

WORKING P A P E R

Organizational Practices: School Improvement, Interventions and Technical Assistance

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EDUCATION

Preface

This paper was presented as part of the Symposium “Implementing Standards-Based Accountability: Results from Classrooms, Schools, and Districts in Three States” at the annual meeting of the American Educational Research Association, Montreal, Canada, April 13, 2005.

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Introduction

The majority of the attention paid to the No Child Left Behind Act (P.L. 107-110; <http://www.ed.gov/policy/elsec/leg/esea02/107-110.pdf>) over the past several years has focused on the accountability aspects, including assessments, adequate yearly progress (AYP) determinations, school choice, and supplemental educational services. Significantly less attention has been paid to provisions dealing with school improvement and technical assistance, which some experts charge have been “overshadowed” and “underemphasized” (Reid, 2004; also Fuhrman, 2003). Despite their low-profile, however, understanding the improvement and technical assistance aspects of the law is vitally important because the success of any education reform will eventually be measured by its ability to bring about positive change in schools and districts. This paper draws on RAND’s Implementing Standards-Based Accountability (ISBA) project to present preliminary findings regarding how improvement and technical assistance are playing out in schools in three states.

Background

NCLB’s ultimate goal of proficiency for all students means that even schools and districts that are currently able to meet AYP targets will need to make considerable improvements as those targets increase in future years. Two simulation studies that project schools’ AYP status over time illustrate this need. The first, conducted by researchers at the University of Minnesota, found that the percentage of elementary schools in Minnesota failing to meet AYP would rise from 7.7 percent in 2003 to 99.9 percent in 2014 if no school improvement was assumed (Minnesota Office of the Legislative Auditor, 2004). A second simulation using data on Connecticut schools used more favorable assumptions, allowing for student achievement growth to continue at current rates, but still found that 93 percent of the state’s schools would fail to meet AYP in 2014 (Moscovitch, 2004). Schools will clearly need to make substantial improvements above and beyond their current rate of student achievement growth if they are to meet AYP targets in future years.

No Child Left Behind (NCLB) includes several provisions aimed at helping schools improve. First, the law provides considerable motivation for improvement. By setting standards for student achievement and annually assessing students' progress towards those standards, the state accountability systems established under the law creates clear goals towards which schools must strive. Schools are provided with strong incentives to achieve those goals, as failure to do so leads to escalating sanctions and success may lead to public recognition and financial rewards (Stecher, Hamilton & Gonzalez, 2003).

In addition to providing motivation, NCLB promotes school improvement by mandating that states provide schools with annual state test results disaggregated for a variety of groups of students that can be used for school-level data-based decision making. Research on effective schools and districts has found that a focus on the use of data is a common characteristic among several of those that are high-performing or "beating the odds" (Snipes, Doolittle & Herlihy, 2002; Council of Great City Schools, 2002).

NCLB also facilitates school improvement by empowering school leaders with greater discretion over local operations. While the law specifies high standards for all schools to meet, it does not prescribe how schools should meet those goals but instead grants school and district administrators responsibility for identifying strategies that best fit their particular local context and address their specific needs (Stecher, Hamilton & Gonzalez, 2003).

Finally, NCLB aids school improvement by providing for specific types of technical assistance to schools that struggle to improve enough to meet their performance targets. School districts are required to ensure that schools that are identified for improvement after failing to meet AYP for two consecutive years receive technical assistance based on scientifically based research; specific areas for assistance include data analysis, identifying and implementing strategies, and budget analysis. The law also requires states to "create and maintain a statewide system of intensive and sustained support and improvement" and specifies particular types of assistance that the state should provide to schools and districts in need of improvement.

Another paper in this symposium by Marsh, Barney and Russell describes the motivational aspects of school improvement under NCLB, including AYP determinations, identification for improvement, and early sanctions such as public school choice and supplemental educational services. This paper focuses on the assistance-oriented mechanisms for school improvement embedded in NCLB, and presents some new evidence on how data-based decision making, locally implemented initiatives, and district- and state-provided technical assistance are being enacted.

Data and Methods

The introductory paper in this symposium describes the design, data, and methods used in the Implementing Standards Based Accountability (ISBA) study. The overall study focuses on elementary and middle school science and mathematics in California, Georgia, and Pennsylvania. The results presented in this paper rely primarily on superintendent and principal survey and interview data from the 2003-04 school year. The sample sizes for the estimates reported in this paper are reported in Table 1. Schools that included both elementary and middle-level grades (e.g., K-8 schools) are included in both the middle and the elementary school samples.

Table 1. Sample Sizes for Each State

	California	Georgia	Pennsylvania	Total
Districts				
-Superintendents responding to survey	18	20	22	60
-Superintendent survey response rate	95%	80%	92%	88%
-Superintendents participating in interviews	15	12	16	43
-Superintendent interview response rate	79%	48%	67%	72%
Elementary Schools				
-Principals responding to survey	27	44	50	121
-Principal survey response rate	77%	85%	93%	86%
Middle Schools				
-Principals responding to survey	24	44	38	106
-Principal survey response rate	86%	79%	90%	84%

One of the consequences of our sampling strategy, in which teachers and principals are nested within schools and schools are nested within districts, is that the number of responses grows progressively smaller as we move from teachers to principals to superintendents. As a result, in this paper the summary statistics based on principal responses are more precise than those based on superintendent responses. Throughout the paper we have included standard errors for all survey results. It is also important to note that the study was not designed or intended to provide evaluative judgments across the three states; rather, the states should be considered three case studies from among the population of states. We report results separately by state with the intent to illustrate patterns within and across states, to suggest possible explanations, and to highlight how different state contexts influence the way in which school improvement is playing out under NCLB.

Research Questions

Building on existing research, this paper provides descriptive evidence of how school improvement under NCLB is playing out in three states. Because we rely on survey data from only a single year, it is impossible to attribute principals' responses directly to the effects of NCLB and standards-based accountability. However, the results reported here provide a useful snapshot of school improvement practices in the context of external accountability requirements, and serve as a baseline for measuring change in practice as states' accountability systems mature. This paper addresses three broad research questions:

- How are all schools using state assessment data to improve school performance?
- What other strategies are schools pursuing to improve instruction and student learning?
- What types of assistance are district and states providing to all schools and to low-performing schools to help them improve student achievement?

Organization/Overview of Paper

The first section of this paper examines the ways in which schools are using results from the standards-based assessments required by NCLB to guide instruction and school management. The second section of this paper considers a variety of other school-level improvement initiatives, the extent to which they are being adopted by schools in our three states, and principals' perceptions of their usefulness for increasing schools' performance. Finally, the third section of this paper explores the ways in which districts and states are aiding in school improvement by providing a variety of types of technical assistance.

Data-based Decision-Making Under NCLB

One important aspect of the theory underlying standards-based accountability reforms is that increased availability of performance data will lead to better decision-making by superintendents, principals, and teachers. With its focus on regular assessment of student progress towards clear and measurable performance standards and broad public reporting of results from those assessments, NCLB is intended to facilitate increased use of data by providing schools and districts with new sources of data for analysis, as well as increasing the pressure on them to improve student test scores (Massell, 2001). This section examines the availability and quality of state-provided information about school and student performance in California, Georgia and Pennsylvania, as well as schools' capacity for data analysis, the perceived usefulness of test score data, and the types of decisions schools used it for.

Availability and Usefulness of State Test Data

Nearly all principals in all three states reported that they had increased the use of student achievement data to inform instruction in 2003-04. Of those who did pursue this strategy, the vast majority found it to be moderately or very useful for school improvement – 92 percent in California, 97 percent in Georgia, and 83 percent in Pennsylvania.

Principals in our study reported on a variety of types of information and assistance regarding the 2002-03 state test results that were available to them, as shown in Table 2.

Table 2. Percentage of Principals Reporting Availability and Usefulness of Information and Assistance on 2002-03 State Test Results

	California		Georgia		Pennsylvania	
	Available	Very Useful	Available	Very Useful	Available	Very Useful
Reports of test results for 2002-03 students	98 (2)	59 (7)	92 (4)	64 (8)	95 (3)	46 (8)
Reports of test results for 2003-04 students	95 (3)	62 (7)	97 (2)	69 (8)	96 (2)	48 (8)
Test results summarized for each student subgroup	100	47 (6)	99 (1)	65 (7)	98 (2)	30 (8)
Test results summarized by subtopic or skill	96 (2)	53 (8)	96 (2)	69 (8)	100	35 (8)

Source: Principal q. 21

“Very useful” is as a percent of principals who had results available

Response options included: Not Available; Not Useful; Minimally Useful; Moderately Useful; Very Useful
Standard errors shown in parentheses

Nearly all principals had access to test results for both the current and prior years’ students, and to disaggregations by student subgroups and by subtopics. Principals in Georgia were especially likely to report that the test results were “very useful” for guiding instruction and school improvement, but fewer than half of principals in Pennsylvania reported the same. Pennsylvania currently tests students at one grade level each for elementary, middle and high schools, which may explain the limited perceived usefulness of the results for school improvement. Moreover, several Pennsylvania superintendents noted in our interviews with them that they did not think the state test and state standards were well aligned. Other possible explanations related to the quality of the achievement data are discussed below.

Perceived Quality of State Test Results

Research has shown that data that is of poor quality because it is lacking in timeliness, relevance, validity or reliability can be a major barrier to effective data-based decision-making (Choppin, 2001; Mason, 2002; Herman & Gribbons, 2001). Principals reported on several data quality issues; their responses are shown in Table 3.

Table 3. Percentage of Principals Agreeing or Strongly Agreeing to Statements About State Test Results

	California	Georgia	Pennsylvania
State test results have explicit links to content standards and/or lesson plans	90 (4)	77 (5)	65 (10)
Information received about school's performance is clear and easy to understand	79 (9)	85 (4)	72 (10)
Information received about school's performance is timely	49 (7)	13 (5)	15 (4)
State test scores accurately reflect the achievement of school's students	66 (9)	72 (5)	52 (9)

Source: Principal q. 22

Standard errors shown in parentheses

Response option: Strongly Disagree, Disagree, Agree, Strongly Agree

In general, principals expressed positive views about the quality of their state's assessment data, indicating that this was not a significant hurdle for them. The majority of principals in all three states found that state test results were clear and easy to understand, were explicitly linked to content standards, and were accurate reflections of student achievement, but were considerably less satisfied with the speed with which they received the data, particularly in Georgia and Pennsylvania, where less than a fifth of principals agreed or strongly agreed that the results they received were timely. Superintendents in these states told us in interviews that results for the 2002-03 school year had not arrived until well into the summer, only a few weeks before the beginning of the next school year. Despite the generally positive views, however, principals in Pennsylvania were somewhat less likely than principals in California and Georgia to agree or strongly agree with each statement about the quality of the test results. This likely affected their perceptions of the usefulness of the data, which, as noted above, was somewhat low relative to the other two states.

Assistance and Capacity for Data Analysis

Principals were also asked about the capacity of their school staff to carry out data based decision making around the state test results, and the types of assistance available to them to support data analysis. Most held their teachers' capabilities in high regard, as 85 percent in California and Georgia and 72 percent in Pennsylvania agreed or strongly agreed that teachers in their school had the skills and knowledge needed to analyze and

use test results. As shown in Table 4, school staff also frequently had opportunities to increase their capacity; more than three quarters of principals in all three states reported that they had access to training on how to use data for instructional planning and school improvement and to workshops or meetings where test results were presented and explained.

Table 4. Percentage of Principals Reporting That Assistance for Data Use Was Available and Very Useful

	California		Georgia		Pennsylvania	
	Available	Very Useful	Available	Very Useful	Available	Very Useful
Computer software or systems for re-analyzing test results	40 (10)	45 (16)	64 (7)	40 (11)	66 (7)	19 (8)
Workshops or meetings where test results are presented and explained	94 (3)	33 (8)	82 (5)	52 (9)	88 (5)	17 (4)
Training on how to use test results for instructional planning or school improvement	90 (4)	32 (8)	85 (5)	56 (10)	74 (7)	27 (6)

Source: Principal q. 21

Standard errors shown in parentheses

“Very useful” is as a percentage of principals who had assistance available

Response options included: Not Available; Not Useful; Minimally Useful; Moderately Useful; Very Useful

Principals in all three states less often reported that computer software for re-analysis of test scores was available, but fewer than half of those who did have access to software reported finding it “very useful.”

Data-Based Decisions

Principals also reported on the extent to which the data were useful in making certain decisions, as shown in Table 5.

Table 5. Percentage of Principals Reporting that State Assessment Data is Moderately or Very Useful for Making Decisions

	California	Georgia	Pennsylvania
Making change to curriculum and instructional materials	79 (7)	85 (5)	73 (6)
Developing a school improvement plan	83 (7)	97 (2)	77 (5)
Making decisions on how much time is spent on each subject	58 (11)	68 (7)	57 (9)
Making decisions regarding student promotion or retention	53 (11)	74 (7)	25 (8)
Identifying students who need additional instructional support	84 (7)	95 (4)	62 (6)
Assigning students to teachers	39 (11)	49 (6)	10 (4)
Identifying teacher strengths and weaknesses	33 (9)	65 (7)	31 (8)
Focusing teacher professional development	71 (6)	74 (5)	70 (5)

Source: Principal q. 23

Standard errors shown in parentheses

Response options: Not useful, Minimally useful, Moderately useful, Very useful

The majority of principals in all three states reported that state assessment data were moderately or very useful for making changes to curriculum or instructional materials, developing school improvement plans, focusing teacher professional development, and identifying students who need additional instructional support. Principals in Georgia and superintendents in California were particularly likely to report finding assessment data useful for decisions, while administrators in Pennsylvania were least likely to find test scores useful, perhaps due to reasons discussed above. Principals were least likely to find state assessment data useful for making decisions with higher stakes, such as promoting and retaining students or identifying strengths and weaknesses of teachers. Principals in Georgia were more likely to report using test scores for these decisions than principals in California or Pennsylvania, likely because Georgia has implemented promotion gates for 3rd and 5th graders tied to their performance on the state assessment.

School Improvement and Instructional Change

While one might imagine multiple dimensions in which school performance might be improved, the incentive structure established by NCLB narrows the focus of school improvement to one single clear goal: increasing students' academic achievement. As a result, schools must pay significant attention to student learning and the instruction

that produces it if they are to meet NCLB's lofty goal of 100 percent proficiency on state assessments. This section considers specific efforts to improve instruction that are underway in our three states. Our focus is on organizational practices at the school level and the range of instructional improvement levers available to principals; another paper in this symposium by Hamilton and Berends examines instructional improvement at the classroom level and the practice of individual teachers under NCLB.

Cohen, Raudenbush, and Ball (2003) describe instruction as "interactions among teachers and students around content" (p. 122). This suggests that principals might attempt to effect instructional improvement through changes in one or more of three dimensions: the content around which interactions are structured, the quantity and quality of opportunities for interactions, and the capacity of teachers to support effective interactions.

Whole School Reform Models

One way in which schools have attempted to address all three dimensions of instruction is through the use of comprehensive whole school reform models, which attempt to align all elements of a school's functions around a coherent set of reforms, including professional development, scheduling, curriculum, assessment, and other core elements. Rigorous evaluation studies have found positive effects on student achievement and other school outcomes for a number of different school reform models (e.g., Borman et al., 2003; Herman, 1999; Slavin & Madden, 2001; Adams & Engelmann, 1996; Supovitz, Poglinco & Snyder, 2001).

Despite this record of supporting evidence, relatively few schools in our states were in the process of implementing formal school reform models; less than 15 percent of principals in California and Pennsylvania reported implementing a model. Whole school reform models were more common in Georgia, however, likely because the state had invested a substantial amount of resources in the Georgia's Choice model – a variant on America's Choice – for a few years under the prior superintendent of schools. Nearly 30 percent of schools in Georgia were implementing a whole school reform model; more than half of those had been required by their district to do so. While new accountability systems may have played a role in some schools' decision to adopt a whole school reform

model, the years in which principals reported beginning implementation ranged from 1993 to 2004; since NCLB was not implemented until 2002, this predated standards-based accountability in some cases.

Changes in Content

Schools may also work to alter dimensions of instruction independently. For example, principals may attempt to improve instruction by making changes in the content of what students are taught. Table 6 shows principal and superintendent reports of new curricular initiatives.

Table 6. Percentage of Principals and Superintendents Reporting Curricular Changes

	California		Georgia		Pennsylvania	
	Elementary	Middle	Elementary	Middle	Elementary	Middle
<u>Principal reports implementing:</u>						
New mathematics curriculum	70 (10)	55 (13)	39 (8)	44 (9)	30 (10)	49 (13)
New science curriculum	26 (11)	46 (13)	41 (8)	20 (8)	42 (12)	45 (13)
<u>Superintendent reports requiring:</u>						
Focused “test preparation”	43 (15)	48 (15)	91 (7)	93 (7)	84 (10)	76 (11)

Source: Principal q. 9, 12, 15; Superintendent q. 21
Standard errors shown in parentheses

Curriculum. Schools were much more likely to report adopting new curricula than a school reform model. As Table 6 indicates, close to half of the middle schools in all three states adopted a new mathematics curriculum, while slightly less adopted a new science curriculum. At the elementary school level, 70 percent of principals in California and about a third of principals in Georgia and Pennsylvania reported implementing a new mathematics curriculum, while less than half of elementary school principals in all three states reported implementing a new science curriculum. As with school reform models, not all the changes in curriculum can be attributed to pressures from new accountability systems, as the year that schools began implementing new curricula ranged from 1996 to 2004, while NCLB was first implemented in 2002.

The most commonly reported reason for adopting a new mathematics or science curriculum was to support instruction consistent with standards and assessments; more than 90 percent of principals in California and Pennsylvania cited this reason for adopting

new curricula. Nearly all principals, even those who did not adopt new curricula, reported being active in aligning curriculum and instruction with standards and/or assessments – over 90 percent reported that it was a strategy they used to improve their school in 2003-04. District efforts supported this work; about half of the superintendents interviewed for the study described new district initiatives around aligning curriculum and materials with standards that were being implemented in response to NCLB. In survey responses, more than 70 percent of superintendents reported that their district had mapped the alignment of required textbooks and instructional programs to state standards and assessments; developed detailed curriculum guides, frameworks, and/or pacing sequences; and developed local content standards that augment state content standards.

Test Preparation Activities. Finally, activities and instructional materials targeted specifically towards performance on the state assessment also represent a change in the content of what is taught in schools. The use of specific test preparation materials and activities is controversial in education. Though broadly used in schools nationwide, specific test preparation has been criticized by numerous scholars for “dumbing down” teaching and learning, crowding out other instruction, and undermining the validity of assessment results (Sacks, 2000; Herman, 2002; Burger & Krueger, 2003). Others have played down these concerns. As then-Secretary of Education Rod Paige told the National Press Club in 2003, “There is nothing wrong with ‘teaching to the test’ if you are testing something that students need to learn” (<http://www.cpet.ufl.edu/fast/ArticleDeresz.htm>). Mehrens (1989) notes that even knowledgeable students may miss items if they lack at least some understanding of the mechanics of a particular test. The value of test preparation may also depend on the nature of the activities or materials used. Popham (2001) distinguishes between “item teaching” that is narrowly focused on particular items on particular tests and has negative impacts, and “curriculum teaching” that is more broadly focused on mastery of the curricular aims represented by the test and is a positive practice.

Another paper in this symposium by Hamilton and Berends delves more deeply into the nature of test preparation activities at the classroom level. Here, we report the prevalence of test preparation emphasis as a school-level strategy for improvement.

Ninety three percent of superintendents in Georgia and 84 percent in Pennsylvania, along with 43 percent in California, reported requiring implementation of focused “test preparation” materials or activities in at least some schools in their district. Principals were asked about particular activities used to help teachers prepare students for the state test, as shown in Table 7.

Table 7. Percentage of Principals Reporting Test Preparation Activities

	California		Georgia		Pennsylvania	
	Elementary	Middle	Elementary	Middle	Elementary	Middle
Distributed commercial test preparation materials (e.g., practice tests)	41 (12)	36 (12)	87 (5)	73 (7)	75 (8)	89 (7)
Distributed released copies of the state test or test items	49 (14)	32 (10)	96 (3)	78 (7)	98 (2)	90 (7)
Discussed methods for preparing students for the state test at staff meetings	76 (8)	99 (1)	100	100	100	100
Helped teachers identify content that is likely to appear on the state test so they can cover it adequately in their instruction	89 (7)	96 (4)	95 (3)	100	100	95 (5)

Source: Principal q. 20
Standard errors shown in parentheses

Almost all principals responded that the school or district discussed methods for preparing students for the test at staff meetings and helped teachers identify content that is likely to appear on the state test so they can cover it adequately in their instruction to prepare students for state test. In Georgia and Pennsylvania over 70 percent of principals reported distributing commercial test preparation materials and released copies of the state test or test items, in contrast to California, where about 40 percent of principals reported these activities.

Several factors might help to explain the difference across states in the prevalence of test preparation activities. First, California has had its California Standards Test in grades 3-8 in place since 1998, so administrators, teachers and students in that state may be more familiar with the content and format of the state assessment than in Georgia or Pennsylvania, which have newer or more recently revised tests, or have recently expanded testing into new grade levels.

Our case study visits and superintendent interviews revealed that educators in Pennsylvania felt a particular need to familiarize students and staff with specific question formats since the Pennsylvania System of School Assessment includes open-ended tasks and requires students to write short essays and explain their work on math problems. Superintendents and principals in Pennsylvania also frequently expressed concerns about the alignment between the state standards and the state assessment, which may explain the prevalence of test preparation activities if educators felt that the state assessment was only weakly linked to their normal curriculum and instruction.

State activities also likely played a role. Georgia and Pennsylvania were both particularly active at the state level in producing and distributing materials for teachers and students specifically aimed at preparation for the state assessments. For example, both maintained on-line released test item banks freely accessible to students and teachers. Educators in case study schools and superintendents whom we interviewed from these states also frequently noted that they had received test preparation materials directly from the state.

Changes in Instructional Opportunities

Principals can also attempt to effect instructional improvement by altering the instructional opportunities that students have to interact with teachers. Simply increasing the amount of scheduled time for instruction in a subject can increase opportunities for interaction and improve student learning. For example, international comparison studies have found a positive relationship between the amount of time formally allocated for instruction and student achievement (McKnight et al., 1987; Mirel, 1994; Purvis & Levine, 1975; Schmidt et al., 1998; Stevenson & Stigler, 1992). In addition, studies have found significant effects of full-day kindergarten on students' school readiness, which also suggests the importance of increasing instructional time (Elicker & Mathur, 1997; Fusaro, 1997). However, other research has suggested that the nature of instructional time may be just as or even more important than the sheer quantity (Karweit, 1988; Cooley & Leinhardt, 1978), which has prompted some schools and districts to pursue strategies such as block scheduling to enhance the quality of interactions that can occur during existing instructional time allotments (Mathews, 1999).

Table 8 shows principal reports of strategies to change instructional opportunities in their schools during the 2003-04 school year in our three states.

Table 8. Percentage of Principals Reporting Changes in Instructional Opportunities

	California		Georgia		Pennsylvania	
	Elementary	Middle	Elementary	Middle	Elementary	Middle
Longer school year	0	5 (5)	0	0	4 (4)	5 (5)
Longer school day	0	0	3 (3)	7 (4)	3 (2)	3 (2)
More time for reading instruction*	1 (1)	0	11 (4)	7 (4)	28 (9)	3 (2)
More time for math instruction *	1 (1)	11 (8)	16 (6)	10 (5)	22 (7)	4 (3)
More time for science instruction*	10 (6)	0	5 (4)	9 (5)	1 (1)	0
Restructuring school day	63 (11)	53 (10)	67 (5)	49 (9)	54 (8)	31 (11)
Providing before- or after-school, weekend, or summer programs	81 (11)	82 (9)	97 (2)	89 (5)	70 (14)	65 (11)
Using specialists to deliver targeted instruction to groups of low-achieving students	64 (12)	49 (13)	76 (5)	63 (7)	64 (8)	63 (11)

*Changes in time for reading, math and science instruction based on 5th grade for elementary schools and 8th grade for middle schools

Source: Elementary School Principal q. 7; Middle School Principal q. 8
Standard errors shown in parentheses

Instructional Time. Increases in instructional time were relatively uncommon. As shown in Table 8, less than 5 percent of principals reported lengthening the school year, and less than 7 percent of principals reported lengthening the school day. Increasing instructional time in reading, math and science was more common, but still reported by a very small percentage of principals in all three states. In Georgia and Pennsylvania, increases in instructional time for reading and math were more common than increases in time for science instruction or other subjects; this may be because mathematics and reading test scores are included in the state accountability systems in these states, while science is not yet a part of AYP determinations. In California, however, 10 percent of elementary school principals reported increasing science time, compared to 1 percent who reported increasing mathematics and reading time; this may reflect the fact that California introduced a new CST science assessment for 5th graders in

2004 and included performance on this assessment in the state's Academic Performance Index calculations.

Since NCLB includes only some subjects in AYP calculations, there has been some concern that those subjects that are not tested and not included in AYP would be squeezed out of the school day as schools focus emphasis and attention on math, reading, and, in a few more years, science. Indeed, roughly half of principals in all three states reported that they encouraged or required teachers to spend more time on tested subjects and less time on other subjects. When scheduled time for non-tested subjects is considered, however, there have been few changes in our three states. Less than 15 percent of principals reported decreasing instructional time in social studies, arts and music, or physical education, and in some cases as many as 7 percent of principals actually reported increasing instructional time in these subjects.

While additional instructional time was relatively uncommon, larger percentages of principals reported restructuring existing instructional time to create opportunities to teach content in greater depth, for example by establishing a literacy block. This strategy was used by over half of elementary school principals and slightly fewer middle school principals. Of those who restructured the school day, about half found it to be a very useful school improvement strategy.

Additional Learning Opportunities. Another strategy most principals used to increase instructional opportunities for students was to provide additional academic programs outside of the regular school day. Such programs were most prevalent in Georgia, and in Georgia and Pennsylvania, were somewhat more common in elementary schools than middle schools. Such programs, however, are in almost all cases voluntary, so the additional instructional opportunities do not reach all students. Perhaps as a result, only about a third percent of those principals who provided these programs reported that they were “very useful.”

Targeted Instruction for Low-Performing Students. Principals and superintendents may also increase instructional opportunities for specific students through targeted instruction. More than half the superintendents interviewed for the study reported implementing new remedial programs for low-performing students, including new courses and pullout programs as well as before- and after-school and

summer programs. The majority of principals in all three states reported using instructional specialists to deliver targeted instruction to groups of low-achieving students. In California and Georgia, elementary school principals reported using this strategy more often than middle school principals, and about half of elementary school principals who did use instructional specialists reported that this was a “very useful” strategy for school improvement. However, only 39 percent of middle school principals who used instructional specialists to deliver targeted instruction in Georgia and about a quarter in California and Pennsylvania reported that it was “very useful.”

Changes in Teacher Capacity

A third approach to instructional improvement is to implement strategies targeted at increasing the capacity of teachers to support effective interactions. A wealth of evidence has shown the important role that teachers play in student learning and achievement. For example, in their review of value-added studies on the effects of teacher quality, McCaffrey et al (2004) found convincing evidence that teachers have measurable and differential effects on student achievement. Efforts to ensure and enhance teachers’ capacity are important, especially since mathematics and science teachers often enter the profession on emergency certification or end up teaching out of field (NCTAF, 1996). A large body of research has shown that teacher professional development can result in changes in instructional practice and teachers’ knowledge and beliefs (Loucks-Horsley & Matsumoto, 1999), and a more limited literature has found direct impacts on student achievement for at least some types of professional development (Huffman, Thomas & Lawrenz, 2003).

Table 9 shows principal reports of efforts to increase the capacity of teachers to deliver quality instruction.

Table 9. Percentage of Principals and Superintendents Reporting Strategies for Changing Teacher Capacity

	California		Georgia		Pennsylvania	
	Elementary	Middle	Elementary	Middle	Elementary	Middle
Increasing quantity of teacher professional development	84 (8)	72 (8)	96 (2)	83 (6)	85 (7)	70 (14)

Source: Principal q. 41; Superintendent q. 21
Standard errors shown in parentheses

The vast majority of principals reported that they had increased the quantity of teacher professional development they provided in 2003-04. This strategy was especially common in Georgia. In all three states, elementary school principals were somewhat more likely than middle school principals to report increasing professional development for teachers. In California and Georgia, almost half of principals who increased teacher professional development found it to be a “very useful” strategy. However, only 37 percent of Pennsylvania elementary school principals who increased teacher professional development, however, and 16 percent of Pennsylvania middle school principals reported that more teacher professional development was “very useful” for school improvement. Elementary school principals reported that teachers were provided with, on average, 42 hours of professional development per year in California, 46 hours per year in Georgia, and 40 hours per year in Pennsylvania.¹ Middle school principals reported an average of 45 hours per year in California, but only 32 in Georgia, and 35 in Pennsylvania.² Another paper in this symposium, by Hamilton and Berends, discusses the content of teacher’s professional development and its effect on teachers’ classroom practice in more detail.

Assistance for Struggling Schools

For those schools that are identified as in need of improvement based on annual AYP determinations, assistance under NCLB is mandated from both district and state sources. This section outlines the requirements for technical assistance for schools identified for improvement under NCLB and describes how these provisions and other types of support for struggling schools were being implemented in three states as of the 2003-04 school year.

District-Provided Technical Assistance for School Improvement

The provisions of NCLB make districts the first line of support and assistance to schools identified for improvement. Though districts have at times been viewed as inconsequential entities or even impediments to effective school improvement, recent

¹ Standard deviations: California – 9, Georgia – 7, Pennsylvania – 5

² Standard deviations: California – 13, Georgia – 5, Pennsylvania – 7

research has found that districts can play an important role in school reform (Marsh, 2002). Districts’ ability to support school improvement varies considerably and has been found to depend on factors including district size and poverty; the knowledge and understanding of district staff; and the district’s human, social and physical capital (Hannaway & Kimball, 2001; Bulkley, Fairman & Martinez, 2004; Spillane & Thompson, 1997; Marsh, 2000). Nevertheless, Massell (2000) argues that “the efforts of districts to build the capacity of students, teachers and schools are often the major, and sometimes only, source of external assistance that schools receive” (p. 1; see also Goertz, 2001).

The vast majority of principals expressed positive views on district efforts to provide support to struggling schools, as shown in Table 10.

Table 10. Percentage of Principals Agreeing or Strongly Agreeing that “When schools are having difficulty, the district provides assistance needed to help them improve”

	California	Georgia	Pennsylvania
Elementary Schools	77 (10)	81 (7)	80 (7)
Middle Schools	84 (9)	87 (3)	83 (6)
School Not Meeting AYP	90 (8)	92 (3)	76 (12)

Source: Superintendent q. 44

Standard errors shown in parentheses

Response options: Strongly disagree, Disagree, Agree, Strongly Agree

In all three states, more than three-quarters of principals agreed or strongly agreed that their district provides schools that are having difficulty with assistance needed to help them improve. In California and Georgia, principals in schools that had not met AYP targets in 2002-03 were even more likely to feel that the district provided needed assistance, though in Pennsylvania, principals in schools not meeting AYP were somewhat less likely to agree or strongly agree than principals in other schools.

NCLB requires districts to ensure that schools receive technical assistance based on scientifically based research; specific areas for assistance include data analysis, identifying and implementing strategies, and budget analysis. Table 11 shows the percentage of districts that provided these and other types of assistance to their schools and the percentage that targeted assistance to their low-performing (LP) schools.

Table 11. Percentage of Districts Providing Technical Assistance to Schools

	California		Georgia		Pennsylvania	
	Provided to Some or All Schools	Targeted to LP Schools	Provided to Some or All Schools	Targeted to LP Schools	Provided to Some or All Schools	Targeted to LP Schools
Assisting the school in analyzing assessment data to identify and address problems in instruction	95 (5)	0	100	2 (3)	84 (10)	3 (3)
Assisting the school in implementing instructional strategies that have been proven effective	95 (5)	0	100	0	78 (11)	0
Assisting the school in analyzing and revising its budget to use resources more effectively	95 (5)	0	52 (14)	0	41 (12)	1 (1)
Helping the school with school improvement planning	90 (7)	0	100	15 (10)	66 (12)	7 (4)
Helping schools prepare complete and accurate data to comply with NCLB reporting requirements	91 (7)	0	94 (6)	15 (12)	77 (11)	0
Helping the school obtain additional professional development based on scientifically based research	90 (7)	0	100	0	66 (12)	0
Providing before- or after-school, weekend, or summer programs	76 (11)	23 (14)	94 (6)	12 (7)	72 (11)	10 (8)
Providing additional instructional materials and books	90 (7)	2 (2)	74 (13)	30 (13)	72 (12)	0
Assisting the school in implementing parental involvement strategies	53 (14)	0	91 (7)	18 (10)	50 (12)	6 (6)
Helping the school obtain more experienced teachers	48 (14)	2 (2)	71 (12)	4 (3)	33 (11)	0
Assigning additional full-time school-level staff to support teacher development	44 (14)	15 (13)	38 (12)	22 (9)	40 (12)	1 (1)
Providing a coach or mentor to assist the principal	19 (9)	0	60 (14)	26 (11)	16 (8)	4 (3)

Note: “Provided” includes all superintendents reporting providing assistance to low-performing schools, high-performing schools, and all schools. “LP” refers to low-performing schools.

Source: Superintendent q. 22

Standard errors shown in parentheses

Response options: No schools, Low performing schools, High performing schools, All schools

Though not shown in the table, all superintendents of districts with schools identified for improvement reported providing all three types of technical assistance required by NCLB – data analysis, implementing proven strategies, and budget analysis. But regardless of whether they had schools identified for improvement or not,

superintendents in all three states reported providing a great deal of technical assistance to schools. The majority reported providing assistance with analyzing data, implementing proven instructional strategies, planning for school improvement, meeting NCLB reporting requirements, obtaining research-based professional development, providing non-school time academic programs, providing additional instructional materials, and implementing parental involvement strategies. The types of assistance that were provided by the fewest districts were those that involved assigning or recruiting additional personnel, such as assigning special school-level staff to support teacher development, providing coaches/mentors for principals, and helping schools obtain more experienced teachers.

Some types of technical assistance were far more common in some states than in others. For example, providing assistance with budgeting and providing additional instructional materials were among the most common forms of assistance provided by districts in California, but were reported much less frequently in the other two states. Similarly, while 91 percent of superintendents in Georgia reported providing assistance with parental involvement strategies, only 53 in California and 50 percent in Pennsylvania reported providing this type of assistance. Assistance providing non-school time programs was also more common in Georgia than in the other two states. Approximately 90 percent of districts in California and all sampled districts in Georgia provided assistance with school improvement planning and obtaining more professional development based on scientifically based research, compared to 66 percent in Pennsylvania.

Targeting assistance to particular schools was a much less commonly reported strategy than providing assistance to all schools. In only one case – assigning special school-level staff to support teacher development in California – was the percentage of superintendents reporting targeting assistance greater than the percentage reporting providing assistance to all schools. Targeting assistance to low-performing schools was a more commonly reported strategy among superintendents in Georgia than for superintendents in California or Pennsylvania, but was never reported by more than a third of superintendents. When superintendents did report targeting the assistance they were providing, it was most often more resource-intensive forms of assistance, such as

coaches or mentors for principals, special school-level staff to support teacher development, extra non-school time academic programs, and additional instructional materials.

State-Provided Technical Assistance for School Improvement

In addition to the technical assistance that districts provide to schools in the improvement process, NCLB also envisions a role for states as technical assistance providers for both schools and districts that have been identified for improvement. Providing adequate technical assistance will likely prove challenging for states. Several national studies have found that state education agencies lack the financial and personnel resources needed, particularly in the face of recent state budget cuts (CEP, 2004; Fuhrman, 1999). States also face challenges related to their ability to evaluate their own services and to ensure that assistance is useful and is based on scientifically based research (ECS, 2004; Christie, 2003).

NCLB requires that states “create and maintain a statewide system of intensive and sustained support and improvement” and specifies particular types of assistance that the state should provide to schools and districts in need of improvement. Priority for state assistance is given to districts identified for improvement, followed by schools in corrective action, schools identified for improvement, and other Title I schools and districts. States were also required to allocate 2 percent of their federal Title I funds in 2002 and 2003, and 4 percent for 2004 through 2007, to support school and district improvement and technical assistance. At least 95 percent of that allocation must be provided directly to districts with schools in need of improvement, with priority given to the lowest achieving schools.

Of the states in our study, Georgia has been particularly active in developing and implementing a new coordinated system of school support. California has established a new infrastructure, but its implementation is still in progress. Meanwhile, the continued functioning of several previous school support programs creates multiple layers of assistance, but a potentially more fragmented system. Pennsylvania has not created new infrastructure as the other two states have, but is instead relying heavily on its long-established network of independent regional agencies to take the lead in providing

assistance to schools and districts. All three states have developed new resources for school and district improvement that have been made available on-line, though Georgia offers assistance in more different areas than the other two states and has made some components of this on-line assistance mandatory. The next sections describe in more detail the individual state systems.

California. California established the Statewide System of School Support in 2002, which includes the eleven centers of the Regional System of District and School Support (RSDSS) and two federally funded Comprehensive Assistance Centers (CAC). The RSDSS and CACs work to build the capacity of districts to support their low-performing schools, provide school support teams for schools identified for improvement, provide professional development services, and broker and coordinate other types of assistance. Low-performing schools may also receive financial support through the Immediate Intervention/Underperforming Schools Program and the High Priority Schools Grant Program. Schools that fail to show improvement after two years in this program receive additional support from School Assistance and Intervention Teams – teams of experienced educators from provider organizations approved and trained by the state that are contracted by districts to support schools by assisting with self-assessments and developing improvement plans. County educational offices also provide support to schools. On-line resources available through the department of education’s website include California’s nine Essential Program Components, and surveys to help schools and districts assess how well they are implementing these components.

Georgia. Georgia’s Department of Education established the Division of School Improvement in July 2003, and the office has worked to develop a new regional infrastructure to provide assistance to schools. Four regional support teams, responsible to the state department of education, organize and manage individual school improvement teams in conjunction with the state’s sixteen established Regional Educational Service Agencies. The regional teams consult with individual schools identified for improvement to develop an integrated improvement plan and assign an experienced, trained leadership facilitator to work with the school on-site on a regular basis. Georgia has also required all schools in the state to complete an on-line needs assessment based on Robert Marzano’s *What Works in Schools* research. In addition, the

state's school improvement website provides numerous resources for school and district improvement, including data analysis tools, planning templates, and links to external resources.

Pennsylvania. Pennsylvania is relying on its long-established regional educational offices to provide technical assistance, though with little coordination from the state level. The state's 27 Intermediate Units (IUs) are regional educational consortia governed by member districts that provide a variety of support, such as professional development, curriculum guidance, planning assistance, instructional materials services, management consulting, student enrichment programs, and other services. The state department of education also provides tools for improvement through its website, including linked strategic planning frameworks – *Getting Results!* for schools and *Leading for Learning!* for districts – and data analysis tools and protocols.

State Assistance to Schools. NCLB requires that statewide systems of support include school support teams, distinguished teachers and principals, and provision of assistance from outside entities such as institutions of higher education, educational service agencies, or private providers of scientifically based technical assistance.

Twenty-six superintendents in our survey sample – 7 in California, 16 in Georgia and 3 in Pennsylvania – reported having schools identified as in need of improvement that were eligible for technical assistance from the state. Table 12 shows the types of technical assistance that superintendents reported the state education agencies had provided to these schools. Because the number of superintendents with schools in need of improvement was very small in some states, we report raw numbers for our sample, rather than estimates for the whole state.

Table 12. Number of Superintendents Reporting State Assistance for Schools in Need of Improvement

	California (n=7)	Georgia (n=16)	Pennsylvania (n=3)
Assigning a state-approved support team to review school operations, evaluate school plans, and make recommendations for improvement	1	4	1
Designating and assigning a distinguished principal and/or teacher to work with school	0	0	0
Providing assistance to schools through institutions of higher education, educational service agencies, or private providers of scientifically based research	0	6	0
Providing special grants for school improvement	3	13	2

Source: Superintendent q. 24, for districts with schools in need only (q. 5)

In California, the number of reported examples of assistance was lower than the number of districts with schools in need, indicating that the state had not provided these types of assistance in all districts with schools in need; in Georgia, on the other hand, the number of examples of assistance was somewhat higher than the number of districts with schools in need, indicating that some districts had received more than one type of assistance.

The most common type of assistance in all three states was the provision of special grants to support school improvement. As with district-provided assistance, however, the less commonly provided forms of assistance were those requiring additional or special personnel, such as school improvement teams and distinguished educators.

Conclusions and Next Steps

We found evidence that the school improvement strategies envisioned in NCLB were well under way in all three of our states. Schools were placing strong emphasis on the use of student achievement data to guide instruction and planning, and were using state assessment results for a variety of purposes. Principals reported that their schools had undertaken a variety of different locally initiated improvement initiatives addressing curriculum, learning opportunities, and teacher capacity. And districts were providing technical assistance in a range of areas to help all schools improve, regardless of their current performance.

While our snapshot of school improvement largely paints a picture of positive action, however, our results do suggest a few areas of concern.

School's ability to carry out effective data-based decision making is mitigated by the quality of the state assessment data available to them. While state test scores in a variety of forms were broadly available in all three of our states, quality issues related to the timeliness, relevance, and validity of the data seemed to limit their usefulness in some places. If schools are expected to use state assessment data to drive their improvement, states must attend to these issues and ensure that the data they provide is of high quality.

Finally, we note that, as other researchers have forewarned, state and district capacity to provide adequate assistance was an issue to some extent in our states: resource-intensive types of assistance were among the least common, and were most likely to be targeted to only some schools rather than provided to all schools. Our results suggest that state and district capacity issues may be due not simply to low financial resources, however, but rather to a lack of adequate human capacity to provide the kinds of qualified, trained personnel with special expertise that schools need. As AYP targets are raised over time and more schools need assistance to meet their goals, this lack of human capacity could stymie widespread school improvement if not addressed.

Next Steps

The results here do not represent the full range of possible school improvement strategies, nor are we able to clearly attribute those articulated in this study to NCLB and state accountability systems since our findings are based on principal reports at one point in time. Nonetheless, they provide a useful preliminary view of the efforts that schools are making to increase student achievement and meet the federal goal of 100 percent proficiency. These results are an initial step in our longitudinal study of the implementation of standards-based accountability. In coming years, we will continue to track these variables, and will also examine the influence of school, district and state contextual factors, and eventually their relationship to student achievement.

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