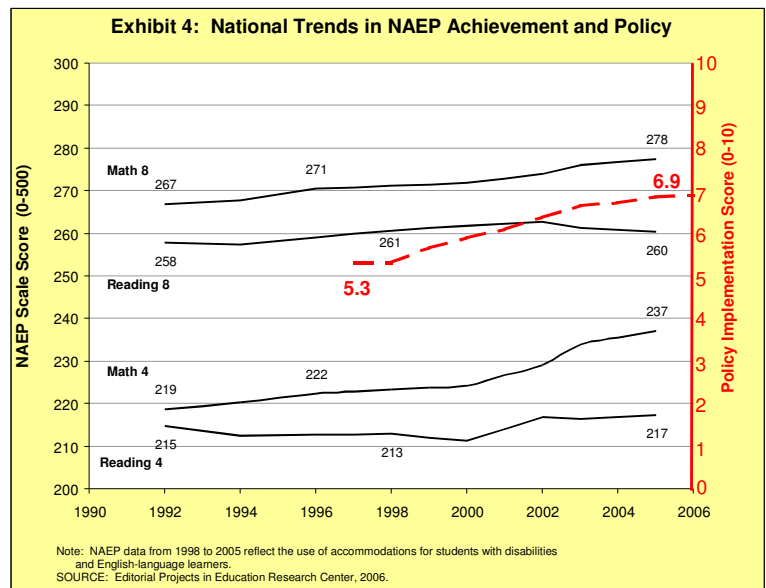


The appendix of this report provides a detailed definition for each of the 24 policy indicators compiled for this report and identifies the source of the data. Detailed state tables also report year-by-year data for the overall standards-based-policy implementation score and subscores in each of the four policy areas. State data for the full set of two dozen policies and many other indicators dating back to the first edition of *Quality Counts* can be accessed online using the Education Counts database ([www.edweek.org/rc/edcounts](http://www.edweek.org/rc/edcounts)).

## TRENDS IN STUDENT ACHIEVEMENT

The most comprehensive source of on-going information about the academic achievement of public school students in the United States is the National Assessment of Educational Progress (NAEP), often referred to as the “nation’s report card.” Exhibit 4 shows national trends in NAEP achievement in reading and mathematics for the 4th and 8th grades. We find that mathematics achievement increased steadily between 1992 and 2005. Although the trends in math represent statistically significant improvements at both grades, 4th grade math scores show larger gains, increasing by almost 19 points. On the 500-point NAEP achievement scale, a grade-level difference in performance corresponds to roughly 10 scale-score points. By comparison, achievement in reading has shown relatively little overall progress, fluctuating at both grade levels between 1992 and 2005.

In addition to the achievement data, the chart also superimposes the overall trend for adoption of standards-based education policies. The trend line depicts the average level of implementation in all four specific policy areas across the 50 states. Starting in 1997, the first year of available policy data, we find steadily increasing implementation of standards-based education policies. The trajectory of the policy score roughly parallels growth in NAEP mathematics achievement over this period. While this may be an intriguing finding, the focus of our study lies in the connection between policy and achievement at the state level.



Although NAEP began testing national samples of students in 1969, it was not until 1990 that the NAEP program launched its first assessment designed specifically to generate state-representative results. Since that time, the state NAEP assessments have periodically tested students in reading, mathematics, writing, and science at the 4th and 8th grades. Our state-level analyses will concentrate on reading and math, the subjects with the longest-running state NAEP trend data. The schedule for administering NAEP assessments differs across subject areas. As a result, we will examine achievement patterns over slightly different time frames for the two subjects—1996 to 2005 for mathematics, and 1998 to 2005 for reading.

The federal No Child Left Behind Act required that as a condition of receiving federal Title I money, all states take part in future state NAEP assessments in math and reading for the 4th and 8th grades. This mandate became effective starting with the 2003 NAEP administration. Prior to this point, however, state participation in the assessments was voluntary. Although most states chose to participate, some declined to take part. Therefore, NAEP trend data are not available for all 50 states.

Exhibit 5 shows the participation histories for the state NAEP assessments that will serve as the starting points in our policy-achievement analysis. The number of states with available data ranges from 36 to 43, respectively, for the 1998 grade 8 reading and 1996 grade 4 mathematics assessments. The particular set of states participating in NAEP also differs somewhat across the assessments. No claim can be made to data statistically representative of the nation in this context. However, it is worth noting that the participating states are responsible for educating the large majority of the nation’s public school students. The share of the national student population represented ranges between 76 percent and 88 percent, depending on the NAEP outcome.

Over the course of NAEP’s history, procedures for accommodating the needs of particular student groups have been modified. In particular, after 1996 the NAEP assessment program started phasing-in the use of certain testing accommodations for students with disabilities and English-language learners. Because state NAEP assessments for 1998 and later permitted accommodations and prior ones did not, minor but unavoidable differences exist between data at the beginning and end of the more extended NAEP trend lines.

**Exhibit 5: State NAEP Participation History**

	Math 1996		Reading 1998	
	Grade 4	Grade 8	Grade 4	Grade 8
Alabama	✓	✓	✓	✓
Alaska	✓	✓		
Arizona	✓	✓	✓	✓
Arkansas	✓	✓	✓	✓
California	✓	✓	✓	✓
Colorado	✓	✓	✓	✓
Connecticut	✓	✓	✓	✓
Delaware	✓	✓	✓	✓
Florida	✓	✓	✓	✓
Georgia	✓	✓	✓	✓
Hawaii	✓	✓	✓	✓
Idaho				
Illinois				
Indiana	✓	✓		
Iowa	✓	✓	✓	
Kansas			✓	✓
Kentucky	✓	✓	✓	✓
Louisiana	✓	✓	✓	✓
Maine	✓	✓	✓	✓
Maryland	✓	✓	✓	✓
Massachusetts	✓	✓	✓	✓
Michigan	✓	✓	✓	
Minnesota	✓	✓	✓	✓
Mississippi	✓	✓	✓	✓
Missouri	✓	✓	✓	✓
Montana	✓	✓	✓	✓
Nebraska	✓	✓		
Nevada	✓		✓	✓
New Hampshire			✓	
New Jersey	✓			
New Mexico	✓	✓	✓	✓
New York	✓	✓	✓	✓
North Carolina	✓	✓	✓	✓
North Dakota	✓	✓		
Ohio				
Oklahoma			✓	✓
Oregon	✓	✓	✓	✓
Pennsylvania	✓			
Rhode Island	✓	✓	✓	✓
South Carolina	✓	✓	✓	✓
South Dakota				
Tennessee	✓	✓	✓	✓
Texas	✓	✓	✓	✓
Utah	✓	✓	✓	✓
Vermont	✓	✓		
Virginia	✓	✓	✓	✓
Washington	✓	✓	✓	✓
West Virginia	✓	✓	✓	✓
Wisconsin	✓	✓	✓	✓
Wyoming	✓	✓	✓	✓
<b>Total:</b>	<b>43</b>	<b>40</b>	<b>39</b>	<b>36</b>

Note: Nevada, New Hampshire, and New Jersey participated in the 8th grade math assessment in 1996 but did not meet requirements for data reporting. Illinois did not meet reporting standards for the 1998 reading assessments. All states participated in the 2005 reading and math assessments.



The organizations that oversee NAEP conducted special studies to determine whether providing accommodations on NAEP had an impact on achievement scores. This was accomplished by splitting the 1996 national math assessment sample into groups where accommodations were and were not permitted. Results indicated little difference in NAEP scale scores between the two groups at the national level, although the provision of accommodations may have mattered more in certain states. In the context of the present study, these considerations relate only to the math analyses, where the 1996 starting point for our achievement trend predates the shift in accommodation procedures. But on the whole, available evidence suggests that any impact on the study's findings would be negligible.

## **B**UILDING THE STATISTICAL MODEL

To examine the relationship between state policy and student achievement, we estimate a series of statistical models using regression analyses. This method allows us to estimate the strength of the statistical association between a predictor of interest (the independent variable) and an outcome of interest (the dependent variable), while at the same time accounting for the potentially confounding influences of one or more other factors (control variables). Separate regression analyses are performed for each of four NAEP achievement outcomes.

The outcome in the regression analyses is the change in the respective state NAEP scale score between two points in time. Models examine the increase (or decrease) in average state achievement between 1996 and 2005 for math and between 1998 and 2005 for reading. For both subjects, the predictor in regression analyses is the change in the policy-implementation score between 1997 and 2005. By using a “changes on changes” regression model, this study employs a more rigorous statistical framework than other investigations that focus on achievement levels or policies at a single point in time.

This study also accounts for the possibility that initially higher-achieving states or early implementers of standards-based policies might be systematically more (or less) likely to experience achievement gains over the years examined. To eliminate this source of potential bias, we include the state's NAEP score and policy-implementation score at the beginning

of the time period as statistical controls in all regression models.

We also considered the possibility that a state's educational finance context might account for part of the observed relationship between policy adoption and student achievement. Preliminary regression analyses examined the relationship between achievement gains and measures of fiscal equity and resources. No consistent effects were found after controlling for prior achievement levels. In order to maintain a more parsimonious statistical model for our reported analyses, school finance indicators were not included in subsequent models.

It is worth noting an adage commonly cited in research circles—correlation is not causation. The findings from this study can provide evidence that will help us to better understand the connections between policy and achievement. But the study does not employ a carefully controlled experimental or quasi-experimental research design, methods not readily applicable to state-level policy research. So the study's statistical findings should not be equated with causal influences.

## **R**ESULTS FROM THE TREND ANALYSIS

The regression analyses performed for this study were conducted in three stages. We first consider the strength of the association between achievement gains and overall implementation of the full set of standards-based policy indicators introduced earlier. The rich policy data used in this study also allow us to examine the independent effects of individual dimensions of standards-based-reform initiatives. So, the second set of analyses deconstructs the total implementation score into the four separate subscores for policies related to standards, assessments, accountability, and teacher quality. This analysis offers insights into the relative strength of the various components of a standards-based-policy-making strategy. These findings, in turn, provide the basis for a third and final set of refined analyses for gauging the overall strength of the policy-achievement relationship. At each stage, the same type of regression model is replicated across the four separate NAEP outcomes in mathematics and reading for the 4th and 8th grades.

### An Initial Analysis of Policy Effects

The first set of regression analyses aims to determine whether there is a relationship between gains in student achievement and standards-based initiatives spanning the four major policy areas. Limited evidence of consistent, significant policy effects emerges from this initial investigation. Only in the case of 8th grade mathematics do we find a significant positive association with the policy efforts. As noted earlier, these analyses account for the potential influences of prior achievement and policy.

Exhibit 6 displays these regression findings visually, converting the statistical coefficients from the models into a more interpretable “predicted effects” format. The lines on the graph indicate the amount of gain or decline in NAEP scores (on the vertical axis) that would be expected if a state implemented more standards-based policies (on the horizontal axis). We can take the significant 8th grade math results as an example for gauging the size of the policy effects. Based on the analysis of data from 1996 to 2005, a state that implemented a full slate of standards-based policies from scratch would expect to see over a 12-point gain in its average NAEP achievement score. A gain of close to 8 points is projected for 4th grade math. By comparison, very slight declines in reading achievement are associated with more thorough policy implementation.

### A Closer Look at the Policy Levers

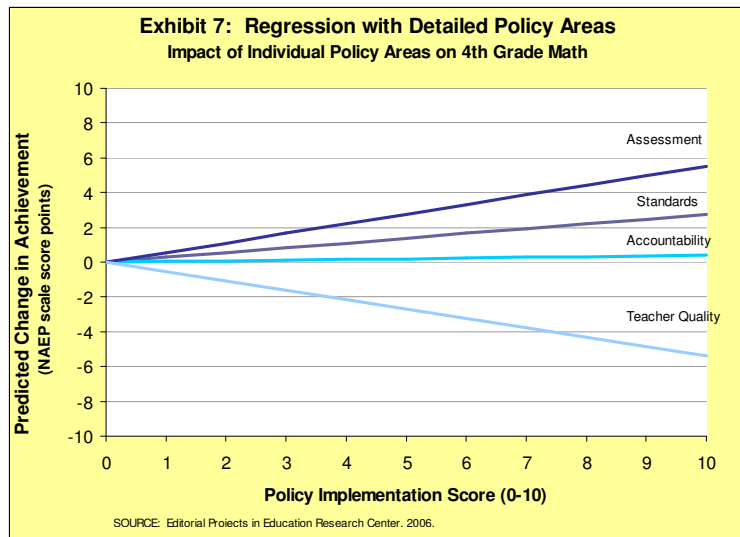
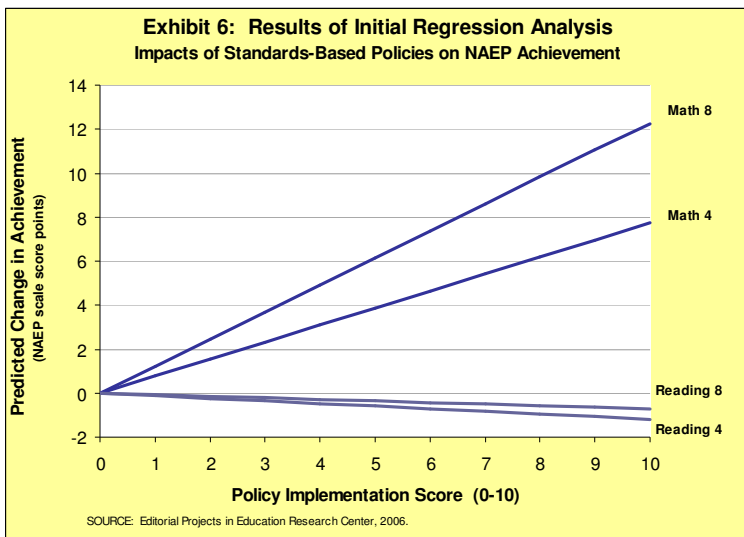
Although this first set of analyses is interesting, it is hardly conclusive. And it may actually raise more questions than it answers. In particular, the notable differences between the

mathematics and reading findings deserve additional scrutiny.

In a second series of regressions, we replace the overall policy score with four separate indicators. These measures, respectively, capture levels of policy implementation within the areas of standards, assessments, accountability, and efforts to improve teacher quality. As before, the models control for prior NAEP achievement levels as well as initial levels of policy implementation in each of the four specific areas.

These detailed models reveal an important pattern that emerges across all of the analyses. Specifically, teacher-quality policies display a consistent, negative relationship to achievement in both reading and math and for both the 4th and 8th grades. By contrast, implementation of standards, assessments, and accountability policies is consistently associated with gains in achievement. The results for 4th grade mathematics presented in Exhibit 7 are illustrative of these analyses. This graph again uses the predicted-effects format introduced above. Here we observe a clear negative relationship between achievement gains and teacher-quality policies, with positive associations of varying strengths observed for the three other policy areas.

Although the relative strength of standards, assessments, and accountability policy implementation varies somewhat depending on the NAEP outcome, the negative effects of teacher-quality policies are a constant in these analyses. We should be careful not to interpret these suggestive results as



evidence that teacher quality does not matter for student achievement. To the contrary, a large body of research has found just the opposite. But how should we interpret these results?

First, we should note that these analyses do not actually examine the characteristics of teachers associated with “quality,” however that term might be defined. Rather this study considers the adoption of policies intended to improve teacher quality within a state. For instance, one of the policy variables in our analysis indicates whether or not a state requires aspiring high school teachers to have a major in the subject they will teach to receive an initial license. But we do not have a comparable measure for the percentage of high school teachers who actually have a major in their field among the 24 policy indicators tracked over time. The way in which state requirements for teacher licensure (and other policies) are implemented locally may well be a crucial factor in explaining the effectiveness of state policy initiatives. However, this is not a factor we are able to examine in this study.

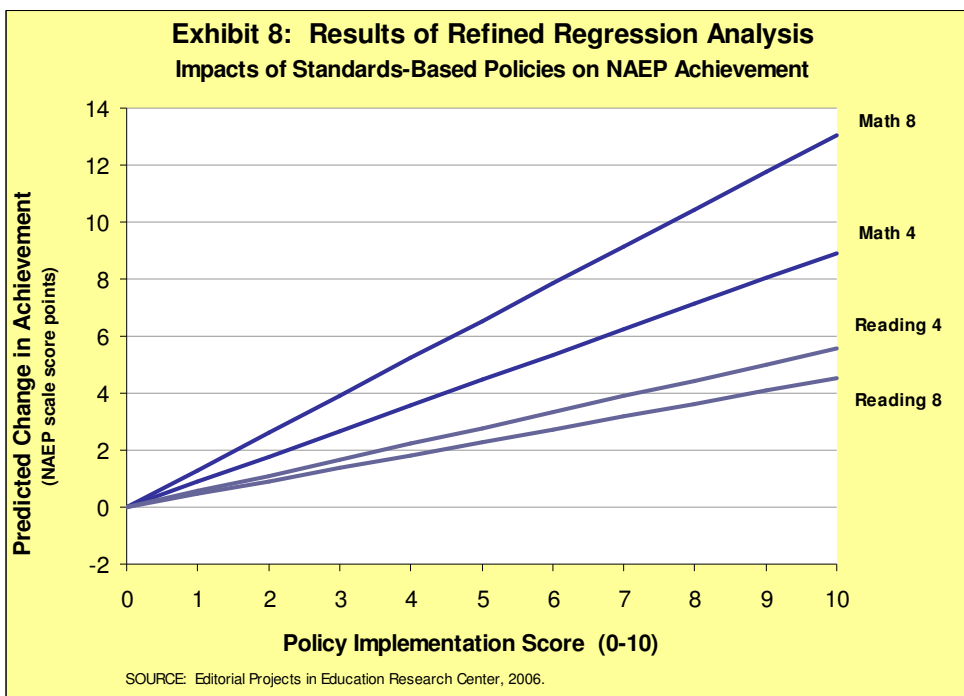
The particular set of teacher-quality policies incorporated into this study also reflects the field’s early and continuing focus on the qualifications and training of beginning teachers. A number of our indicators, for example, deal with the requirements candidates must fulfill for initial licensure. To the extent that the quality of the large number of veteran

teachers represents a crucial factor in student learning, policies concentrated on new teachers may have a limited impact across the entire teaching workforce. While we can offer no conclusive answers on this matter, the consistency of the patterns we find for policies related to teacher quality certainly identifies this as an issue deserving of attention in future research.

### A Refined Analysis

The findings for teacher-quality policies reported above echo results from earlier research conducted by the author of the current report. Those studies found that policies associated with standards, assessments, and accountability tended to align closely with one another. However, teacher-quality initiatives did not fit as well with the other elements of a standards-based approach to policymaking.

In light of these considerations, we conducted a final series of regression analyses. Here, a refined indicator for the strength of standards-based policies was constructed using only the measures related to standards, assessments, and accountability. The teacher-quality policies are excluded from this refined overall implementation scale. In other respects, the design of the final regression models is the same as above. The model predictor and outcome are, respectively, changes in the refined policy indicator and NAEP achievement. Prior levels of achievement and policy implementation are also used as control variables.



With attention focused specifically on policies for standards, assessments, and accountability, the relationship between states’ policy implementation and gains in student achievement becomes much stronger, as shown in Exhibit 8. In the final models, we find that policy adoption is associated with statistically significant improvements in mathematics at both of the grade levels examined. For example, enacting a full complement of policies related to standards, assessments, and accountability would correspond to a 13-point gain in 8th grade math and a 9-point gain in 4th grade. Effects are positive but more modest for reading. Here we also find a positive relationship between these policy efforts and achievement in



reading. Although this is a dramatic reversal of the earlier negative findings for reading, it should be added that the effects in the final models, while positive, do not attain statistical significance.

The fuller results from these final statistical models, reported in Exhibit 9, contain additional findings of interest. As discussed above, we see the consistent positive effects for policy implementation across all four measures of NAEP achievement. Here, the policy-effect values indicate the amount of improvement in achievement (expressed in NAEP scale-score points) that is associated with a 1-point increase on the policy-implementation scale (which ranges from zero to 10). We also find positive effects for initial levels of policy adoption in the math models, although these are significant only for 8th grade. This means that states that adopted more standards-based policies before 1997 experienced larger achievement gains over the period analyzed. A consistent negative relationship also emerges between prior achievement levels and achievement gains. In other words, initially lower-achieving states tended to make greater progress during this period as measured by their NAEP achievement scores. This pattern is statistically significant except in the case of 8th grade reading.

In order to test the robustness of these findings, we replicated all of the regression analyses described above using the set of 33 states that had NAEP data available for all four outcomes. The results using this more restrictive sample were in all instances comparable to those presented in this report. This suggests that the findings are not especially sensitive to the particular set of states being examined.

## C ONCLUSION

The past decade has seen meaningful national improvements in student achievement, particularly with respect to performance in mathematics. By examining more detailed state-level data we are able to provide insights into the connection between these achievement gains and the policy measures states have implemented over this period of time.

We find evidence of a consistently positive relationship between achievement gains and the implementation of standards-based policies related to academic-content standards, aligned assessments, and accountability measures. These associations are more robust for achievement in mathematics, compared to reading. This pattern may be attributable, in part, to the greater relative influence that outside-of-school factors are believed to have on learning in the language arts. One of the most intriguing findings to emerge from this investigation is the apparent negative relationship between achievement gains and state policies intended to promote teacher quality. As discussed above, however, there may be a variety of explanations for such a result.

It bears repeating that the findings of this investigation should not be considered definitive. Nevertheless, we have generated meaningful empirical evidence about the policy-achievement connection that can help inform on-going research and policymaking. The findings for teacher-quality policies point to one obvious avenue of exploration for analysts. But the broader standards-based orientation toward education improvement has also continued to develop and evolve over time. The states have pursued new strategies under their own initiative. They also have modified their course of action in response to external pressures, including the federal mandates of the No Child Left Behind Act. Increasing numbers of states have adopted the policy apparatus of standards-based education, a trend that is likely to continue. Although it will pose a challenge to the research community, identifying effective reform initiatives within this context may require a greater appreciation for the local implementation of broader state-level policies.

**Exhibit 9: Detailed Results from Refined Regression Analysis**

	Effects of policy and achievement indicators from regression analyses			
	Math		Reading	
	Grade 4	Grade 8	Grade 4	Grade 8
Policy Implementation	.892*	1.306*	.556	.454
Prior Policy Adoption	.198	.905*	.034	-.378
Prior Achievement	-.338*	-.212*	-.275*	-.132

\* Effect is statistically significant at the p<.10 level or better.

Note: Model constants are not reported.

## APPENDIX

### Exhibit A.1: Description of Policy Indicators

Policy Area	Description	Coding	Source
1. Standards	State has adopted standards in the core academic subjects of English, mathematics, science, and social studies.	2=all 4 areas 1=less than 4 subjects 0=no or developing	<i>Quality Counts</i> : 1997-2006
2. Standards	English/language arts standards at all grade spans – elementary, middle, and high school – are clear, specific, and grounded in content.	2= all grade levels 1=some grade levels 0=no	American Federation of Teachers: 1997, 1998 <i>Quality Counts</i> : 1999-2006
3. Standards	Mathematics standards at all grade spans – elementary, middle, and high school – are clear, specific, and grounded in content.	2= all grade levels 1=some grade levels 0=no	American Federation of Teachers: 1997, 1998 <i>Quality Counts</i> : 1999-2006
4. Standards	Science standards at all grade spans – elementary, middle, and high school – are clear, specific, and grounded in content.	2= all grade levels 1=some grade levels 0=no	American Federation of Teachers: 1997, 1998 <i>Quality Counts</i> : 1999-2006
5. Standards	Social studies/history standards at all grade spans – elementary, middle, and high school – are clear, specific, and grounded in content.	2= all grade levels 1=some grade levels 0=no	American Federation of Teachers: 1997, 1998 <i>Quality Counts</i> : 1999-2006
6. Assessment	State assessments go beyond multiple-choice items to include short-answer and extended-response questions.	2=short answer (SA) and extended response (ER) 1=SA or ER 0=multiple-choice items only or no assessment	Council of Chief State School Officers: 1997-1999 <i>Quality Counts</i> : 2000-2006
7. Assessment	State English assessments are aligned with state content standards.	1=yes 0=no	<i>Quality Counts</i> : 1997-2006
8. Assessment	State mathematics assessments are aligned with state content standards.	1=yes 0=no	<i>Quality Counts</i> : 1997-2006
9. Assessment	State science assessments are aligned with state content standards.	1=yes 0=no	<i>Quality Counts</i> : 1997-2006
10. Assessment	State social studies assessments are aligned with state content standards.	1=yes 0=no	<i>Quality Counts</i> : 1997-2006
11. Accountability	State provides report cards for all public schools.	1=yes 0=no	Education Commission of the States: 1997 <i>Quality Counts</i> : 1998-2006
12. Accountability	State imposes sanctions on low-performing schools.	1=yes 0=no	Education Commission of the States: 1997, 1998 <i>Quality Counts</i> : 1999-2006
13. Accountability	State provides rewards to high-performing or improving schools.	1=yes 0=no	Education Commission of the States: 1997, 1998 <i>Quality Counts</i> : 1999-2006
14. Accountability	State took part in the most recent cycle of the state-level National Assessment of Educational Progress.	1=yes 0=no	National Center for Education Statistics
15. Accountability	Student promotion is contingent on performance on statewide exams.	1=yes 0=no	American Federation of Teachers: 1997-2000 <i>Quality Counts</i> : 2001-2006
16. Accountability	High school graduation is contingent on performance on statewide exit or end-of-course exams.	1=yes 0=no	American Federation of Teachers: 1997-2000 <i>Quality Counts</i> : 2001-2006
17. Teacher Quality	State requires a college major in the subject taught for initial teacher licensure at the high school level.	1=yes 0=no	Council of Chief State School Officers: 1997 <i>Quality Counts</i> : 1998-2006
18. Teacher Quality	Teachers must pass a basic-skills test for initial licensure.	1=yes 0=no	Council of Chief State School Officers: 1997 <i>Quality Counts</i> : 1999-2006 Missing data for 1998 assigned 1997 value.
19. Teacher Quality	Teachers must pass a test of subject-matter knowledge for initial licensure.	1=yes 0=no	Council of Chief State School Officers: 1997 <i>Quality Counts</i> : 1999-2006 Missing data for 1998 assigned 1997 value.
20. Teacher Quality	Teachers must pass a test of subject-specific pedagogy for initial licensure.	1=yes 0=no	Council of Chief State School Officers: 1997 <i>Quality Counts</i> : 1999-2006 Missing data for 1998 assigned 1997 value.
21. Teacher Quality	State provides licensure incentives for teachers who earn certificates from the National Board for Professional Teaching Standards (NBPTS).	1=yes 0=no	<i>Quality Counts</i> : 1997-2006
22. Teacher Quality	State provides financial incentives for teachers who pursue or earn certificates from the NBPTS.	1=yes 0=no	<i>Quality Counts</i> : 1997-2006
23. Teacher Quality	State requires and finances mentoring for all novice teachers.	1=yes 0=no	<i>Quality Counts</i> : 1997-2006
24. Teacher Quality	State requires that prospective educators complete a specified amount of student teaching.	2=11 weeks or more 1=1 to 10 weeks 0=no requirement	<i>Quality Counts</i> : 1997, 1998, 2000-2006 Missing data for 1999 assigned 1998 value.

**Exhibit A.2: Data Table for State Academic-Content Standards Policies 1997-2006**

	State Score for Standards Policy Category (0-10)									
	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006
Alabama	8	8	8	8	8	8	8	8	8	7
Alaska	4	4	4	4	5	6	6	6	6	6
Arizona	8	7	9	9	10	10	10	10	10	10
Arkansas	3	3	4	4	5	6	6	6	6	7
California	8	9	10	10	10	10	10	10	10	10
Colorado	7	5	9	9	9	9	9	9	9	9
Connecticut	5	6	6	6	7	8	8	8	7	7
Delaware	8	7	7	7	7	8	8	8	8	8
Florida	9	9	9	9	9	9	9	9	9	9
Georgia	9	9	9	9	9	9	9	9	9	9
Hawaii	5	3	4	4	4	4	6	6	9	9
Idaho	4	3	5	7	8	9	9	9	9	9
Illinois	4	5	5	5	9	9	9	9	9	9
Indiana	6	5	2	2	8	9	10	10	10	10
Iowa	0	0	0	0	0	0	0	0	0	0
Kansas	2	6	8	8	10	10	10	10	9	9
Kentucky	7	8	7	7	8	8	8	8	8	7
Louisiana	3	5	6	6	7	7	7	9	9	9
Maine	2	6	6	6	6	6	6	6	6	6
Maryland	4	8	9	9	9	9	9	9	9	9
Massachusetts	9	9	9	9	9	9	10	10	10	10
Michigan	8	6	6	6	6	6	6	6	7	7
Minnesota	0	4	4	4	6	6	6	8	9	9
Mississippi	6	5	5	5	5	6	6	6	6	6
Missouri	6	4	5	5	5	7	7	7	5	5
Montana	0	0	2	2	3	3	3	3	3	3
Nebraska	1	6	8	8	8	7	8	8	8	8
Nevada	6	5	6	7	8	8	8	8	8	8
New Hampshire	8	8	8	8	8	8	8	8	8	8
New Jersey	4	6	6	6	6	7	9	9	9	9
New Mexico	6	8	8	8	8	9	9	9	9	9
New York	7	9	9	9	9	10	10	10	10	10
North Carolina	8	8	9	9	9	8	9	9	9	9
North Dakota	3	3	4	5	6	7	6	8	7	7
Ohio	6	8	8	8	9	6	9	9	9	9
Oklahoma	4	2	9	9	9	9	9	9	9	9
Oregon	7	9	9	9	9	9	9	9	9	9
Pennsylvania	6	6	7	7	5	10	10	10	10	10
Rhode Island	3	3	3	3	3	3	3	3	5	5
South Carolina	7	8	8	8	9	9	7	9	9	10
South Dakota	3	6	8	8	8	8	8	8	7	9
Tennessee	3	3	3	3	3	7	7	7	7	7
Texas	7	6	6	6	6	6	6	6	6	6
Utah	7	7	7	7	8	9	9	9	9	9
Vermont	2	2	2	2	2	4	4	4	8	8
Virginia	9	9	9	9	9	9	9	9	9	9
Washington	6	6	6	6	6	6	6	6	8	7
West Virginia	9	9	9	9	9	9	9	9	9	9
Wisconsin	5	6	6	6	6	6	6	6	6	6
Wyoming	0	2	3	4	4	4	4	4	4	4
<b>National Average:</b>	<b>5.2</b>	<b>5.8</b>	<b>6.4</b>	<b>6.5</b>	<b>7.0</b>	<b>7.4</b>	<b>7.5</b>	<b>7.7</b>	<b>7.8</b>	<b>7.9</b>

**Exhibit A.3: Data Table for State Assessment Policies 1997-2006**

	State Score for Assessment Policy Category (0-10)									
	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006
Alabama	10	6.7	8.3	6.7	8.3	8.3	8.3	8.3	10	10
Alaska	3.3	1.7	1.7	6.7	6.7	6.7	6.7	6.7	6.7	6.7
Arizona	3.3	0	3.3	6.7	6.7	6.7	6.7	6.7	5.0	5.0
Arkansas	10	3.3	5.0	6.7	6.7	6.7	6.7	6.7	6.7	6.7
California	0	3.3	3.3	3.3	8.3	8.3	8.3	8.3	8.3	8.3
Colorado	0	5.0	5.0	8.3	8.3	8.3	8.3	8.3	8.3	8.3
Connecticut	8.3	8.3	8.3	10	10	8.3	8.3	8.3	8.3	8.3
Delaware	5.0	5.0	10	10	10	10	10	10	10	10
Florida	5.0	3.3	6.7	6.7	6.7	6.7	8.3	8.3	8.3	8.3
Georgia	10	6.7	8.3	8.3	10	8.3	8.3	8.3	8.3	8.3
Hawaii	3.3	0	1.7	1.7	6.7	6.7	6.7	6.7	6.7	6.7
Idaho	6.7	1.7	1.7	3.3	6.7	6.7	5.0	5.0	6.7	6.7
Illinois	8.3	3.3	10	10	8.3	8.3	8.3	8.3	6.7	8.3
Indiana	10	3.3	6.7	6.7	6.7	6.7	6.7	8.3	8.3	8.3
Iowa	0	0	0	0	0	0	0	0	0	0
Kansas	10	10	1.7	3.3	6.7	3.3	8.3	5.0	6.7	3.3
Kentucky	8.3	8.3	8.3	10	10	10	8.3	8.3	8.3	8.3
Louisiana	10	3.3	6.7	10	10	10	10	10	10	10
Maine	8.3	10	6.7	10	10	10	10	8.3	8.3	8.3
Maryland	10	10	6.7	10	10	10	10	10	10	10
Massachusetts	3.3	8.3	10	10	10	10	8.3	8.3	8.3	8.3
Michigan	8.3	6.7	6.7	10	10	10	10	10	10	8.3
Minnesota	0	3.3	5.0	6.7	6.7	6.7	6.7	6.7	6.7	6.7
Mississippi	6.7	8.3	10	10	10	10	10	10	10	8.3
Missouri	6.7	5.0	6.7	10	10	10	10	10	6.7	6.7
Montana	6.7	0	0	0	0	0	0	5.0	6.7	6.7
Nebraska	0	0	0	0	3.3	3.3	3.3	3.3	3.3	3.3
Nevada	5.0	5.0	5.0	5.0	6.7	6.7	6.7	8.3	8.3	8.3
New Hampshire	6.7	10	8.3	10	10	10	10	5.0	5.0	6.7
New Jersey	6.7	8.3	8.3	8.3	8.3	10	8.3	8.3	8.3	8.3
New Mexico	10	10	8.3	10	10	10	10	5.0	8.3	8.3
New York	10	10	10	10	10	10	10	10	10	10
North Carolina	10	10	10	10	10	8.3	6.7	8.3	6.7	8.3
North Dakota	6.7	0	1.7	1.7	1.7	5.0	5.0	5.0	5.0	6.7
Ohio	6.7	10	10	10	10	10	10	10	10	10
Oklahoma	8.3	8.3	6.7	8.3	8.3	8.3	8.3	8.3	8.3	8.3
Oregon	5.0	8.3	8.3	10	8.3	6.7	6.7	6.7	6.7	6.7
Pennsylvania	5.0	5.0	6.7	6.7	6.7	5.0	5.0	5.0	5.0	5.0
Rhode Island	5.0	5.0	6.7	6.7	6.7	6.7	6.7	6.7	6.7	6.7
South Carolina	5.0	3.3	6.7	6.7	8.3	8.3	10	10	10	10
South Dakota	6.7	0	0	1.7	1.7	5.0	8.3	8.3	8.3	8.3
Tennessee	8.3	6.7	6.7	5.0	5.0	6.7	6.7	8.3	8.3	8.3
Texas	8.3	8.3	10	10	10	10	10	10	10	10
Utah	6.7	5.0	0	0	8.3	8.3	6.7	6.7	6.7	6.7
Vermont	3.3	6.7	5.0	8.3	6.7	8.3	8.3	8.3	6.7	6.7
Virginia	8.3	10	8.3	8.3	8.3	8.3	8.3	8.3	8.3	8.3
Washington	6.7	3.3	3.3	6.7	8.3	6.7	8.3	8.3	8.3	8.3
West Virginia	10	10	10	6.7	1.7	3.3	3.3	10	10	10
Wisconsin	10	3.3	6.7	3.3	3.3	3.3	10	10	10	10
Wyoming	0	0	3.3	6.7	6.7	6.7	6.7	6.7	6.7	6.7
<b>National Average:</b>	<b>6.4</b>	<b>5.4</b>	<b>6.0</b>	<b>6.9</b>	<b>7.4</b>	<b>7.4</b>	<b>7.6</b>	<b>7.7</b>	<b>7.7</b>	<b>7.7</b>

**Exhibit A.4: Data Table for State Accountability Policies 1997-2006**

	State Score for Accountability Policy Category (0-10)									
	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006
Alabama	6.7	6.7	6.7	6.7	8.3	8.3	8.3	6.7	6.7	8.3
Alaska	1.7	3.3	3.3	3.3	1.7	1.7	1.7	3.3	3.3	3.3
Arizona	5.0	5.0	5.0	5.0	3.3	3.3	3.3	5.0	5.0	6.7
Arkansas	6.7	6.7	3.3	5.0	3.3	3.3	6.7	6.7	5.0	5.0
California	6.7	3.3	5.0	8.3	5.0	5.0	6.7	5.0	5.0	6.7
Colorado	6.7	5.0	1.7	0	3.3	5.0	5.0	3.3	3.3	3.3
Connecticut	5.0	6.7	3.3	5.0	5.0	3.3	5.0	3.3	3.3	5.0
Delaware	3.3	3.3	6.7	5.0	3.3	5.0	5.0	3.3	3.3	3.3
Florida	6.7	10	8.3	6.7	5.0	6.7	6.7	8.3	8.3	8.3
Georgia	8.3	8.3	6.7	6.7	6.7	6.7	6.7	10	10	10
Hawaii	5.0	5.0	5.0	5.0	3.3	3.3	3.3	5.0	5.0	5.0
Idaho	3.3	0	0	1.7	0	1.7	3.3	5.0	6.7	6.7
Illinois	3.3	5.0	3.3	5.0	3.3	5.0	3.3	5.0	5.0	5.0
Indiana	6.7	6.7	6.7	6.7	5.0	8.3	6.7	8.3	8.3	8.3
Iowa	5.0	0	0	1.7	1.7	1.7	1.7	1.7	1.7	1.7
Kansas	1.7	3.3	3.3	3.3	1.7	1.7	1.7	1.7	1.7	1.7
Kentucky	6.7	6.7	5.0	5.0	5.0	6.7	6.7	6.7	6.7	5.0
Louisiana	8.3	8.3	8.3	8.3	8.3	10	10	10	10	10
Maine	3.3	3.3	1.7	1.7	3.3	3.3	3.3	3.3	3.3	3.3
Maryland	5.0	8.3	8.3	8.3	8.3	8.3	8.3	8.3	8.3	6.7
Massachusetts	6.7	6.7	5.0	5.0	3.3	5.0	6.7	5.0	8.3	8.3
Michigan	6.7	3.3	3.3	3.3	5.0	3.3	3.3	5.0	5.0	5.0
Minnesota	3.3	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
Mississippi	8.3	6.7	3.3	3.3	3.3	3.3	5.0	10	8.3	8.3
Missouri	3.3	5.0	3.3	5.0	5.0	3.3	6.7	6.7	6.7	5.0
Montana	1.7	3.3	1.7	1.7	1.7	1.7	1.7	3.3	3.3	3.3
Nebraska	1.7	0	0	0	1.7	3.3	3.3	3.3	3.3	3.3
Nevada	3.3	6.7	6.7	8.3	6.7	6.7	6.7	6.7	6.7	5.0
New Hampshire	0	1.7	0	1.7	1.7	0	1.7	1.7	1.7	1.7
New Jersey	8.3	6.7	5.0	5.0	5.0	5.0	3.3	3.3	5.0	5.0
New Mexico	8.3	10	8.3	8.3	10	8.3	10	8.3	10	8.3
New York	6.7	6.7	6.7	6.7	6.7	6.7	6.7	6.7	8.3	6.7
North Carolina	8.3	10	10	10	10	10	10	10	10	10
North Dakota	6.7	0	0	0	0	1.7	1.7	3.3	3.3	3.3
Ohio	3.3	5.0	5.0	5.0	5.0	5.0	5.0	6.7	6.7	6.7
Oklahoma	3.3	3.3	3.3	5.0	5.0	5.0	6.7	6.7	6.7	6.7
Oregon	3.3	5.0	3.3	5.0	3.3	3.3	3.3	3.3	3.3	3.3
Pennsylvania	1.7	3.3	3.3	3.3	3.3	3.3	3.3	3.3	1.7	1.7
Rhode Island	3.3	5.0	5.0	5.0	3.3	5.0	5.0	3.3	5.0	5.0
South Carolina	10	10	6.7	6.7	8.3	8.3	8.3	8.3	8.3	8.3
South Dakota	1.7	1.7	1.7	1.7	1.7	1.7	1.7	1.7	1.7	1.7
Tennessee	8.3	6.7	5.0	5.0	8.3	8.3	8.3	8.3	8.3	6.7
Texas	8.3	8.3	8.3	10	8.3	8.3	10	8.3	8.3	8.3
Utah	3.3	3.3	3.3	5.0	3.3	1.7	1.7	3.3	3.3	5.0
Vermont	1.7	3.3	3.3	3.3	3.3	5.0	5.0	5.0	5.0	5.0
Virginia	3.3	6.7	6.7	6.7	5.0	3.3	5.0	5.0	5.0	5.0
Washington	5.0	8.3	5.0	3.3	1.7	1.7	1.7	1.7	1.7	3.3
West Virginia	6.7	5.0	3.3	3.3	3.3	5.0	5.0	5.0	5.0	5.0
Wisconsin	5.0	3.3	6.7	5.0	3.3	3.3	3.3	5.0	6.7	6.7
Wyoming	1.7	1.7	3.3	3.3	3.3	3.3	3.3	3.3	3.3	3.3
<b>National Average:</b>	<b>5.0</b>	<b>5.1</b>	<b>4.5</b>	<b>4.8</b>	<b>4.4</b>	<b>4.7</b>	<b>5.0</b>	<b>5.3</b>	<b>5.5</b>	<b>5.5</b>



**Exhibit A.5: Data Table for State Policies to Improve Teacher Quality 1997-2006**

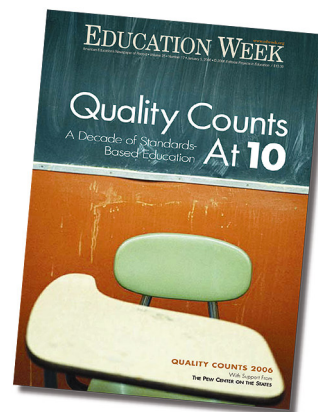
	State Score for Teacher Quality Policy Category (0-10)									
	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006
Alabama	3.3	4.4	6.7	5.6	5.6	5.6	5.6	5.6	5.6	7.8
Alaska	3.3	2.2	4.4	2.2	2.2	3.3	3.3	2.2	2.2	2.2
Arizona	2.2	3.3	5.6	5.6	4.4	4.4	4.4	3.3	3.3	2.2
Arkansas	6.7	8.9	7.8	7.8	7.8	8.9	8.9	8.9	8.9	8.9
California	6.7	6.7	10	7.8	7.8	7.8	8.9	8.9	8.9	8.9
Colorado	5.6	5.6	5.6	4.4	5.6	5.6	5.6	5.6	5.6	5.6
Connecticut	6.7	6.7	7.8	6.7	6.7	7.8	7.8	7.8	7.8	7.8
Delaware	4.4	5.6	4.4	3.3	4.4	4.4	5.6	4.4	4.4	6.7
Florida	6.7	5.6	8.9	4.4	5.6	4.4	6.7	6.7	5.6	5.6
Georgia	6.7	4.4	6.7	7.8	7.8	7.8	7.8	5.6	6.7	6.7
Hawaii	5.6	5.6	5.6	5.6	5.6	6.7	6.7	4.4	5.6	5.6
Idaho	2.2	3.3	2.2	1.1	1.1	3.3	4.4	4.4	5.6	5.6
Illinois	5.6	5.6	5.6	7.8	7.8	7.8	7.8	5.6	6.7	6.7
Indiana	6.7	6.7	5.6	5.6	5.6	6.7	8.9	8.9	8.9	6.7
Iowa	4.4	4.4	5.6	5.6	5.6	5.6	6.7	6.7	6.7	6.7
Kansas	3.3	3.3	3.3	2.2	3.3	2.2	2.2	2.2	5.6	6.7
Kentucky	10	10	8.9	8.9	8.9	8.9	8.9	7.8	7.8	6.7
Louisiana	2.2	2.2	5.6	6.7	6.7	6.7	6.7	7.8	7.8	8.9
Maine	4.4	3.3	6.7	4.4	4.4	5.6	6.7	6.7	6.7	5.6
Maryland	5.6	6.7	7.8	8.9	8.9	8.9	8.9	8.9	8.9	8.9
Massachusetts	5.6	5.6	5.6	6.7	6.7	7.8	7.8	5.6	5.6	6.7
Michigan	5.6	6.7	7.8	5.6	5.6	5.6	6.7	6.7	6.7	5.6
Minnesota	4.4	4.4	5.6	5.6	5.6	5.6	5.6	4.4	4.4	4.4
Mississippi	5.6	5.6	6.7	8.9	8.9	8.9	7.8	7.8	7.8	8.9
Missouri	5.6	4.4	5.6	6.7	7.8	7.8	7.8	7.8	7.8	7.8
Montana	4.4	5.6	4.4	4.4	4.4	4.4	5.6	4.4	3.3	3.3
Nebraska	3.3	4.4	4.4	3.3	3.3	4.4	5.6	5.6	5.6	5.6
Nevada	5.6	4.4	5.6	6.7	7.8	7.8	8.9	7.8	7.8	7.8
New Hampshire	1.1	1.1	4.4	2.2	2.2	4.4	5.6	7.8	7.8	7.8
New Jersey	2.2	3.3	5.6	5.6	5.6	7.8	6.7	7.8	7.8	7.8
New Mexico	5.6	4.4	5.6	4.4	4.4	6.7	6.7	6.7	7.8	7.8
New York	3.3	4.4	4.4	3.3	3.3	4.4	4.4	6.7	6.7	6.7
North Carolina	5.6	6.7	8.9	7.8	7.8	7.8	7.8	7.8	7.8	8.9
North Dakota	2.2	2.2	2.2	1.1	2.2	3.3	5.6	5.6	5.6	5.6
Ohio	5.6	7.8	7.8	6.7	6.7	6.7	6.7	4.4	5.6	5.6
Oklahoma	4.4	7.8	10	10	10	8.9	10	7.8	10	10
Oregon	5.6	5.6	5.6	5.6	5.6	5.6	5.6	5.6	5.6	5.6
Pennsylvania	5.6	6.7	5.6	5.6	5.6	6.7	5.6	7.8	7.8	7.8
Rhode Island	6.7	7.8	7.8	6.7	5.6	4.4	4.4	5.6	4.4	4.4
South Carolina	6.7	6.7	8.9	10	10	10	10	8.9	8.9	8.9
South Dakota	2.2	2.2	2.2	1.1	2.2	2.2	2.2	3.3	4.4	5.6
Tennessee	2.2	3.3	8.9	8.9	8.9	8.9	7.8	7.8	7.8	7.8
Texas	6.7	5.6	4.4	4.4	4.4	4.4	4.4	4.4	4.4	4.4
Utah	2.2	2.2	2.2	1.1	1.1	2.2	3.3	3.3	3.3	3.3
Vermont	2.2	3.3	3.3	3.3	4.4	6.7	6.7	7.8	7.8	7.8
Virginia	8.9	8.9	7.8	7.8	7.8	7.8	7.8	7.8	8.9	8.9
Washington	2.2	3.3	2.2	1.1	1.1	2.2	4.4	3.3	3.3	4.4
West Virginia	3.3	6.7	6.7	7.8	7.8	8.9	8.9	8.9	8.9	8.9
Wisconsin	4.4	3.3	6.7	5.6	5.6	6.7	6.7	6.7	7.8	7.8
Wyoming	1.1	0	2.2	1.1	1.1	2.2	2.2	3.3	3.3	4.4
<b>National Average:</b>	<b>4.6</b>	<b>5.0</b>	<b>5.9</b>	<b>5.4</b>	<b>5.6</b>	<b>6.1</b>	<b>6.4</b>	<b>6.2</b>	<b>6.5</b>	<b>6.6</b>

**Exhibit A.6: Data Table for Total State Standards-Based Policy Implementation 1997-2006**

	State Score for Overall Standards-Based Policy (0-10)									
	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006
Alabama	7.0	6.4	7.4	6.7	7.6	7.6	7.6	7.1	7.6	8.3
Alaska	3.1	2.8	3.4	4.1	3.9	4.4	4.4	4.6	4.6	4.6
Arizona	4.6	3.8	5.7	6.6	6.1	6.1	6.1	6.3	5.8	6.0
Arkansas	6.6	5.5	5.0	5.9	5.7	6.2	7.1	7.1	6.6	6.9
California	5.3	5.6	7.1	7.4	7.8	7.8	8.5	8.1	8.1	8.5
Colorado	4.8	5.1	5.3	5.4	6.6	7.0	7.0	6.6	6.6	6.6
Connecticut	6.3	6.9	6.4	6.9	7.2	6.9	7.3	6.9	6.6	7.0
Delaware	5.2	5.2	7.0	6.3	6.2	6.9	7.1	6.4	6.4	7.0
Florida	6.8	7.0	8.2	6.7	6.6	6.7	7.7	8.1	7.8	7.8
Georgia	8.5	7.1	7.7	7.9	8.4	7.9	7.9	8.2	8.5	8.5
Hawaii	4.7	3.4	4.1	4.1	4.9	5.2	5.7	5.5	6.6	6.6
Idaho	4.1	2.0	2.2	3.3	3.9	5.2	5.4	5.9	7.0	7.0
Illinois	5.3	4.7	6.0	6.9	7.1	7.5	7.1	7.0	6.8	7.3
Indiana	7.3	5.4	5.2	5.2	6.3	7.7	8.1	8.9	8.9	8.3
Iowa	2.4	1.1	1.4	1.8	1.8	1.8	2.1	2.1	2.1	2.1
Kansas	4.3	5.7	4.1	4.2	5.4	4.3	5.6	4.7	5.7	5.2
Kentucky	8.0	8.3	7.3	7.7	8.0	8.4	8.0	7.7	7.7	6.8
Louisiana	5.9	4.7	6.6	7.8	8.0	8.4	8.4	9.2	9.2	9.5
Maine	4.5	5.7	5.3	5.5	5.9	6.2	6.5	6.1	6.1	5.8
Maryland	6.1	8.3	7.9	9.1	9.1	9.1	9.1	9.1	9.1	8.6
Massachusetts	6.1	7.4	7.4	7.7	7.3	7.9	8.2	7.2	8.1	8.3
Michigan	7.1	5.7	5.9	6.2	6.6	6.2	6.5	6.9	7.2	6.5
Minnesota	1.9	4.2	4.9	5.3	5.8	5.8	5.8	6.0	6.3	6.3
Mississippi	6.6	6.4	6.3	6.8	6.8	7.1	7.2	8.4	8.0	7.9
Missouri	5.4	4.6	5.1	6.7	6.9	7.0	7.9	7.9	6.5	6.1
Montana	3.2	2.2	2.0	2.0	2.3	2.3	2.6	3.9	4.1	4.1
Nebraska	1.5	2.6	3.1	2.8	4.1	4.5	5.1	5.1	5.1	5.1
Nevada	5.0	5.3	5.8	6.8	7.3	7.3	7.6	7.7	7.7	7.3
New Hampshire	3.9	5.2	5.2	5.5	5.5	5.6	6.3	5.6	5.6	6.0
New Jersey	5.3	6.1	6.2	6.2	6.2	7.4	6.8	7.1	7.5	7.5
New Mexico	7.5	8.1	7.6	7.7	8.1	8.5	8.9	7.3	8.8	8.4
New York	6.8	7.5	7.5	7.3	7.3	7.8	7.8	8.3	8.8	8.3
North Carolina	8.0	8.7	9.5	9.2	9.2	8.5	8.4	8.8	8.4	9.1
North Dakota	4.6	1.3	2.0	1.9	2.5	4.3	4.6	5.5	5.2	5.6
Ohio	5.4	7.7	7.7	7.4	7.7	6.9	7.7	7.5	7.8	7.8
Oklahoma	5.0	5.4	7.3	8.1	8.1	7.8	8.5	7.9	8.5	8.5
Oregon	5.2	7.0	6.6	7.4	6.6	6.1	6.1	6.1	6.1	6.1
Pennsylvania	4.6	5.3	5.6	5.6	5.1	6.3	6.0	6.5	6.1	6.1
Rhode Island	4.5	5.2	5.6	5.3	4.6	4.8	4.8	4.6	5.3	5.3
South Carolina	7.2	7.0	7.6	7.8	8.9	8.9	8.8	9.1	9.1	9.3
South Dakota	3.4	2.5	3.0	3.1	3.4	4.2	5.1	5.3	5.4	6.1
Tennessee	5.5	4.9	5.9	5.5	6.3	7.7	7.4	7.9	7.9	7.4
Texas	7.6	7.1	7.2	7.6	7.2	7.2	7.6	7.2	7.2	7.2
Utah	4.8	4.4	3.1	3.3	5.2	5.3	5.2	5.6	5.6	6.0
Vermont	2.3	3.8	3.4	4.3	4.1	6.0	6.0	6.3	6.9	6.9
Virginia	7.4	8.6	7.9	7.9	7.5	7.1	7.5	7.5	7.8	7.8
Washington	5.0	5.3	4.1	4.3	4.3	4.1	5.1	4.8	5.3	5.8
West Virginia	7.3	7.7	7.3	6.7	5.4	6.6	6.6	8.2	8.2	8.2
Wisconsin	6.1	4.0	6.5	5.0	4.6	4.8	6.5	6.9	7.6	7.6
Wyoming	0.7	0.9	3.0	3.8	3.8	4.1	4.1	4.3	4.3	4.6
<b>National Average:</b>	<b>5.3</b>	<b>5.3</b>	<b>5.7</b>	<b>5.9</b>	<b>6.1</b>	<b>6.4</b>	<b>6.7</b>	<b>6.7</b>	<b>6.9</b>	<b>6.9</b>

## Quality Counts at 10: A Decade of Standards-Based Education

- **Quality Counts 2006** – This year’s full report investigates standards-based reform during the past decade and features a special analysis of the impact of the improvement efforts on student achievement and a series of state case studies exploring experiences with standards on the ground. The annual State of the States update grades state policy in the areas of standards and accountability, efforts to improve teacher quality, school climate, and resource equity.
- **State Highlights Reports** – Individualized reports featuring state-specific findings from the 2006 *Quality Counts* report are available for all 50 states and the District of Columbia.
- **Education Counts** – This online database contains hundreds of state-level indicators on K-12 education collected over the past decade for *Education Week’s* annual *Quality Counts* and *Technology Counts* reports. Use the Custom Table Builder feature to create graphs, tables, or maps for specific indicators.



You can access *Quality Counts* online at [www.edweek.org/qc06](http://www.edweek.org/qc06)

### About Editorial Projects in Education

**Editorial Projects in Education (EPE)** is a nonprofit, tax-exempt organization based in Washington. Our primary mission is to help raise the level of awareness and understanding among professionals and the public of important issues in American education. We cover local, state, national, and international news and issues from preschool through the 12th grade. Editorial Projects in Education Inc. publishes *Education Week*, American education’s newspaper of record, *Teacher Magazine*, EDWEEK.ORG, and Agent K-12. We also produce periodic special reports on issues ranging from technology to textbooks, as well as books of special interest to educators.

The **EPE Research Center** conducts annual policy surveys, collects data and performs analyses that appear in the *Quality Counts* and *Technology Counts* annual reports. The center also produces independent research reports and contributes original data and analysis to special coverage in *Education Week*, *Teacher Magazine*, and EDWEEK.ORG.

**Christopher B. Swanson, Ph.D.**, is the director of the Editorial Projects in Education Research Center.