Achieving with Data

How high-performing school systems use data to improve instruction for elementary students

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EXECUTIVE SUMMARY

Imagine an afternoon when a teacher can sit down at a computer desktop and quickly sort through reams of data she'll use to plan lessons for the next day…. She'll compare every student's achievement against state standards to decide which students need review and which ones are ready to move on…. That technological capability can only be found in the rare classroom today, but some experts say that such a data-rich approach to instruction will soon be common place (Hoff, 2006, p. 12).

Using data to improve decision making is a promising systemic reform strategy. However, there is a dearth of rigorous research conducted thus far on this practice. Recently, NewSchools Venture Fund in San Francisco set an agenda to help fill this research gap. As part of a study of data-driven decision making, we were fortunate to visit schools and districts where practices, such as the one depicted in the above quote, are indeed becoming commonplace. In this report, we capture the work of four school systems that were identified as leaders in data-driven decision making. Our study included two mid-size urban school districts and two nonprofit charter management organizations (CMOs). All of these school systems have records of improving student achievement over time.

As we show in our case studies of these performance-driven school systems, the gathering and examining of data is merely a starting point to developing a culture and system of continuous improvement that places student learning at the heart of its efforts. Our study reveals that there is not one way to be a performance-driven system. All of these schools and school systems approached data-driven decision making differently — and all achieved successes in the process. At the same time, the school systems we studied had many features in common that seem to support the effective use of data. In this report, we highlight the choices and tradeoffs made by these schools and school systems, so that educators, policymakers, researchers, grantmakers and others can learn from their experiences.

Key Strategies of Performance-Driven School Systems

1. Building a Foundation for Data-Driven Decision Making

Before implementing strategies for data-driven decision making, these school systems invested time and resources in building a solid foundation for system-wide improvement efforts. Integral to this process was establishing specific, measurable goals at the system, school, classroom, and individual student levels. Once such goals were established, school system leaders concentrated on developing and monitoring the implementation of a system-wide curriculum. A

coherent curriculum got educators on the "same page" and moving in the same direction, which was essential in helping them gather, organize, discuss, and act on data about student achievement.

2. *Establishing a Culture of Data Use and Continuous Improvement*

Establishing a culture of data use was a critical component of each system's efforts. Leaders within the school systems created explicit norms and expectations regarding data use, and principals followed through at the school level by reinforcing system expectations. Through their efforts to build data-driven cultures, school systems also attempted to foster mutual accountability between schools and the central office, which helped to build a commitment to continuous improvement.

3. *Investing in an Information Management System*

All of the school systems we studied were data-rich, but they had to grapple with organizing data in an accessible format and presenting it a comprehensible manner. First, they had to invest in a user-friendly data management infrastructure that would grow with their needs. Options for such data systems have grown in recent years, and each system we studied used a different data management system to meet their needs. Second, the school systems utilized various personnel at the district and school levels to assist in data management and use. Most of these school systems had a dedicated individual or team responsible for supporting data analysis and use by both central office and school personnel. In addition, most schools designated well-respected staff (generally principals or lead teachers) as the local experts to whom the teachers turned first. Finally, school system leaders made data timely and accessible, which was an integral part of ensuring that the data that were gathered would be put to use.

4. *Selecting the Right Data*

All four of these school systems grappled with selecting the right data that would best inform the work of teachers and administrators. While student assessment data were an integral part of the data-driven decision-making process, school systems drew upon many different types of information — student achievement data, instructional practice data, and goal implementation data — to help guide improvement efforts. Common across all school systems were data from system-wide interim assessments aligned to standards. In designing their information systems with a mix of data, school systems were able to use the information for multiple purposes—including instructional, curricular, resource allocation and planning decisions.

5. Building School Capacity for Data-Driven Decision Making

The school systems we studied worked hard to build capacity by empowering educators to use data to inform instruction at the school level. The key strategies they undertook to empower educators were (1) investing in professional development, (2) providing support for staff in how to use data and modeling data use and data discussions, (3) providing time for teacher collaboration, and (4) connecting educators across schools to share data and improvement strategies. Some of them also offered rewards and incentives for improved achievement that arose out of data-driven decision making.

6. Analyzing and Acting on Data to Improve Performance

In addition to building capacity and creating structures to foster data-driven decision making, school system leaders developed tools and processes to help principals, teachers, and other staff members to act on data. All four school systems provided immediate feedback to schools on student achievement and progress toward meeting their goals. All the school systems also created explicit data analysis protocols and goal-monitoring reports for administrators, teachers, and in some cases for students as well. Examples of the tools are provided throughout the report.

Areas for Further Development and Next Steps

Although all four of these school systems made great strides in the area of data-driven decision making, they identified areas for further development. Managing and prioritizing data continued to be a challenge. All four also identified the need to expand the types of data collected and used for school improvement efforts. System and school leaders also acknowledged that helping staff members to use data thoughtfully was an ongoing effort. In other words, sustaining a culture of continuous improvement through the use of data-driven decision making requires a continual investment in data management resources, including both human and social capital.

The strategies, tools, and case study examples in the full report provide a starting point for both regular public school districts and charter school developers that are interested in either becoming performance-driven or fine-tuning their existing efforts. We hope that the lessons learned will also be useful to policymakers, researchers, grantmakers, and others interested in creating performance-driven school systems.

In addition, this study lays the groundwork for future investigations of the role of the central or home office in supporting data-driven decision making. The findings

of this study convince us that school system leaders play a critical role in supporting schools in using data, and there is still much to learn about their work in this area. First, we suspect that the process of data-driven decision making in elementary and secondary schools will be different. Secondary schools are typically much larger and more organizationally complex than elementary schools and therefore face additional challenges in using data for decision making.

Second, we believe it is important to further examine how school systems grapple with educators who are resistant to using data. The schools we focused on in this study were those in which most educators were excited about using data, but all system leaders acknowledged that there were other schools that were less enthusiastic. Third, we think it is important to gather more information on how school systems garner board, community, and union support for data-driven decision making. By virtue of their unique histories, the districts and CMOs we studied did not face major challenges in these areas; however, we suspect a lot could be gained by examining school systems with more difficult political circumstances.

Finally, we believe that further research is sorely needed on how teachers use data to differentiate instruction. This study indicated that teachers are indeed differentiating instruction in response to data that shows which students need additional support and in which areas; however, we did not have sufficient opportunity to gather data on the details of this process. A study that focused on the differentiated instructional techniques that arise out of data-driven decision making would be useful.

1.

The need for data-driven decision making
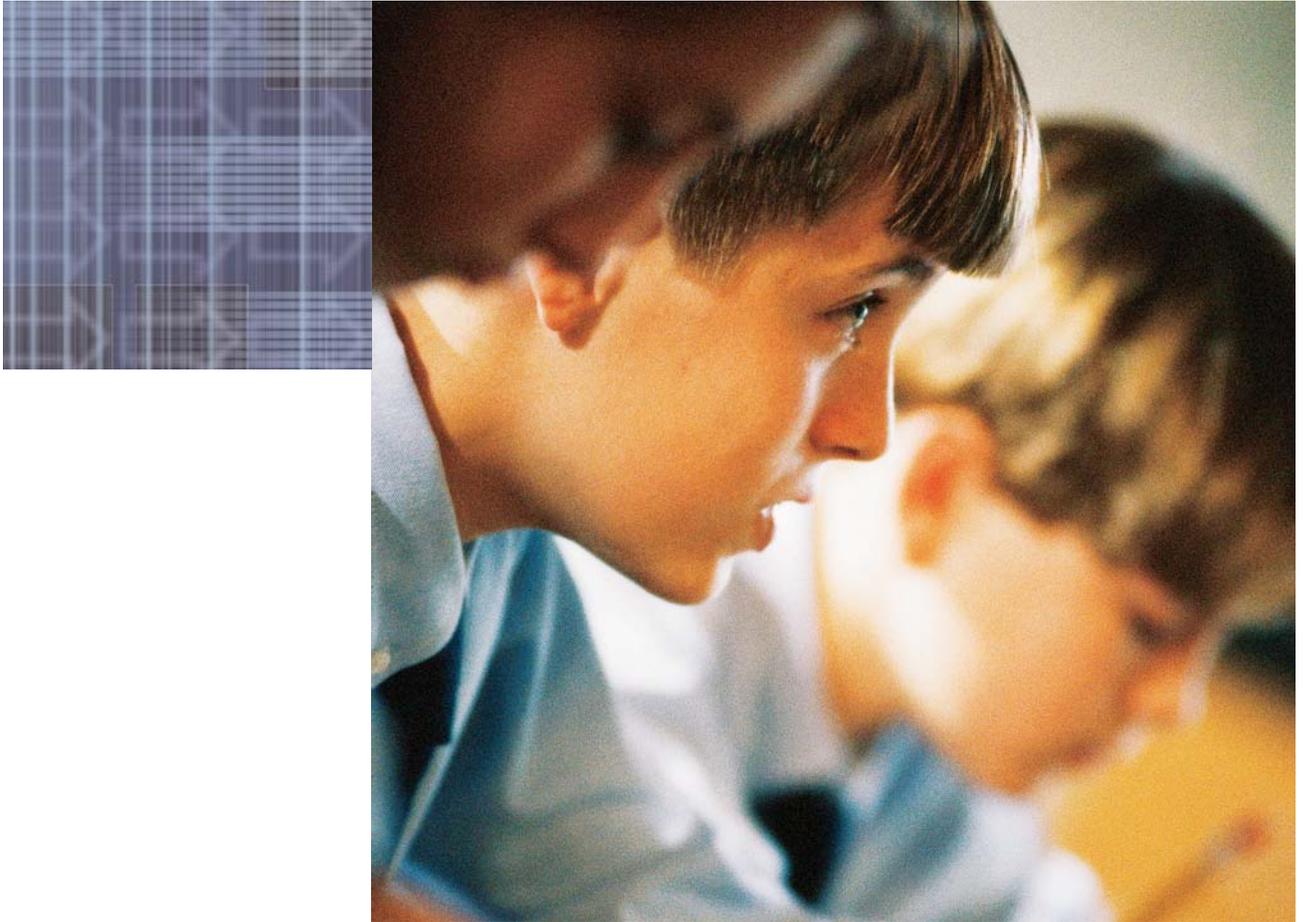
Overview

Platitudes such as "all students can learn" and "leave no child behind" are common refrains espoused by educators, policymakers, and parents when discussing student achievement. However, the reality is that children do get left behind and groups of students, especially those from low-income and minority backgrounds, are often failed by our school systems. In our current era of evidence-based practices, the use of data is an important tool in school improvement. Data can shed light on existing areas of strength and weakness and also guide improvement strategies in a systematic and strategic manner (Dembosky, Pane, Barney, & Christina, 2005). However, there is a dearth of rigorous research conducted thus far on this practice. Recently, NewSchools Venture Fund in San Francisco set an agenda to help fill this research gap and to shed light on how performance-driven school systems use data for systemic reform.

As we show in our case studies of these performance-driven school systems, the gathering and examining of data are merely starting points to developing a culture and system of continuous improvement that places student learning at the heart of its efforts. Our study reveals that there is not one way to be a performance-driven system. All of the systems and schools approached data-driven decision making differently — and all achieved successes in the process. At the same time, the school systems we studied had many features in common that seem to support the effective use of data. In this report, we highlight the choices and tradeoffs made by these schools and school systems, so that educators, policymakers, researchers, grantmakers and others can learn from their experiences.

What the Research Says about Using Data

With the advent of the federal No Child Left Behind (NCLB) Act, the push for increased accountability and improved student achievement in American public schools has never been greater. Prominent educational researchers have long decried education as a field in which practitioners make decisions based on intuition, gut instinct, or fads (Slavin, 2002). Supporters of data-driven decision-making practices argue that effective data use enables school systems to learn more about their school, pinpoint successes and challenges, identify areas of improvement, and help evaluate the effectiveness of programs and practices (Mason, 2002). Since the effectiveness of schools is being measured by performance indicators, it is not surprising that educators are now using data for improvement. The theory of action underlying NCLB requires that educators know how to analyze, interpret, and use data so that they can make informed decisions in all areas of education, ranging from professional development to student learning.

Previous research, though largely without comparison groups, suggests that data-driven decision making has the potential to increase student performance (Alwin, 2002; Doyle, 2003; Johnson, 1999, 2000; Lafee, 2002; McIntire, 2002). When school-level educators become knowledgeable about data use, they can more effectively review their existing capacities, identify weaknesses, and better chart plans for improvement (Earl & Katz, 2006). A recent national study of the impact of NCLB found that districts are indeed allocating resources to increase the use of student achievement data as a way to inform instruction in schools identified as needing improvement (Center on Education Policy, 2004). Student achievement data can be used for various purposes, including evaluating progress toward state and district standards, monitoring student performance and improvement, determining where assessments converge and diverge, and judging the efficacy of local curriculum and instructional practices (Crommey, 2000).

However, data need to be actively used to improve instruction in schools, and individual schools often lack the capacity to implement what research suggests (Diamond & Spillane, 2004; Ingram et al., 2004; Mason, 2000; Petrides & Nodine, 2005; Wohlstetter, Van Kirk, Robertson, & Mohrman, 1997). The central or home office can play a key role in helping schools build the skills and capacity to use data for decision making. Summarizing findings across several major recent studies of school districts, Anderson (2003) writes:

Successful districts in the current era of standards, standardized testing, and demands for evidence of the quality of performance, invest considerable human, financial and technical resources in developing their capacity to assess the performance of students, teachers and schools, and to utilize these assessments to inform decision making about needs and strategies for improvement, and progress toward goals at the classroom, school, and district levels (p. 9).

Quite simply, high-performing districts make decisions based on data, not on instinct (Supovitz & Taylor, 2003; Togneri, 2003).

Similarly, in the charter school arena, for-profit education management organizations (EMOs) and non-profit charter management organizations (CMOs) have also sought to build capacity in schools and districts (Colby, Smith, & Shelton, 2005), and several expressly utilize data-driven decision making as one of their key pillars. For example, a case study of an Edison School found that the Edison EMO helped to cultivate data-driven practice through its curriculum, assessment, and organizational structure (Sutherland, 2004). A culture of data use appears to be prevalent in the Edison Schools model, as well as in other EMOs and CMOs that seek to be at the forefront of educational reform.

2.

How we did the study

In response to NewSchools Venture Fund's request to research how school systems effectively use data, we conducted a qualitative case study of four school systems to capture the details of data-driven instructional decision making. Our study included two mid-size urban school districts and two nonprofit charter management organizations. Our rationale for including both regular public school districts and charter management organizations in this study is based upon research suggesting that both types of school systems are engaging in innovative practices in data-driven decision making. These particular school systems were chosen on the basis of being leaders in using performance results in general — and data in particular — for instructional decision making, which seems to have led to improved student achievement over time. Thus, we call them "performance-driven."

In collaboration with NewSchools, we chose these school systems from a list of over 25 school systems that had been recommended as fitting our criteria. We narrowed down the list of possible sites after reviewing system Web sites, speaking with experts in the field, and conducting phone interviews with system leaders. While acknowledging the successes they had experienced in becoming more data-driven, all system leaders also were careful to note that their work was "in progress."

Our study, conducted during the 2005–2006 school year, included the following four school systems:

System	# of Schools	Location	Type
Garden Grove Unified School District	70	California	Regular public school district
Aldine Independent School District	63	Texas	Regular public school district
Achievement First	6	New York; Connecticut	Nonprofit charter management organization
Aspire Public Schools	14	California	Nonprofit charter management organization

These school systems have obvious differences in size, history, and mission. Garden Grove and Aldine are mid-size urban public school districts that have been in operation for many years. Both have histories of steadily improving student achievement over the past decade. Aspire and Achievement First are relatively new organizations, the former having been founded in 1998, and the latter in 2003. They are both networks of charter schools that operate "home offices" that function similarly to school districts' central offices, providing oversight in accounting, curriculum, governance, and organization. All four school systems are composed primarily of schools in urban locations or those serving large numbers of low-income students and students of color.

Throughout the spring of 2006, we studied two schools in each of the four school systems. These schools were recommended to us by system personnel because of

TABLE 1:   Characteristics of Performance-Driven School Systems

	Grades	Size	Race/Ethnicity (%)					Free–Lunch	LEP Status	Location
			African American	Asian or Pac. Isl.	Latino	White	Native American	Eligible	% ELL	
California										
Garden Grove	K-12	49,574	1	31	53	15	<1	60	47	
School A	K-6	571	<1	72	11	17	<1	33	25	Urban
School B	K-3, 4-6	1223	1	25	67	7	<1	73	56	Urban
Aspire	K-12	3600								
School A	K-8	405	15	0	72	0	0	88	66	Urban
School B	K-5	351	9	13	37	35	<1	34	30	Suburban
Connecticut										
Achievemt. First	K-8	1,539								
School A	5-8	270	64	<1	33	2	0	84	10	Urban
School B	K-3	218	75	<1	22	2	0	77	5	Urban
Texas										
Aldine	PK-12	57,931	32	2	61	6	<1	78	27	
School A	K-4	609	15	2	81	4	0	86	66	Urban Fringe
School B	9	898	20	2	73	5	0	78	12	Urban Fringe

Note. All data reported are for 2005–2006. Figures have been rounded to the nearest percent.

See Appendix A for a brief overview of achievement results for each school and school system studied.

their high level of engagement in data-driven decision making. Our study included six elementary schools, one middle school, and one high school serving ninth graders only. Because the schools in this study were mostly elementary schools, we emphasize the elementary school findings in this report. Table 1 gives a detailed demographic picture of the individual schools and the systems themselves.

Our site visits to the school systems and schools took place between March and May 2006. We interviewed 2–3 administrators from the home or central office, including the superintendent, assistant superintendent (in 3 of the 4 systems) or chief academic officer, and the director of research and/or assessment. At each school, we interviewed the principal, often an assistant principal, and a minimum of 5 teachers across grade levels. We also interviewed lead teachers, where possible. We conducted approximately 70 interviews across the four school systems and schools. At each school, we also conducted informal observations of the school and classrooms and relevant meetings. Finally, we gathered a plethora of documents at the school and system levels that were pertinent to our study.

3.

How we analyzed the data
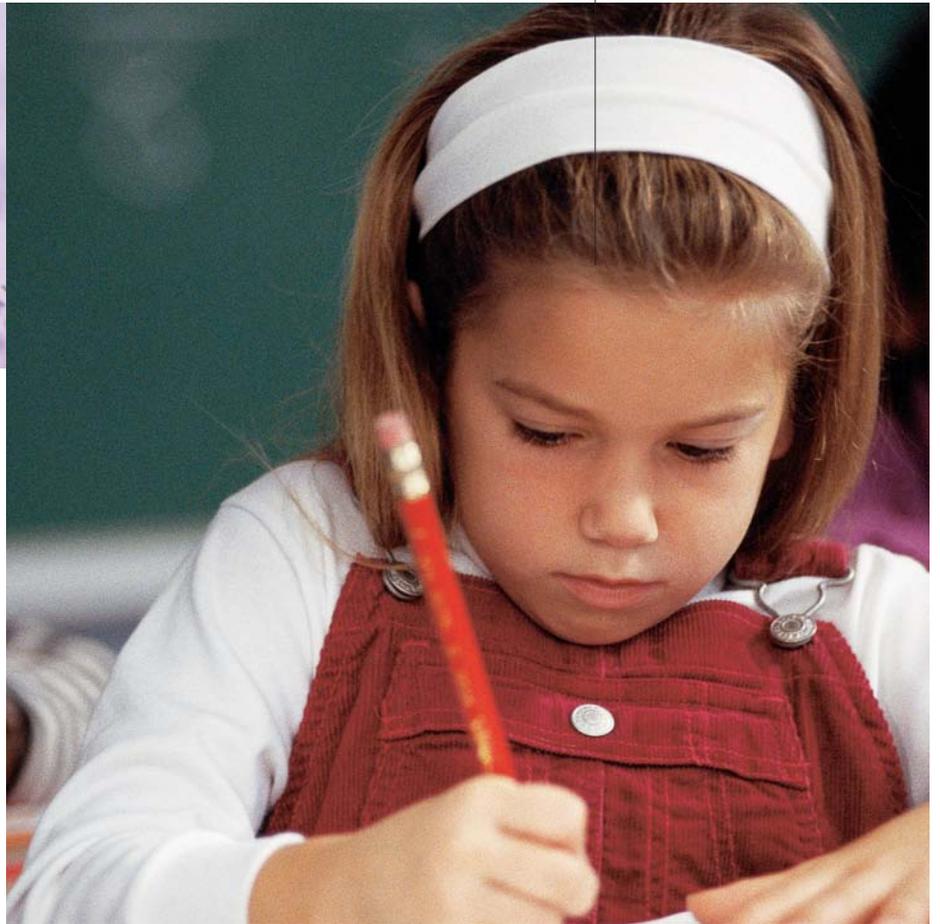
Conceptual Framework

To help guide us in collecting and analyzing relevant data, we developed a conceptual framework based on what we learned from the literature on data-driven decision making. Our framework reflects our belief in the importance of examining the relationships between different levels of the broader public education context (local, state, and federal), as well as between different levels within a given district or CMO itself (classroom, school, and system). We wanted to examine how the schools in our study worked in collaboration with the central or home office staff to build capacity for effective data use.

Federal and state accountability policies provide an important frame for what happens at the system and school levels. The federal government, under the No Child Left Behind Act (NCLB), holds states, districts, and schools accountable for student performance. States set curriculum standards and also hold schools and districts accountable. Some district leaders point to NCLB as having provided the political leverage they needed in order to stimulate improvement at the school level. District central offices and CMO home offices provide the critical supports for schools to engage in data-driven decision making. The system can also play a critical role in establishing effective, easy-to-use data management and assessment systems and in creating mechanisms for data-sharing and for translating data into action.

However, it is at the school level where everything comes together. Schools play an important role by providing time for staff to meet to discuss data, flexibility for re-teaching, and resources in order to facilitate data-driven instruction. Like the central office, schools also function as places to build the knowledge and skills of teachers through professional development, instructional leadership, and encouraging networking among teachers. Schools can also play a critical role in providing expectations for data-driven instruction among teachers, as well as creating a climate of trust and collaboration that allow teachers to work in professional learning communities to improve their practice together. Of course, system-level support is also important to reinforcing these expectations.

The figure on the next page shows a graphic representation of the framework.

Data-Driven Decision Making at the School Level

In addition to looking at the interrelationships at multiple levels, our study also examined how data-driven decision making is actually practiced at the school level and the impact it had on improved learning. Performance-driven systems rely on a systematic approach to making continuous improvements —in particular, improvements to instruction to ensure that all students are learning and progressing. Thus, we focused on the extent to which the cycle of instructional improvement was used to help organize strategies within each of these school systems. The core elements of this process include setting goals and aligning resources, instructing students, gathering and sharing data, analyzing data, and acting on information. The diagram on the following page gives a sense of what occurs at each of these phases of the cycle of instructional improvement.

Figure 1: Conceptual Framework
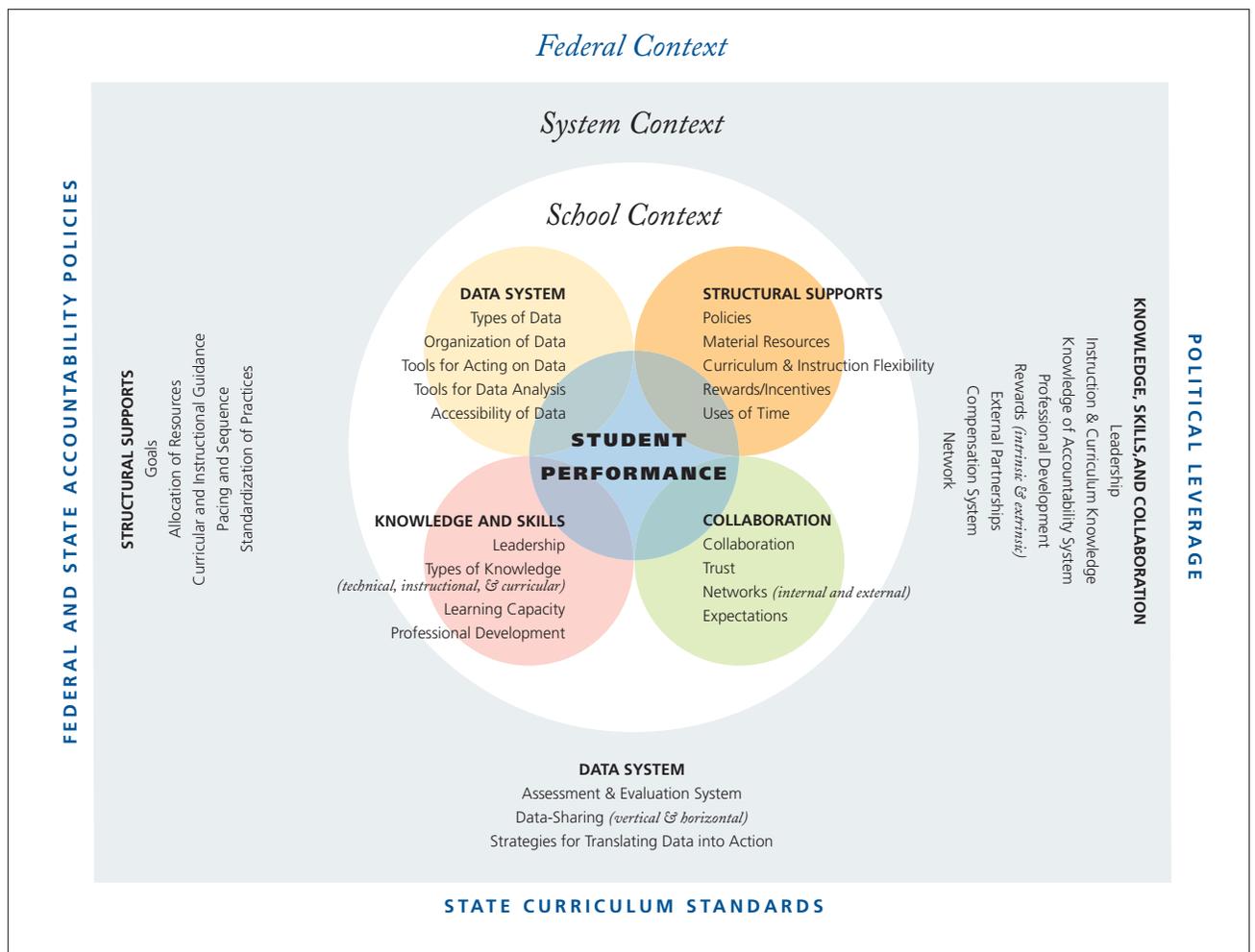
Source: USC CEG

Figure 2: THE CYCLE OF INSTRUCTIONAL IMPROVEMENT

Set goals and
align resources

Instruct
students

Use
information
to create
action plans

Gather and
share data

Analyze
data

The endeavor to continuously improve instruction requires school systems to engage in a cycle whereby performance data are constantly gathered, shared, analyzed, and used to inform what is taught and how it is taught. Data are used to inform decisions at all levels and to ensure that system goals are accomplished through alignment of resources and effort.

Source: NewSchools Venture Fund

Using these two frameworks (the macro and micro) as a backdrop, we highlight the key system- and school-level enablers of data-driven decision making. We conclude the report with areas for development and implications for policy. Throughout the report, we also include artifacts gathered from these school systems so that educators and policymakers can have actual examples of the tools used to facilitate data-driven decision making; these tools are keyed to specific examples throughout the report.

4.

Key strategies of performance-driven school systems
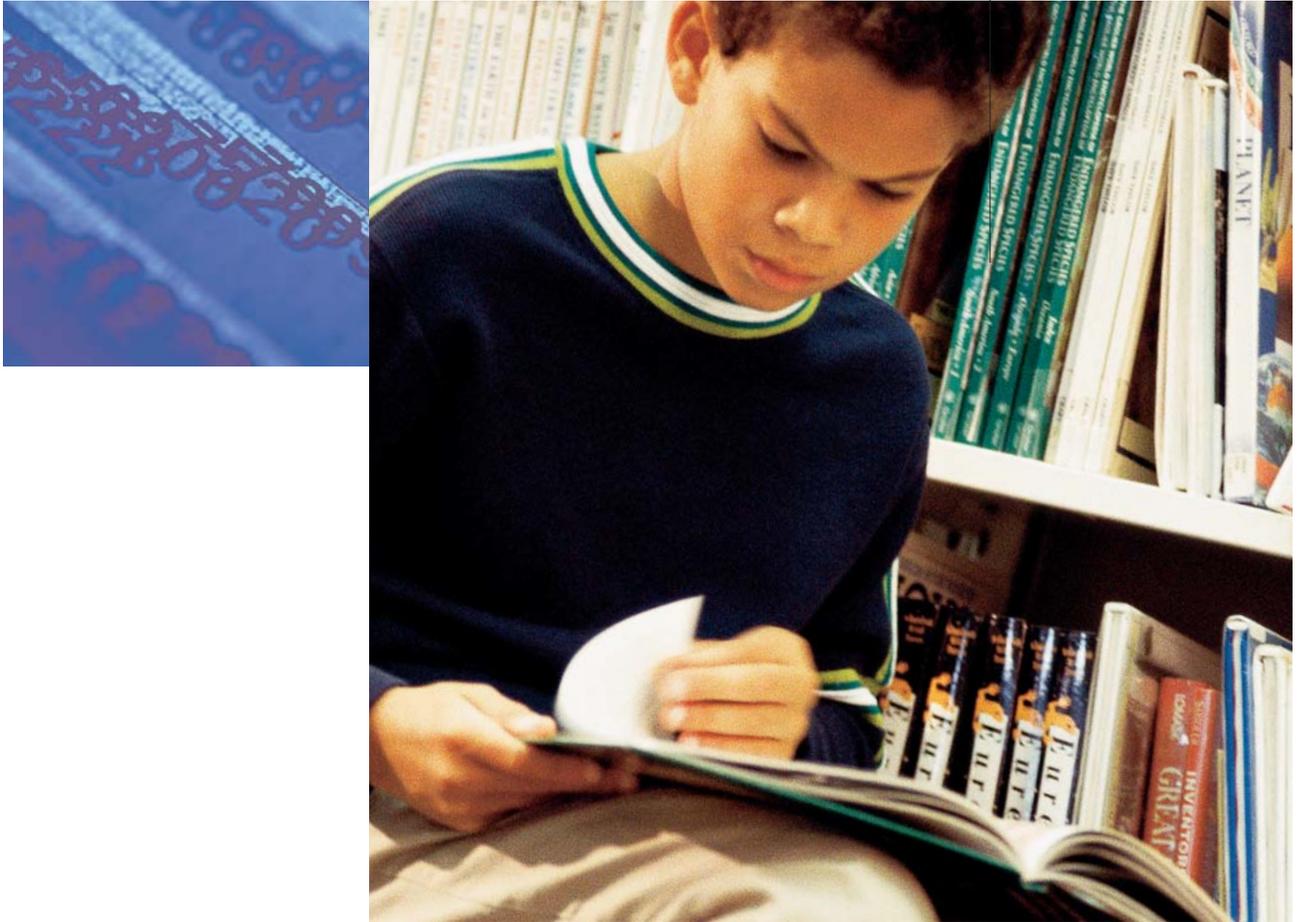
What are the key strategies of data-driven school systems? We begin by describing how the school systems we studied set the groundwork for data-driven decision making. Second, we discuss how these school systems established a culture of data use. Third, we describe how they developed a comprehensive data system. Fourth, we examine how these school systems managed data in a way that would enable schools to use it most effectively. Fifth, we describe how school systems build the capacity to enable educators to better engage in data-driven decision making. Finally, we discuss the tools that enable teachers and principals to act on data.

A. BUILDING A FOUNDATION FOR DATA-DRIVEN DECISION MAKING

Data-driven decision making is not a reform that can be implemented in isolation. Before implementing strategies for effective data-driven decision making, these school systems invested time and resources in building a solid foundation for system-wide change. Integral to this process was establishing specific, measurable goals at the system, school, and classroom levels. Once such goals were established, school systems concentrated on developing and monitoring the implementation of a system-wide curriculum. A coherent curriculum, accompanied by a pacing guide that allowed for flexibility for re-teaching, was an essential building block. These scaffolds allowed educators to get on the "same page" in order to begin to gather, organize, discuss, and act on data about student achievement.

1. Set Student Achievement Goals

SYSTEM LEVEL. Establishing meaningful and challenging goals for student performance is a precondition for effective data-driven decision making. Without tangible student achievement goals, school systems are unable to orient their use of data toward a particular end or desired outcome. The four public school systems we studied approached goal-setting in a number of different ways; however, all melded the need to meet larger accountability demands with goals tailored to the needs of their own students and schools.

KEY POINTS

- Set specific and measurable student achievement goals at the system, school, and classroom levels. The more explicit and targeted the goals are, the more likely they are to provide focus for data-driven decision making.
- Develop system-wide curriculum that is aligned to standards and is accompanied by a pacing plan that allows for some instructional flexibility.

All of the school systems we studied set goals that were both strongly influenced by and tightly interwoven with state and federal accountability systems. As one principal in Aldine stated, "Accountability is a strong force for change. It truly is the change agent." While goal-setting was generally led by administrative teams in the central or home office, often principals, teachers, and other key school-level stakeholders were involved in the process.

For most school systems, taking the time and space to develop specific goals geared toward their needs ended up being a pivotal aspect of using data purposefully. Setting up system goals enabled school leaders to grapple with and reflect on their history, their current progress, and future plans. Thus, goal-setting was a critical step to beginning the process of continuous improvement.

Using goal-setting as the driver of data-driven decision making and continuous improvement

The case of Garden Grove School District

With the state's accountability system as leverage for change, the Garden Grove district began to assess its strengths and weaknesses with regards to student achievement. The first strategy was to work on ensuring that the curriculum and instruction were aligned to the state standards. The district's administrative team began the next hurdle of establishing meaningful, measurable goals. As part of this process, they came to the realization that the team was ill-equipped and lacked the capacity to write strong goals. With the aid of a consultant from WestEd Regional Educational Laboratory as an external partner, the district leadership underwent a multi-year process of developing and refining goals. In order to make appropriate goals, Garden Grove administrators looked closely at past performance data. By doing so, they discussed what the superintendent described as "the big challenge" — the groups of students whose needs were being unmet by the district.

Criteria for the goals were set, including the requirements that they be meaningful and measurable at all levels: student, classroom, school, and district. Generalized objectives such as "all students become lifelong learners" were avoided because they did not enable the district to assess whether or not the goals were being met. Site administrators and teachers from schools representing all levels of the district were part of the final development and refinement process. All in all, it took three years before the goals were finalized and documented so they could be shared throughout the district.

The district now has two main goals: (1) All students will progress through the bands on the California Standards Test (CST) scores annually (e.g., if a student is at the far below basic level, he or she will ascend to the basic level within a year). Within five years of being in the district, all students are expected to be at least in the proficiency level and no student should drop out of the proficient/advanced proficiency level. (2) All English language learners will progress through the California English Language Development Test (CELDT) levels annually (e.g., from beginning to early intermediate). As evidence of the district's ability to maintain focus, all school staff members interviewed for the study were able to clearly articulate the district goals.

In most cases, the school systems developed goals that exceeded the requirements set forth by the state. The two CMOs also used their local districts as benchmarks, aiming to show performance levels that were above those for regular public schools. Aspire has school-specific goals based on an analysis of projections of a school's state Academic Performance Index (API) score and federal Adequate Yearly Progress (AYP) measures under NCLB.

School systems also set goals for themselves based on progressive improvement. Achievement First has differing goals, depending on how long students had been attending an Achievement First school. For example, the goal for grade-level cohorts that have been at the school for one year is that at least 50 percent of those students will perform at the proficient level on state assessments in every subject. However, if a grade-level cohort has been at a school for four years, the goal is for at least 90 percent of those students to perform at or above the proficient level according to state standards.

SCHOOL AND CLASSROOM LEVEL. In concert with system-wide goals, schools also formulated goals specific to the needs of their students and communities. Often, schools would establish school-wide goals, then grade-level goals, classroom goals, and in some cases, individual student goals. Again, the emphasis seemed to be on making goals meaningful in the local context.

Additionally, school staff developed goals pertaining not only to student progress but also to their own professional responsibilities and learning. For example, one principal in Garden Grove met regularly with teachers to establish goals regarding student data. These goal-setting conferences helped to guide each teacher's instructional and professional development plan for the year. Both CMOs required teachers to create annual professional growth plans. For instance, one Achievement First school expects teachers to establish goals in three areas: student learning, personal/professional, and community. A student goal could be anything quantifi-

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CASE 2

Sample Classroom Goals

At one Aspire school, in addition to the system and school-wide goals, teachers and grade-level teams also establish performance goals for their classrooms. In one fourth- and fifth-grade classroom, the class goals, written by a student, were posted high up on the wall. They stated: "Aspire Goals: (1) On the Aspire writing assignment, everyone will score at least a 3, and 2/3 will score a 4; (2) In reading, everyone will be at grade level by spring or they will go up 2 levels from where they started; and (3) Everyone will score at the proficient level on the Aspire math benchmark in the spring."

</div>

able such as "80 percent of students will be proficient in math," while a personal/professional goal might be to attend a writing seminar. A community goal might involve creating a unit lesson plan for the whole grade level to share, or volunteering in the larger school neighborhood.

Ultimately, both at the system and school levels, goals were tied to improving learning and instruction. State and federal accountability policies played a central role in framing student achievement; however, the four school systems moved beyond simply reacting to accountability demands and worked at creating meaningful goals that embodied principles of continuous improvement. The lessons learned from the school systems in our study suggest that it is important for schools to develop goals that are geared toward the specific needs and strengths of their students, staffs, and organizations.

2.   Develop and Monitor System-Wide Curriculum

Data-driven decision making was greatly facilitated when clear, grade-by-grade curricula were adopted system-wide, when high-quality materials were aligned to the curriculum, and when pacing guides clearly described the breadth and depth of content to be taught. Both districts, Garden Grove and Aldine, had put into place system-wide curriculum, accompanied by a pacing plan and instructional materials. Implementation of the curriculum was closely monitored for several years before data-driven decision making came to the forefront of their policy agendas. For example, Aldine developed a pacing plan in 1997 and framed it as "you're going to follow it, and it's non-negotiable." The plan follows the state standards and is divided into six-week periods. At the same time, the district curriculum has flexibility built into to it. As a district administrator shared, "the text does not drive the curriculum, and you're not going to walk in and find everybody using the same things in the book at the same time." A teacher reinforced, "the district gives us lesson plans, but they don't tell us how to teach them."

The CMOs, on the other hand, were more recently moving toward requiring that a consistent, system-wide curriculum be used across schools. Interestingly, it was the analysis of data that led them to become more invested in this. For example, Aspire decided to focus on "literary response and analysis" strand of the standards after scores on the California Standards Test (CST) scores — the state's standardized assessment — indicated that this was an organization-wide weakness. They first focused on professional development around teaching this standard but then also realized that they needed to be more thoughtful about pacing and distributing good teaching practices across schools. Aspire has produced a set of instructional guidelines for science, language arts, humanities, and mathematics based on the state standards. The system has core instructional and supplementary materials, but

individual schools and teachers still have great deal of latitude in making curricular and instructional decisions in terms of sequencing and pacing as appropriate to meet the needs of their students.

The existence and implementation of a system-wide curriculum facilitated data-driven decision making in these school systems, as it allowed all teachers to be "on the same page" in their discussions regarding data about student learning. On the other hand, the tradeoff was that teachers at the local level had less autonomy. As one teacher said, curricular and instructional alignment can be especially positive for new and "lower-performing teachers, but sometimes the higher-performing teachers almost feel hamstrung by it." Overall, however, the benefits appear to dramatically outweigh the disadvantages, and more and more of these performance-driven school systems are convinced that system-wide curricula are essential to being performance-driven. However, it seems that a balance can be struck, with a district pacing plan that allows for some flexibility to account for the needs of individual students, classrooms or teachers. Several educators pointed out that allowing flexibility to use different instructional strategies is a necessary component in fostering data use. Decisions need to be seen as arising from data rather than simply from system mandates. Thus, there were a variety of ways in which classrooms were organized, how students were grouped, and types of programs within the district or CMO.

B. ESTABLISHING A CULTURE OF DATA USE AND CONTINUOUS IMPROVEMENT

Establishing a culture of data use was a critical component of each system's efforts. School systems created explicit norms and expectations regarding data use at the system and school levels. In doing so, they also fostered mutual accountability between school and system levels. Building a culture that values the regular, consistent use of data is essential to supporting a performance-driven system, as otherwise it is easy for educators to slip back into old routines of making decisions based on instinct alone.

How did the school systems we studied go about establishing such a culture of data use? While all four school systems dealt with multiple challenges with regards to gaining buy-in from staff, they have been successful at creating a culture of data use and a focus on continuous improvement. However, creating and maintaining a culture of data use remain ongoing efforts for all four of them.

1. Create Explicit Expectations and Norms Throughout the School System

System leaders found that it was essential to create explicit expectations for data use among all principals and teachers. System leaders were keenly aware of the importance of hiring staff that would support their belief in data-driven decision making. In some ways, the CMOs had a distinct advantage here. Because they were starting schools "from scratch," they could hire teachers and principals who bought into their expectation of data-driven decision making. During the interview process, teachers were probed on their comfort with and openness toward using data. Many of the teachers hired in Aspire and Achievement First schools were new to the profession and have thus incorporated data-driven decision making from the beginning.

The school districts, Aldine and Garden Grove, obviously had to cultivate an interest in data-driven decision making with a wider variety of teachers, many of whom had been in the systems for some time. They are working to create an atmosphere around data that would gain buy-in from different staff members, as the superintendent in Garden Grove explained, "by making data non-threatening." She added, "Just like for doctors, lab reports are not a bad thing." Instead of blaming a teacher or a school for poor performance on the tests, district leaders focused on examining the data. Gaps evidenced by tests were addressed in a manner that invited help from the district.

While it appears that sharing of data across groups of teachers and across schools is important, sometimes creating a safe culture of data use meant slowly starting to share data. For example, in Garden Grove, at first the focus was to examine the district as a whole. Next, the district began to produce school-level reports in which the school was compared to the rest of the district. Today, data examination is

KEY POINTS

- Throughout the system, create explicit expectations and norms, by stating explicitly that data use is non-negotiable and modeling appropriate behavior.
- At the school level, set and model these norms by showing the relevancy of data to systematically improving student achievement.
- Promote mutual accountability for data use among teachers, principals, and personnel in the central or home office, such that schools are held responsible for results, and the school system administrators are responsible for support and resources.

centered at individual school sites, and school-level data are shared between schools. At the school level, teachers only have access to their own class data; the principal and data team have access to all of the teachers' data.

District and school site leaders often highlighted performance data from other schools with similar student demographics to further emphasize the necessity of monitoring data and making changes. Several administrators and coaches indicated that the shift toward viewing data as relevant did not occur until data were disaggregated to the individual teacher and classroom level. One principal shared that when her staff examined individual classroom data on student achievement, teacher attendance, and instructional strategies, they began to see how data could be used to pinpoint specific concerns.

Creating a Culture of Data Use in Aldine

Throughout the Aldine Independent School District, there is a consensus that using data is a powerful tool for school improvement. However, gaining buy-in around data use posed various challenges early on. The superintendent remembered that in the beginning, the principals did not believe that the district's benchmark assessments were valid. She recalled, "It took about three years to make believers out of our principals" before they acknowledged the validity of the district-developed benchmark assessments. Teachers provided input into the development of the benchmark assessments as well.

Aldine leaders at multiple levels express the belief that data needed to be dealt with in an environment filled with trust. Part of using data effectively required developing a process where data are discussed openly, without fear of repercussions. The superintendent admitted that this takes "courage" and so she frames data not as a game of "gotcha, you're doing a poor job," but as an acknowledgement that instructional strategies for groups or specific students are not effective. As noted by the superintendent, staff members needed to "trust that their world would not end if their data were bad, or if they made a bad decision." She

feels that developing a sense of trust is a "top-down, bottom-up, side-by-side" process, with the goal that principals and teachers feel comfortable in coming to meetings to share data.

Simultaneously, Aldine system leaders have worked hard to change educators' belief systems about students. The superintendent believed that once teachers can admit that children are not the problem but that instructional strategies are, then learning is going to happen for every child. She related her philosophy with the current movement toward reforming high schools. She argues that "until you change the philosophy of the teacher, nothing will make a big difference." She adds that changing people's belief systems is almost an impossible task because you are attempting to change an individual's core values. However, she believes that the first step in changing attitudes is building trust so that teachers feel secure enough to come to a meeting and admit that "'my kids are not learning' and ask, 'how can you help me?'"

As the Aldine case suggests, in addition to creating a culture of data use, system leaders have also tried to instill a culture of high achievement for all students.

Another principal expressed the belief that in order for data to be used for continuous improvement, individuals have to feel empowered in using their own abilities to bring about change. A teacher shared that data helped her to reflect on her instruction and made her realize that, "It's not acceptable to just stand up and teach because [students] are not getting it. I need to look at what other strategies I have to get" in order to improve student learning. Many teachers across these four school systems noted how data revealed disparities between what was taught and what was actually learned by the students, and also helped target both their strengths and weaknesses.

2.   Create Explicit Norms and Expectations at the School Level

In alignment with the system, school site leaders also took up the task of fostering a culture of data use. Principals became adept at conveying the district's message about how to approach data. One principal told her staff that data serve as a resource for asking questions and making improvements. She shared that when a teacher expresses sentiments such as, "this is so depressing, I worked so hard, and these are my scores," she responds with, "Don't go there. Don't look at it that way. What we need to do then is to say, okay, what can we do differently next time?"

One school administrator argued that data were important because they helped educators pinpoint root causes of problems. However, she cautioned people that data only led you to questions, and that solutions emerged by analyzing root causes. She used a medical analogy:

I can give you an aspirin if you have a headache. But if your head hurts because you've had an aneurysm, then giving you aspirin isn't going to help. It's the same thing with education and data. If you don't examine the data and look deeply at the root causes, you might just be solving the wrong problem or addressing the problem the wrong way. And in the end, that won't help the students.

All in all, teachers came to view data as absolutely relevant and necessary. One teacher exclaimed, "I don't know what I ever did without it." Teachers commented that data are helpful in ensuring that teachers are not acting by instincts or "shooting darts blindfolded." Furthermore, a sixth-grade teacher mentioned that data "opens your eyes more" because they help teachers realize that teaching doesn't always lead to learning. In some cases, the presence and focus on data seems to help cause a shift in thinking about the utility of data. One teacher recalls that individuals who were opposed to frequent testing began to change their minds when they noticed the huge gains that students were making. He directly attributes the high gains made by the school in a one-year period to the use of data, despite huge staff turnover in the school.

Often, school leaders set expectations for how meetings regarding data would be conducted. They took time to cover such issues as how to behave in meetings, what materials teachers and principals were expected to bring to meetings, what not to bring (e.g., papers to grade), and how to compile data binders. While these types of concerns seem very basic, educators indicated that these discussions helped set the tone for accountability among the staff members and ensured that meetings were purposeful.

Several educators also stressed the importance of creating norms and rules for discussions about students, so that the level and type of discussion would not deteriorate into inappropriate "nit-picking or trash-talking." When asked about how the school established such expectations for teachers, several teachers indicated that positive "peer pressure" was important and that productive facilitation of discussion to keep conversations on track was necessary. Therefore, in conjunction with gaining buy-in from staff members, many schools strategically attempted to nurture high expectations for mutual accountability among the staff.

Example of Scaffolding

The principals in Garden Grove see themselves as instructional leaders and as supporters of teacher development. The "Garden Grove Way" is for the principals to be in the classrooms regularly and consistently. They also see themselves as models in terms of leading conversations around data. One principal stated: "You can't just walk around and say to teachers, 'You must do this,' because they have to have that buy-in of understanding. And I think it's my job to make sure that I facilitate it." One teacher recalled that the first time the Data Director software system was introduced, the principal offered to print out the reports for teachers. With a second request, the principal was known to say, "I'll show you how." And then the next time, the principal might say, "Why don't you do it? And let me know if there are any problems."

Across all these school systems, analyzing school data to improve instructional practices was non-negotiable, and the expectation was widespread that decisions would be made on the basis of data. As a system administrator at Aspire explained, "we are in the business of making improvements and making sure that all kids succeed and reach their potential. So, as a result, we need to know what things work and what things don't work." At the same time, teacher and principal buy-in to the concept of data-driven decision making was critically important, and their support needed to be carefully nurtured. One principal remarked, "You have to take it step-by-step because if you don't, you can send people over the edge… and burn them out."

3. Foster Mutual Accountability in System-School Relationships.

In all four school systems, schools and central offices collaborated closely in order to make improvements. Schools were held accountable for results, but the main responsibility of the central office was to support schools and provide resources. In other words, a trusting relationship was built, based on mutual accountability and with a two-way communication flow between schools and central offices. With the CMOs, the home office supports schools much like a district does, providing services such as generating a budget and providing instructional guidelines. However, principals at CMOs have the flexibility to determine their own calendars and to hire or terminate teachers and other staff. The principals in both CMOs expressed a great deal of trust in the home office. One principal believed that Aspire's home office did a good job of modeling their core values and that "they use people's input to make decisions." Many of the teachers also mentioned the high quality of training provided by Aspire, and lead teachers in particular seemed to view the home office as an integral source of support around data and instruction. Another principal mentioned that she relied on Aspire's director of assessment when she needed data for staff or parent presentations. For instance, she asked him to disaggregate the school's data on African American students and provide presentation slides for a parent meeting. Similarly, in Achievement First schools, administrators believed that the home office had attempted to be responsive to teachers' feedback in order to garner buy-in. The home office constantly asked for feedback from teachers regarding the development of interim assessments.

Unlike the CMOs, which are small enough to work organically on building capacity and supporting schools, the two school districts we studied had to approach the relationship between schools and the central office differently. Given their size and complexity, the school districts realized that they had to put forth long-term action plans that focused on rolling out data-driven decision making systematically. Work began at the district level first. For example, in Aldine, the first year was devoted to training district administrators on goal-setting, developing objectives, devising

action plans, and using a scorecard to measure results. In the second year, the same process was repeated for directors and principals. The process was repeated during the third year with individual campuses. During years four and five, the process was taken down to grade levels and departments. Schools are currently working on progressing from department to teacher levels. In the future, the district plans to take the process to the teacher and student levels.

Like the CMOs, both school districts also emphasized the need for mutual accountability. Although schools were held responsible for improving student learning, districts were expected to support schools and provide leadership. Garden Grove district leaders noted that changes with regards to data use and collaboration could not simply be mandated. Teachers, especially, needed to see the value of data, and thus, part of the system leaders' responsibility was to "build the thirst for it." Principals at both districts indicated that they had supportive relationships with administrators in the central office. One principal at Aldine stated: "The district does an exceptional job of training us, helping us with data and how to interpret it."

C. INVESTING IN AN INFORMATION MANAGEMENT SYSTEM

Building a foundation to enable effective use of data is only the beginning of the continuous improvement process. Given the current federal and state accountability contexts, it is not surprising that most school systems can be considered "data-rich." However, merely having data does not ensure that data-driven decision making will take place. In order to conduct meaningful analysis and use data to create effective action plans, each of the school systems had to grapple with organizing data in an accessible format and presenting it a comprehensible manner. Therefore, they had to figure out how to organize, prioritize, and manage data.

KEY POINTS

- Adopt assessment systems that are user-friendly, comprehensible, easily accessible, quick with results, and able to grow with school and system needs.
- Designate data assistance managers at both the school and central office levels. Most central offices have a dedicated individual or team responsible for supporting data analysis system-wide. In addition, most schools have designated staff members (generally principals or lead teachers) as the local experts to whom the teachers turn first.
- Hire or designate data managers who are experienced, respected educators, not technologists or statisticians.

1. Invest in a User-Friendly Data Management System

Investing in a user-friendly data management system is among the most important actions a school system can take in becoming more data-driven. Three of the four school systems in this study had data management software systems that allowed them to easily run reports that display student results on interim and state assessments, and sometimes on other assessments as well. Timely and useful reports of student achievement data on benchmarks and other assessments were all integral parts of an effective data management system, particularly for teachers and school site leaders. The most useful reports at the school level were those that quickly identified the students who needed extra help, and specified in which particular areas or on which learning standards help was needed.

Each of the school systems found that their needs for a more complex data system grew as their use of data increased. In fact, some system leaders acknowledged that early in their efforts, simple software programs such as Microsoft Excel served their needs, whereas later, as they began to ask more and more questions about the data, more sophisticated systems were required.

System leaders in Garden Grove and Aldine both explained that they worked in partnership with external providers in building their own data systems, which have since been marketed to other districts. Aldine uses a system called Triand and Garden Grove uses a system called Data Director. Aspire uses Edusoft, a system which they purchased "off the shelf" rather than having software customized for their needs. Achievement First was in the process of negotiating with an external provider, Acsys, to build a data management system to meet their specific needs.

The Data Management System in Garden Grove

The Garden Grove School District uses Data Director, a Web-based data warehouse system by Achieve Data Solutions that enables users to access student achievement and demographic data. Results from state assessments, benchmarks, and teacher-created tests can be easily entered into the system. For example, benchmark assessments are delivered to schools and collected by testing clerks, who scan them in at the district office. Within two days, the data are uploaded into Data Director. All of the teachers and principals we interviewed concurred that the quick turnaround of the data is a great feature of the system.

District officials have access to district-wide data and compile reports for meetings with leadership teams and for reviewing personally. However, the majority of the reports are generated by individual school sites. Teachers can generate reports for their classrooms and individual students on their own; they also have the option of either asking their principal or a member of the district staff to generate a report for them. Several teachers confirmed that someone from the district is always available to help with using Data Director. The formatting varies depending on each teacher, their ability to navigate the Data Director, and their technological proficiency. For those staff members who might be uncomfortable with using computers, the district also provides user-friendly paper reports. They did not want the lack of technical knowledge to hinder the practice of using data. Data Director is easy to navigate; however, some teachers were still struggling to fully utilize the system's capabilities.

The system enables users to aggregate and disaggregate data, and to create multiple reporting formats. One teacher jokingly shared that the Data Director gives you "like 200 choices" in reporting and formatting student data. The system allows teachers to create letters and reports addressed to parents, but most teachers were not yet using this feature. The system also collects longitudinal data and enables teachers to follow information on their students all the way from elementary to high school. Other tools in Data Director enable the district to do school-to-school comparisons on a particular district goal. Data Director also enables administrators to make projections about a school's scores on the state assessment test based on various student achievement data uploaded into system. Currently, there is a separate system to handle attendance and referral data. Thus, one of the works in progress is to create a platform that integrates all types and sources of data.

Classroom Exam Report

05-06 HMSUM Grade 4 Qtr 1

School Name __XXXXX Elementary_____   Teacher Name _____

Period _____   Test Date Dec. 1st, 2005 _____

No. of Students Tested	32
Average # Correct	48
Average % Correct	64.33%

Proficiency Level	*# Students*	*% Students*
Advanced	0	0.00%
Proficient	11	34.38%
Basic	8	25.00%
Below Basic	8	25.00%
Far Below Basic	5	15.63%

Proficient 34.38%

Basic 25%

Below Basic 25%

Far Below Basic 15.63%

Standards Tested	*Items*	*Classroom % Correct*	*Classroom # Correct*
R1.3: Use knowledge of root words to determine the meaning of unknown words	4	68.75%	88/128
R1.4: Know common roots and affixes derived from Greek and Latin and use…	4	68.75%	88/128
R1.2: Apply knowledge of word origins, derivations, synonyms, antonyms, and…	4	82.03%	105/128
R1.6: Distinguish and interpret words with multiple meanings	7	47.77%	107/224
R1.5: Use a thesaurus to determine related words and concepts	5	45.63%	73/160
R2.0: Reading Comprehension students read and understand grade-level-appro…	15	62.92%	302/480
W1.6: Locate information in reference texts by using organizational features…	4	68.75%	88/128
WOC1.2: Combine short, related sentences with appositives, participial phrases,…	4	50%	64/128
W1.1: Select a focus, an organizational structure, and point of view based upon…	1	75%	24/32
W1.10: Edit and revise selected drafts to improve coherence and progression by…	2	26.56%	17/64
WOC1.1: Use simple and compound sentences in writing and speaking	12	65.63%	252/384
WOC1.0: Written and Oral English Language Conventions Student write and…	6	73.96%	142/192
WOC1.4: Use parentheses, commas in direct quotations, and apostrophes in the…	1	68.75%	22/32
WOC1.7: Spell correctly roots, inflections, suffixes and prefixes, and syllable…	5	72.5%	116/160
LAS1.2: Summarize major ideas and supporting evidence presented in spoken…	5	90%	144/160

Report created by DataDirector, Achieve! Data Solutions, LLC

2. Utilize Personnel to Assist in Data Management and Use — System Level

The four school systems studied offered differing levels of support by personnel to assist in data management and use. In all cases, there was an individual at the district or home office who directed data management efforts. This person performed the critical role of supporting both the system and the schools in obtaining the data and reports necessary to make decisions. Interestingly, rather than being pure statisticians or researchers, these individuals all shared the background of having worked in schools, often as a principal and teacher, or had worked in a school support capacity. This appears to be a change from the past, when many districts and other school organizations were staffed with individuals who had detailed statistical knowledge, but less experience in how to translate the data into valuable information for schools.

For example, the director of assessment for Aspire explained that a large part of his role was to translate and disseminate data in an accessible way. He conducted follow-up conversations with principals and assisted them by developing goals and creating AYP projections (e.g., data were disaggregated into all numerically significant subgroups and highlighted areas where schools needed to increase the proportion of students who scored in the proficient level in order to make AYP). He then made specific recommendations about which students to target for extra support and helped principals follow up by sending them a list of targeted students, their demographic characteristics, and types of intervention services that would be provided.

3. Utilize Personnel to Assist in Data Management and Use — School Level

These school systems varied in the amount of support provided at the school level. However, most schools had at least one designated person who assisted with data management and use. In Achievement First schools, principals were instructed and expected to support teachers in data use. They actually ran the analyses of interim assessments themselves. In Aldine, each school site had a designated assessment coordinator and a technology specialist. The technology specialist was expected to conduct teacher trainings for different Triand components. Also, technology specialists trained parents to register on the program's "Parent Portal" and walked parents through the site. However, at both of the Aldine sites we examined, members of the leadership team and administrators also assisted with using Triand by compiling data and producing reports.

Informally, leadership team members and other teachers at school sites became "data experts." Across all of the school systems, teachers named one or two teachers to whom they specifically turned to assist them with using the data system with things like inputting results, analyzing results, and creating reports. Many of these teachers took the initiative to learn how to gather and analyze data—ultimately for the purpose of sharing their knowledge with the rest of the staff. In Aspire schools, lead teachers took informal roles to assist in data use. Garden Grove also trained teams of teachers from each school who serve as leaders regarding data-driven decision making. They also had teachers on special assignment working at the district level on issues related to data use, and two full-time district staff dedicated to assisting schools in this effort.

D. SELECTING THE RIGHT DATA

All four school systems grappled with monitoring student learning and making data relevant to the day-to-day, week-to-week, and month-to-month decisions made by teachers and administrators. As we will explain, the school systems attempted to integrate multiple sources of data such as student achievement data, instructional practice data, and goal implementation data to help guide future steps.

1. Gather a Diverse Array of Student Learning and Instructional Practice Data

It is important to note that while student assessment data were integral to the data-driven decision-making process, school systems drew upon many different types of data for multiple purposes. (See Appendix B for a detailed description of the varied sources and types of data used by the schools and school systems we studied.)

KEY POINTS

- Schools and school systems need to gather multiple types of achievement and instructional data to inform decision-making. "Trailing" data, such as results of annual state tests, indicate effectiveness of past instructional practices, while "leading" data, such as results from interim assessments, inform immediate instructional decisions.
- System-wide interim assessments aligned to standards, administered at least 4 times a year, are the most important data source for instructional decision making.
- Gathering observational data in classrooms (i.e., regarding curriculum implementation) and holding data-driven meetings can help contribute to a better understanding of a school's progress towards student achievement goals.

Educators across all four school systems stressed the importance of collecting and basing decisions upon multiple sources of data. One teacher remarked, "I think it is important to make sure that you know what you're measuring and you know the limitations of your data collection." Aldine delineated between "trailing vs. leading" data, an indication of how different types of data are used and for what purposes. The assistant superintendent described "trailing" data as "older data…it's done" (e.g., state test scores) that would not lead to teachers changing their instruction immediately. "Leading" data are assessments that are administered more frequently, such as the district benchmark tests, which help teachers assess what standards need to be re-taught in the short term. Aldine used trailing data to write the action plan, and leading data to revise the action plan and to monitor progress toward goals. In addition to state tests and benchmark assessments, educators also used curriculum-embedded tests, teacher-created quizzes, and scoring guides.

Schools also relied on both system- and school-developed rubrics to assess student growth in writing and reading. For example, Aspire created interdisciplinary units called Rigorous Projects that are graded against scoring guides developed by teachers. One Achievement First school collected homework data as well. The completion of homework was recorded by each teacher and then given to the principal. Using the classroom data submitted by teachers, the principal produced a monthly homework data sheet which indicated the percentage of homework completed by student and by classroom. This information was then used to follow up with students, parents, and teachers.

Student achievement results, usually emphasizing interim and state assessments, were the main data used to monitor student learning; however, student behavior and discipline data were also considered to be important elements in improving learning and instruction. All school systems tracked student discipline data to improve student learning but each varied in terms of specificity. Achievement First monitored students who were performing below the twentieth percentile or who had consistent behavioral problems, and designated them as "students we love the most," to ensure that they received targeted support. One Aspire school tracked the number of positive and negative referrals (to the principal's office) by teacher, student subgroup, type of infraction and consequence, time of day, and area in which student behavior occurred. These data were used to determine which teachers might need assistance with behavioral management or which students or groups of students required additional support.

2.   System-Wide Interim Assessments Aligned to Standards

The regular administration of benchmark (or interim) assessments was a key feature of these performance-driven school systems: the tests served as guideposts for future instruction and indicated whether or not students had mastered and retained standards. In some cases, the same benchmark assessment was administered at approximately the same time across all a system's schools. This enabled comparisons across schools and allowed teachers to collaborate on data analysis and action planning. Other school systems allowed schools to decide when to administer the benchmarks, though this allowed only for within-school planning and not for comparisons or planning across schools. The four school systems also varied in (1) the degree to which they developed the assessments themselves or outsourced their development, (2) the frequency with which the assessments were given, and (3) how — and how quickly — the assessments were scored and analyzed.

How were they developed? Locating or creating interim assessments that are well-aligned with the local curriculum and with state standards was a challenge in all of the school systems we studied. However, most have now settled on assessments with which they are fairly satisfied, at least at the elementary level. Garden Grove developed its benchmark assessments through a combination of curriculum embedded and external assessments with the help of outside consultants. In Aldine, benchmark assessments were originally designed by the district but are now supplemented by the state's Regional Service Center. According to the superintendent, district benchmarks have been shared free of charge and have "traveled all over the state." In Aldine, the district is also trying to align student grades with the district benchmark and state assessments. The superintendent noted that, "It gets very embarrassing for a principal to have to explain to parents, your child has made all As and Bs, but he can't pass this test."

In Aspire Public Schools, benchmark tests were developed in-house from banked items in Edusoft software, except for the writing benchmark test that was developed by the home office. Achievement First developed some items in-house for their Connecticut schools and purchased others from School Performance, a local company. The home office constantly asked for feedback from teachers regarding these interim assessments. One of the principals shared that his teachers got a "barrage of e-mails" requesting feedback about tests, and even devoted one of their Friday professional development days to reviewing issues with the test writers.

How often were they administered? The four school systems studied administered benchmark assessments frequently, somewhere between three times per year to as often as every six weeks. Aldine administered assessments every six weeks in core subjects (language arts, math, science, and social studies) and every three weeks in secondary math and science. A district administrator acknowledged that some teachers have complained about the frequency of testing, but she believed that if the students were assessed less frequently, some would fall through the cracks. Achievement First also administered benchmarks every six weeks for reading, writing, grammar, and math, but only at the fourth-, sixth-, and eighth-grade levels. In Garden Grove, district leaders also made a strategic decision to administer benchmark assessments four times a year, rather than every six weeks. They wanted quarterly assessments that would keep the district on track but would also give schools the flexibility to give their own school- or teacher-created assessments in between. In Aspire schools, benchmarks in reading, math, and writing are administered three times a year (beginning of the year, winter, and spring).

How were they scored? The school systems in this study understood that assessment data needed to be timely if they were to be useful for improving instruction. However, each school system had its own unique way of scoring the assessments and various turnaround times for doing so. In Garden Grove, assessments were collected by testing clerks at the school immediately after they were administered; the clerks then took the tests to the district office, scanned them, and had the data uploaded into Data Director within two days. Teachers and principals could then run reports showing the results. Aldine provided scanners to each school, and benchmark tests were scanned in by someone at the school site. The person who performs this function varies by school site. At some sites, it is the skills specialist; at others it may be the technology specialist, testing coordinator, or department chair. The results are uploaded into Triand and made available to all users within a day or two. Aspire schools fax student Scantron sheets directly to Edusoft, which then uploads the data. Within a day or two, test results are available to teachers. Edusoft, Triand, and Data Director all enable users to produce item analysis reports and disaggregate data by teacher, grade levels, or standards.

Achievement First was the only school system that required teachers to score the tests themselves and enter the data into a Microsoft Excel template. The template was then given to the principal, who compiled class- and school-level reports. The results were used to plan classroom instruction for the next six weeks, leading up to the next interim assessment. Achievement First was in the process of developing a customized, automated system that would be used to score, store, and analyze benchmark assessment data.

3. Gather and Use Implementation and Other Sources of Data

At the system level, all the CMOs and districts also gathered and used other types of data related to improving overall system performance. Data regarding the implementation of action plans, curriculum programs, and goal progress were all used to pinpoint areas needing improvement. Assessing implementation helped these school systems fine-tune their next courses of action.

Data were constantly used to examine instructional practices and to determine an intervention focus (e.g., student, teacher, or standard). Beyond formal evaluation methods, teachers and administrators at one school also gathered informal observational data. For example, a teacher at one Aldine school noticed that across practice state tests, one student's reading score would fluctuate from 30 percent to 75 percent. The teacher flagged those results, observed the student taking the next test, and realized that some of the test-taking strategies she had been practicing with her students were actually slowing this student down.

At one Aspire school, the leadership team began recording their data discussions to improve these conversations and to monitor group progress. The leadership team discussed what they would want to see, what was actually observed when the video was reviewed, and how they could better facilitate the meetings.

Garden Grove used "Action Walks" to assess the implementation of programs. Schools were formed into triads that rotate site visitations. The principal, data team, and leadership teams visited one another with an implementation checklist. This process was used primarily by the district to ensure consistency of curriculum implementation. However, leadership teams also viewed these activities as opportunities to monitor the progress of their own schools and learn from other school sites. A copy of the district Action Walk checklist follows. Next, the principal and teachers at one school refined the checklist further and created their own Implementation Tool, which appears following the district Action Walk tool.

Figure 4:

ACTION WALK SELF-
ASSESSMENT TOOL

*This tool was created by
the Garden Grove School
District for use by leadership
teams as they conduct Action
Walks in schools.*

Action Walk
Self-Assessment Tool

Office of Elementary Education
Department of K-6 Instruction

School: _____

Date: _____

Team: _____

Indicator: *Faithful Implementation of Houghton Mifflin*	*Evident*	*Not Evident*	*Comments*
Differentiated instruction occurs through teacher guided small group instruction			
Student work reflects instruction the appropriate designated level using Universal Access (Extra-Support, Challenge, and English Language Learner Support)			
English Learners (based on CELDT levels) are receiving appropriate support utilizing the ELL Handbook and Universal Access components			
Comprehension skill and strategy focus for each story are posted and evidenced through student work and responses			
Support resources such as sound letter cards and Alpha Friends are visually accessible and utilized by students			
Focus Boards are utilized by teachers and students as an instructional tool, reference and support (School site decision			

Students will be able to respond to the following questions:	*Comments*
What story are you reading in Houghton Mifflin this week?	
What strategy are you practicing with this story?	
What skill are you practicing this week?	

Implementation Tool

Room: _____ Grade: _____

Standards based curriculum and assessment	Yes	Not yet	Evidence
Are standards posted in the classroom next to all student work?			
Do students work samples show an alignment with the standards?			
Do student work samples show use of higher order thinking skills including analysis, reflection, inference, evaluation and synthesis as referenced in the standard wording?			
Are daily objectives or evidence of current standard being taught visible?			
Is there a Theme Board present, current and in use?			

Students can accurately respond to the following questions	Yes	Not yet	Evidence
What is a standard?			
What standard are you working on?			
How do you know if you have met the standard?			
Can you explain what you are doing?			

Standards Based Instruction Strategies PROCESS WRITING	Yes	Not yet	Evidence
Is there a Writing Board with current work and physically accessible to students?			
Do student-writing samples show evidence of the HM writing process?			
Are current writing samples standards-based writing and aligned to the standard and genre?			
Are rubrics and anchor papers posted for students to self-analyze their work?			
Are anchor papers the same writing sample but leveled 4, 3, 2, 1.			

Standards Based Instruction Strategies	Yes	Not yet	Evidence
What are the steps of the writing process?			
On this piece of writing, what score did you receive and what do you need to do to improve?			
What is the difference between a 3 and a 4?			

RECIPROCAL TEACHING

	Yes	Not yet	Evidence
Is there evidence that reciprocal teaching strategies are being implemented?			

Students can accurately respond to the following questions	Yes	Not yet	Evidence
What are the four roles in R.T. and why is each important?			

Figure 5:

GARDEN GROVE SCHOOL IMPLEMENTATION TOOL
This tool was created at a school in Garden Grove to help staff prepare for Action Walks conducted by visiting leadership teams.

An Innovative Use of Video as a Source of Data in Aldine

After carefully reviewing benchmark assessment data, an assistant principal of one Aldine school noticed that Latino male students were not performing well across all classes for one particular teacher. She had a discussion with the teacher who himself is Latino. He admitted that he was harder on them because he has higher expectations. She videotaped his classes and reviewed the tapes with him. He was surprised to note that he was raising his voice at the students frequently. Afterwards, he started to work with intervention specialists for behavioral management techniques.

Aldine also tracked the implementation of their data management system, Triand. Principals were expected to provide quarterly reports on the percentage of teachers using Triand for lesson planning and student attendance, and whether or not the school's Web site was up-to-date. School administrators walked around classrooms for quick classroom walkthroughs to record instructional objectives and level of student engagement on Palm Pilots. Aldine also used various types of data to pinpoint whether or not the source of a student achievement problem lay at the school, department, teacher, or student subgroup level.

Aldine and Aspire also gathered data from parents. Aspire was unique in that it formally and informally gathered data on staff and parent perceptions. It administered Web-based surveys once or twice during the year, which included questions about instruction, educational programs, assessment, school relationships and communications, and overall school environment. Based on feedback from surveys, Aspire identified its areas of need and strength in parent and community relations. In Aldine, one of the district's goals was parent engagement, so they actively tracked data on this front. They compiled data on how frequently school faculty communicated with parents, what types of parent activities were provided by the school, and the level of parent participation in school activities.

When schools and school systems gather multiple kinds of data, they can make a greater variety of data-informed decisions. Case 6 explains how three of the school systems we studied use data for different system and school-level purposes.

Uses of Data for Multiple Purposes

Data Leading to Instructional Support Changes
Aspire provides an example of how data are used to inform changes in the system's instructional support mechanisms. Aspire assessed the effectiveness of their instructional coaching by reviewing team member survey results, state assessment data, current research literature on coaching, and informal feedback from principals and team members. They concluded that coaches conveyed mixed messages to teachers about what was important and lacked a systematic approach to knowledge management. Aspire decided to redesign the role of instructional coaches around four primary objectives: creating a clear and consistent theory of action for coaching, developing a framework for prioritizing coaches' time, creating clarity regarding coaches' activities, and creating a new evaluation and compensation policy aligned with the theory of action.

*Data Leading to District–Wide Pacing and
Planning Changes*
Aldine provides an example of how data can be used to change curriculum pacing across the system. Based on the previous year's student results on the state reading comprehension test, Aldine noticed that inference was the lowest-scoring objective for fourth- and fifth-graders. Students tended to score well on basic understanding skills such as facts and details, but struggled with higher-order thinking skills. The district's program directors met with teachers, many of whom revealed that they taught facts and details before moving on to teaching inference. The teachers decided that rather than waiting until February to teach inference, the skill should be introduced in August, and then repeated and built upon throughout the year. The two language arts program directors developed day-to-day structured reading lessons ("layered lessons") to help teachers introduce inference and scaffold lessons using literature and other strategies. Preliminary data indicate that the lessons have been effective and there are plans to develop layered lessons for other elementary grade levels.

Data Leading to Changes in Curriculum Focus
Garden Grove provides an example of how data can be used to refocus professional development and curriculum. Using the California Standards Test (CST), teachers at one Garden Grove school noticed that reading scores consistently tended to drop off between fourth grade and sixth grade, especially for a core group of students. They also noticed that the most extreme decrease in scores actually occurred between the third and fourth grades. In looking back at the state test, they realized that it focused heavily on non-fiction texts. As a result, the staff decided to focus on teaching non–fiction in addition to other forms of literature. The school provided in-service training sessions for teachers on topics such as, "What is a non-fiction text? What does it look like? What are some ways it could be taught? How do we analyze it differently? How can the reciprocal teaching process be used with a non-fiction text?" The school was eager to see whether test scores would improve as a result of their efforts.

E. BUILDING SCHOOL CAPACITY FOR DATA-DRIVEN DECISION MAKING

The school systems worked hard to build capacity and structural supports to empower educators to use data to inform instruction at the school level. As we will explain, they invested in the necessary professional development, supported data use, provided time for collaboration, and connected educators with one another to share data and strategies.

1. Invest in Professional Development on Data Use

Professional development regarding data management systems and data use was an important strategy for building people's capacity in all four school systems. The monitoring of student performance and analysis of data were framed not as auxiliary duties or distractions, but rather as central tools for improving instructional practices and learning. Therefore, a great deal of professional conversation and meeting time focused on student data.

All of the school systems provided ongoing professional development support to principals in the area of data-driven decision making, as well as more generally. Much of this support was provided by central office staff. The training typically took place in conjunction with the adoption of a data system or a set of new practices, and training was also made available to all new teachers at the beginning of the school year. For example, new teachers in Achievement First schools received one day of training in data use, which involved grading a mock interim assessment, conducting data analysis, and then participating in a mock conversation with the principal about their six-week instructional plan. Across all four school systems, ongoing training was also available to anyone who asked for it. Garden Grove even had a tutorial on its data management system posted on the district's Web site.

KEY POINTS

- Invest in professional development on data-informed instruction and provide ongoing training when necessary.
- Realize that teachers (and other users) will have different comfort levels with data and be prepared to support training at all levels.
- Provide time for within-school collaboration that is distinct from faculty and administrative business meetings.
- Share data across schools to promote collaborative discussions and relationships.
- Consider rewards and incentives for data use, student achievement, and professional development.

The CMOs tended to provide most of the professional development training in-house, whereas the districts did a combination of in-house and outsourced trainings. Aldine district staff had worked extensively with an external consultant and researcher named Larry Lezotte, who focused on creating effective schools and on how to use data to identify the root causes of problems and challenges in raising student achievement. Garden Grove worked with external educational organizations to help teachers learn about goal-setting and using their data management system.

Whereas teachers in the CMOs appeared to receive more direct professional development from their central office staff, in the districts, principals and lead teachers tended to be the main source of building professional capacity for the teaching staff. There was an explicit expectation that staff members would bring any knowledge or expertise they had gained from professional development back to the rest of the staff. For example, in Garden Grove, the site leadership team got training from the district on how to analyze state test results using a protocol. Then a portion of this team conducted training and modeled the protocol with the rest of the school staff. Thus, the districts seemed to focus on developing site-level capacity by using district or external resources sparingly to train a small number of school staff, then expected those staff members to train their colleagues.

Case 7 describes Aspire's approach to deciding how to deploy scarce professional development resources. Their "Will and Skill" matrix for developing teacher capacity is rather unique in how it targets teachers for skill development.

CASE 7

Aspire's Professional Development System for New and Continuing Teachers

In the beginning of the school year, Aspire conducts extensive teacher training with three weeks of professional development covering the organization's instructional guidelines, standards, lesson design goals, and classroom management techniques. A segment of the training is also devoted to data and assessment, particularly the use of Edusoft and the Cycle of Inquiry. These practices are then reinforced and supported at the school site by the leadership team on an ongoing basis.

Throughout the year, Aspire targeted teachers for ongoing professional development based on their "Will and Skill" matrix, which was designed to match teachers with the best support provider for them and to maximize the effective deployment of resources across the organization. Teachers are categorized according to whether they were high or low "will" (i.e., desire to improve) and high or low "skill" in a given area. Instructional coaches work with teachers who have high will, but either low or high skills, whereas principals work with "low will and low skill" or "low will and high skill" teachers. Ultimately, Aspire tries to transition "low will" people out of the school system entirely because "Aspire is the wrong place for them."

Besides creating high expectations for both teachers and students, administrators across these school systems acted as instructional leaders and attempted to model effective use of data. In most cases, school sites also had their own established leadership teams, consisting of both administrators and teachers, which acted as a main source for building staff professional capacity. These team members usually facilitated conversations around data and helped teachers translate data into action plans.

In most of these school systems, direct aid was provided to struggling teachers. In fact, leaders often believed that it was incumbent upon them to support and instruct staff members who were uncomfortable accessing or utilizing data. Administrators might hand out copies of the electronic information until individuals become more adept at using the system. In some cases, the leadership team facilitated the use of data by breaking down data by grade level or by classroom as needed. Lead teachers and coaches might also conduct the analysis for teachers and then visit a teacher's classroom to model a lesson. In sum, district and school leaders not only modeled high expectations and professional accountability, but also took responsibility to build data-driven decision-making capacity directly within their schools.

2.   Provide Time for Within-School Collaboration

The school systems we studied also supported their schools by establishing time for teachers to learn from one another. One administrator observed that the key to making data relevant was developing working relationships between staff, because "without collaboration and collegiality, data is impossible." Teachers relied heavily on one another for support, new instructional strategies, and discussions about data. In fact, participants across all systems and levels we spoke with stressed the importance of having built-in collaboration time; this was seen as a crucial factor in developing mutual trust between educators and for sharing knowledge to improve practice. A common sentiment was that "you can't do it alone;" in fact, "we do it together" was a common refrain across many of our conversations with teachers.

Most of the school systems devoted frequent and substantial time to reviewing data and planning accordingly. Aldine and Aspire not only had weekly structured data discussion times, but teachers also had daily instructional planning time within grade levels or partner teams. The ways in which schools structured time around data discussions was probably the most important scaffolding for continuous improvement. Most schools had early dismissal for students in order to provide two to three hours of uninterrupted time for data discussions. At Aspire, teachers also had daily preparation time (50 minutes every day for fourth-/fifth-grade teachers). As noted by the principal, "it's better to have well-planned instruction than just have [kids] in the room." Additionally, there was built-in time for discussions

around data and instruction. At least two meetings per month were devoted to team data discussions. Another meeting was set up for similar discussion between instructional coaches and teams. The last meeting of the month was used by the principal, leadership team, and coaches to look at data together to decide which teachers needed instructional support or which students needed intervention.

All Aldine schools had at least weekly data-centered discussions among faculty. The administrators considered instructional planning meetings to be "sacred" while the administrative meetings were scheduled with more flexibility. In contrast to Aldine and Aspire, Garden Grove did not have consistent structured collaboration time built into teachers' schedules. However, principals creatively used their resources to ensure that teachers would have space and time to reflect and use data to improve student learning. For example, one principal hired a long-term substitute teacher who helped teachers visit and work in other classrooms. Every Thursday, the program facilitator, resource specialists, and an aide provided an hour of release time for the staff so that they could meet with the principal to go over data. Since physical education (PE) was a requirement, the principal also found ways to build meeting times for her staff by using trained instructional aides to run an established PE program. Garden Grove district administrators reported that the union and school board had approved a plan to build in structured collaboration time for all teachers for the 2006-07 school year.

3. Connect with Other Schools to Share Data and Strategies

All of the school systems recognized that data-driven decision making was enhanced when educators shared data not only within schools, but across them. These interschool networks helped to strengthen connections and spread innovation across sites. While most data discussions still occurred at the school level or between an individual school and the central office, the districts and CMOs we studied were attempting to structure data discussion across schools. Each of the school systems were at different levels of maturity in the development of cross-school networks, with some having had network structures in place for some time, and others just developing formal connections. In general, the configurations themselves seemed to be less important than the collaborative relationships that were developing within them.

Aldine, for example, had a series of both "vertical" and "horizontal" meetings of schools in its district. There were five "verticals" in the district, each of which was overseen by an area superintendent. Each vertical consisted of one high school and the intermediate and elementary schools that "fed" into it — typically 12-14 schools in all. Vertical meetings were used to look at student data from elementary through high school; as the superintendent explained, "we're trying to get them all

to accept responsibility for what happens at the high school." One Aldine principal indicated that she worked very closely with the other six elementary schools in her vertical and shared ideas all the time. The "horizontal" meetings consisted of principals from across all preK-12 schools and were used for training and disseminating information.

Being smaller in size, the two CMOs seemed to find it easier to facilitate cross-school communication. Aspire, for example, was organized so that schools met regularly with other schools within their regional cluster. The chief academic officer at Aspire described her region of schools as "a pretty tight team" that meets frequently and relies on each other. Networks across schools seemed to be established mainly through Aspire-sponsored meetings in which all leadership team members participated. Because of the relationships they developed in this way, principals shared information informally with each other. Achievement First primarily connected leaders during principal retreats and regular Saturday meetings, which were used to share data and exchange best practices. For instance, during one recent retreat, a principal from one Achievement First school noticed that another school had higher attendance rates. When they broke into smaller discussion groups, they shared ideas and strategies for improving attendance.

4.   Consider Rewards and Incentives

Each of the systems approached rewards and incentives slightly differently. Three of the systems in this study had a reward system in place, factoring educators' ability to improve student performance into their compensation plans. Importantly, the rewards were not for data use, but for improving student achievement. As an Aspire leader stated, "We're really clear that we don't want to be a place where you just get raises because you showed up for another year." However, in both cases, the emphasis was on teacher growth, rather than on punitive measures. For example, in Achievement First, teacher pay is tied to professional development plans in three key areas: student learning, professional development, and community service. In Aldine, there was a monetary incentive plan for all employees. The plan for instructional personnel — teachers and principals — is based on student performance

In Garden Grove, teachers and leaders expressed the belief that the ultimate reward was the knowledge that students were succeeding. Individuals were also expected to focus on the intrinsic rewards inherent in being a good teacher and continuously improving. Much of the external recognition came from outside entities such as the state's Distinguished Schools recognition. The district strives to pay all teachers well in recognition of the high expectations for students, which in turn require high expectations of teachers.

Whether rewards were extrinsic or intrinsic, it was evident that educators were motivated by the desire to improve student achievement and relied increasingly on evidence rather than instinct.

F.   ANALYZING AND ACTING ON DATA TO IMPROVE PERFORMANCE

Besides building capacity and creating structures to foster data-driven decision-making processes, central and home office leaders also had to develop tools to help teachers and principals correctly interpret and appropriately act on data. These tools helped faculty and administrators focus on tasks that needed to be accomplished and provided a standard way of tackling a problem. Action plans and tools were also helpful to ensure that individuals followed through and improvements were actually made. Although they differed in the degree of comprehensiveness of data sources and management of data, all of these school systems created data analysis protocols and goal monitoring reports for administrators, teachers and, in some cases, for students as well.

1.   Tools to Help Teachers Discuss and Act on Data

The school systems we examined found that they had to develop tools in order to ensure that discussions about classroom-level data occurred and that actions were taken on the basis of these conversations. These discussions typically took place after the results from benchmark assessments had been analyzed and often arose even more frequently.

All of the school systems developed some type of discussion template that typically begins with a discussion of basic trends and then goes into more detail regarding strengths, weaknesses, grade-level trends, and ethnic, gender, and language sub-group trends. These discussions are then generally followed by brainstorming on strategies and action plans.

KEY POINTS

- Provide teachers with structured protocols and tools to help facilitate data discussions.
- Create processes to help monitor progress toward goals for schools and for individual teachers.
- Develop tools to engage students in data discussions and continuous improvement.

In three of the four school systems we studied, such discussions occurred primarily among teams of teachers, often facilitated by a lead teacher. For example, Aspire instituted a "cycle of inquiry" process. Although details of the process differed slightly from school to school, all Aspire schools engaged in structured data discussions around student achievement and instructional data. Most schools conducted the cycle in a meeting held every three weeks. Groups met in either multi-age level or subject area teams to examine data from benchmark assessments and develop action plans focusing on instructional strategies. At one school, every two weeks on Wednesday afternoons, grade-level teams gathered to discuss data in a meeting facilitated by the grade-level lead teacher. Teachers were asked to prepare ahead of time by filling out data summary sheets. They were also required to bring an assessment (e.g., pre- and post-test, benchmark, or unit test). They typically shared what worked well, areas of struggles, and their action plans. During the team meetings, they sometimes also shared class report graphs or an item analysis graph. Lastly, the team came to a consensus about actions to take or strategies to implement.

Figure 6:

ASPIRE'S CYCLE OF INQUIRY TOOL

The tool used by teacher teams at Aspire sites for action planning based on benchmark assessment data.

Cycle of Inquiry Using Edusoft *Part A*

Name:_____ Grade level:_____

Date of team meeting:_____

Name of unit:_____

What percent of students were proficient (80% or above)?: _____

Directions
1. Give assessment and score it (scan it).
2. Generate reports that allow you to answer the guiding questions, print them, and staple them to this document.
3. Answer the guiding questions.
4. Bring this document to your team meeting.

Guiding Questions: **ANALYZING STRENGTHS**

1. Which student(s) grew the most? Why do you think that is?

2. Which questions/standards did most of the students get correct? Why do you think that is?

Guiding Questions: **ANALYZING GROWTH AREAS**

1. Which question/standard did most of the students get incorrect?
   Why do you think that is?

2. For the group that was below the proficient level, what content and skills did they master?

3. For the group that was below the proficient level, what content and skills did they miss?

4. For the group that was below the proficient level,
   what curriculum resources did you use? What other resources do you need?

   what instructional techniques did you use? What do you need to change?

   what support mechanisms did you deploy? What else is required?

Do you have any other reflections after looking at the data? (Refer to questions in Part B.)

Cycle of Inquiry Using Edusoft   *Part B*

A. State the skills/content that your action plan is focused on (this may be whole-group concerns, or for students scoring below proficiency):

B. Create an Action Plan considering the following questions:

Curriculum Resources:
- Which instructional guidelines can be used to help with growth areas?
- Are there resources within Harcourt or supplemental resources that can successfully teach the content and skills needed?

Instructional Resources:
- What type of short-term assessments can be used to measure growth (daily quiz, exit ticket, etc.)
- Are there some gaps that can be filled using whole class instruction?
- What other instructional practices would impact student growth (i.e., manipulatives, learning styles, mnemonies, scaffolding, repeated practice, peer tutoring, etc.)

Support Mechanisms:
- Can you build time into the schedule to meet with individual or small groups?
  Who would you need to meet with and why?
- Can others (parents, tutors, other students) help in filling in some of the gaps?
- Is there a time outside of class that you can help with math intervention (before school, lunch, recess, homework, etc.)

What is your action plan to help students? (complete during or after team meeting)

Figure 7:

BENCHMARK ANALYSIS
PROTOCOL
*This is a portion of a tool
developed in collaboration
with Action Learning
Systems and used by teacher
teams in Garden Grove.*

ACCESS

INTERPRET

Benchmark Analysis Protocol

REFLECTION ON CURRICULUM, ASSESSMENT, AND INSTRUCTION

1. What standards were taught and assessed?
2. What strategies were used to teach these standards?
3. What other opportunities were students given to demonstrate mastery of these standards?

ON-THE-SURFACE BENCHMARK ANALYSIS

1. Patterns: Which items were all/most of our students successful in answering?
2. Patterns: Which items were all/most of our students unsuccessful in answering?
3. Anomalies: Which items do not fit either of the patterns mentioned above?

UNDER-THE-SURFACE BENCHMARK ANALYSIS

Patterns (successful items):
1. What content were students expected to know?
2. What instructional strategies were used to teach this content?
3. What level of cognition do these items require students to use?
4. What instructional strategies were used to allow students to apply these levels of cognition?

Patterns (unsuccessful items):
1. What content were students expected to know?
2. What instructional strategies were used to teach this content?
3. What level of cognition do these items require students to use?
4. What instructional strategies were used to allow students to apply these levels of cognition?
5. Were students able to demonstrate mastery of content and level of cognition in a different context? (My students were able to solve 2 step equations on a previous HW assignment but they've never seen the same skill asked in a question like this.)

Trends: (disparity, gaps):
1. Did certain class periods outperform others?
2. Did certain classrooms outperform others?
3. What instructional strategies were used in the classrooms that outperformed others?

Trends (proficiency bands):
1. Sort Benchmark results by proficiency bands: Are there patterns in item performance? (All students scoring in the FBB band missed the 3 items assessing standard NS2.3.)

Exploring Root Causes (successful items):
1. Based on Benchmark results, which strategies and instructional sequences proved to be effective across the team and should be continued to be used?

Exploring Root Causes (unsuccessful items):
1. Based on Benchmark results, which strategies and instructional sequences did not yield the expected results?
2. Did the strategies and instructional sequences align with the level of cognition of the standard?

Aldine also used structured protocols for such discussions. Below is sample of a protocol used in one school's department team meeting following a benchmark assessment. This form is derived from a worksheet in Larry Lezotte's book, *Assembly Required*.

Getting to the Root Causes
Departmental Reflections

5th six weeks
weeks 1–3
Spring semester

Department: _____

1a. Departmental exam/benchmark mastery students: _____ / _____ = _____%
   (number of A, B, C, D students divided by the number of students taught)

   Departmental exam/benchmark failing students: _____ / _____ = _____%
   (number of F students divided by the number of students taught)

1b. Departmental course grade mastery students: _____ / _____ = _____%
   (number of A, B, C, D students divided by the number of students taught)

   Departmental course grade failing students: _____ / _____ = _____%
   (number of F students divided by the number of students taught)

2. Using "Getting to the Root Causes," list some hypotheses to explain the percentage of students in the department scoring F range.

3. What specific interventions targeting the F students has the department utilized during the first 3 weeks of Term 5? Were they successful? Why or why not?

4. What changes will the department make now that will immediately impact the success of your struggling students on a weekly basis?

5. What methods will the department utilize to measure the success of any changes?

Achievement First was that the only school system we studied in which data discussions primarily took place between individual teachers and the principal, rather than in small groups of teachers. Principals and teachers would discuss how to organize small groups of students for targeted instruction, which standards needed to be re-taught, and which students were struggling. They also identified students that were on the cusp of Achievement First's "A level" (also called "cusp kids"). The superintendent indicated that Achievement First had attempted to start group discussions about data among teachers, but found that individual data discussions with the principal are more meaningful. "I think that the beauty of the one-on-one is that you actually physically walk out with a plan for your students," he explained. He added that data-sharing between teachers can get complicated because they might not work at the same grade level or with the same subject matter, which tends to make the discussion about "all sorts of stuff" and even "excuse-making" (e.g., the test question was bad). Instead, teachers met with the principal and brought with them a tangible six-week instructional plan based on student achievement data. The principal and teacher would discuss the so-called "battle plan" and the principal would then hold the teacher accountable for implementing the plan. A copy of the Battle Plan tool is shown on the opposite page.

One of the limitations of the Battle Plan approach was the time involved for the principal to meet with each one of the teachers individually. This was possible given the relatively small staff size in the Achievement First schools; however, it may be more difficult in schools with larger staffs.

2. Tools for Monitoring Progress toward Goals

In most of these school systems, every school's progress toward goals was monitored, reviewed, and assessed regularly. Both Aspire and Garden Grove produced reports detailing each school's progress toward achieving the school system's goals; these reports included student achievement data, enrollment patterns, and areas where growth was needed. In Aldine, the district required that each school submit a "scorecard" every six weeks that reported measures of student achievement by subject, data on student behavior and discipline, and data on parent engagement. For each area, the report included the both the actual scores and the variance from the target scores. After scorecards were compiled by administrators and teachers at the site level, they were reported to area superintendents. A portion of the school scorecard used in Aldine is provided on page 56.

The "Whatever It Takes" Instructional Battle Plan

Teacher Name: _____   Class: _____

HW (cumulative review)	SKILLS TO REINFORCE IN LITERATURE CLASS	MINI-LESSON REFRESHER (Other review or 15 min. mini-lesson)
	Write-in questions on passages Skill emphasis within a passage	

TUTORING/SMALL GROUPS Who? What? When?		RE-TEACH FULL LESSON

Figure 9: Achievement First Battle Plan

This Battle Plan form is used in Achievement First schools in meetings between principals and teachers as they discuss action plans based on interim assessment data.

Elementary Scorecard

Perspective	Measure	Target 1 Year	Actual 1st 6 Weeks	Variance	Actual 2nd 6 Weeks	Variance	Actual 3rd 6 Weeks	Variance	Actual 4th 6 Weeks	Variance	Actual 5th 6 Weeks	Variance	Actual 6th 6 Weeks	Variance
STUDENT ACHIEVEMENT cont…	**ARI** (% not identified) Kindergarten First Grade Second Grade Third Grade Fourth Grade	90%												
	Retention Rate Kindergarten First Grade Second Grade Third Grade Fourth Grade	10%												
	Teacher Attendance Kindergarten First Grade Second Grade Third Grade Fourth Grade	98%												
	Paraprofessional Attendance	98%												
	All Professional Staff	98%												
CLASSROOM MANAGEMENT	**Student Attendance** Kindergarten First Grade Second Grade Third Grade Fourth Grade	98%												
	Office Referrals Kindergarten First Grade Second Grade Third Grade Fourth Grade	4%												
	Suspensions (Entire Building) In School Out of School	0												
PARENTAL INVOLVEMENT	**Monthly Newsletters**	100%												
	Parent Nights	100%												
	Title 1 Compacts	100%												

Figure 10: ALDINE SCHOOL SCORECARD
This is a portion of a tool used by one school in Aldine to gather and report data on student achievement, behavior, and parent engagement. Different schools use different forms.

As mentioned earlier, the CMOs also developed and monitored teacher growth using professional development plans tied to system goals. Aspire, in particular, regularly reviewed teachers' professional growth. Teachers and administrators were required to develop professional development plans every year, which detailed goals, measures of goal progress, educator activities, principal support, and coach support. The principal conducted a check-in meeting with each teacher to review the assessment data, demographic data, parent survey data, and strategic plan for the schools. Then the principal conducted a mid-year follow-up to review progress on the plans.

Aldine schools were required to have action plans at the system and campus levels. Each campus had an action plan that detailed their goals and uses of data as evidence of progress. Each grade level and department — and in some cases, individual teachers — were also expected to develop action plans. One assistant principal referred to the action plan as "a living, working document" that was constantly revised and updated based on data that were gathered and examined by the school site. She explained that the district did not want a "beautiful pristine document;" rather, they wanted to see evidence that data are used to make changes to the scope and sequence for the six-week period, or that a schedule had been rearranged to accommodate instructional needs. Teachers typically compiled packets or binders containing multiple copies of planning documents to organize their data and student records. Several teachers noted that: "This is my plan from a couple of weeks ago but this is actually my alternate, adjusted action plan." The action plans were typed up on a template provided by the district. They included information such as objectives, goals, actions and tasks (lists specific state standards), target students, staff person responsible, measures of success (i.e., daily grades—70 percent mastery), resource allocation, and scheduled dates for action. A sample action plan used by a 9th grade language arts team at a school in Aldine follows.

LA Department Action Plan 2004-2005 — *First Term, Weeks 1–3*

Objective: Language Arts Department will demonstrate sustained growth in student achievement.
Goal: Improve and sustain student performance at or beyond grade level.

Perspective: Process alignment for student results

Owner: Language Arts Department

Actions/Tasks	Students	Responsible Person	Measures of Success (Formative/Summative Evaluation Criteria)	Resource Allocation Source	Amount	Scheduled Dates for Action		
Implement scope and sequence for benchmark targets (Texas Essential Knowledge and Skills).	AS	T, SS				Term 1 Wks 1–3		
Eng. 1A ■ Identify and write simple compound sentences correctly. ■ Identify and write sentences using correct subject-verb agreement. ■ Compose reflective pieces using effective pre-writing strategies. ■ Determine word meaning using context clues. ■ Identify author's purpose.			Daily grades-70% mastery for AS Assessment results—85% mastery for AS					
Practical Writing ■ Eliminate fragments in student writing. ■ Identify and write sentences using correct subject-verb agreement. ■ Determine word meanings using prefixes, suffixes, and root words. ■ Identify supporting details.			Daily grades-70% mastery for AS Assessment results—85% mastery for AS					
ESL ■ Eliminate fragments in student writing. ■ Expand vocabulary. ■ Revise a composition for organization.			Daily grades-70% mastery for AS Assessment results—85% mastery for AS					
ELI ■ Introduce procedures in classroom and school. ■ Introduce survival vocabulary. ■ Teach the English vocabulary and practice saying it. ■ Introduce the Aldine culture.			Daily grades-70% mastery for AS Assessment results—85% mastery for AS					

Figure 11: DEPARTMENT ACTION PLAN
This was developed by a language arts teacher team in the Aldine district to show their curriculum plans and performance goals.

LA Department Action Plan 2004-2005 — *continued*

Objective: Language Arts Department will demonstrate sustained growth in student achievement.
Goal: Improve and sustain student performance at or beyond grade level.

Perspective: Process alignment for student results

Owner: Language Arts Department

Actions/Tasks	Students	Responsible Person	Measures of Success (Formative/Summative Evaluation Criteria)	Resource Allocation Source	Amount	Scheduled Dates for Action
Reading Lab ■ Recognize main ideas and discern important details while reading.			Daily grades-70% mastery for AS			
■ Pre-reading vocabulary development through graphics and paired searches.			Assessment results—85% mastery for AS			
■ Administer frequent and varied assessments.	AS	T, SS	Copies of assessments turned in to curriculum AP			Ongoing
■ Participate in common planning periods to create assessments, analyze data, and collaboratively plan.	AS	T, SS	Meeting agendas and sign-in sheets turned in to curriculum AP			Ongoing
■ Implement text-dependent reading strategies	AS	T, SS	Meeting agendas and sign-in sheets turned in to curriculum AP			Ongoing

Responsible Person Code

P	Principal
AP	Assistant Principal
T	Teacher
SS	Skill Specialist
SP	Support Personnel
A	Administration

Student Code

AS	All Students	GL	Grade Level
AA	African American	BIL/ESL	Bilingual/ESL
H	Hispanic	AR	At Risk
W	White	GT	Gifted and Talented
O	Other	ED	Economically Disadvantaged
		SPED	Special Education

3.   Tools for Engaging Students in Data

Most of these school systems were moving toward engaging students in goal-setting and in discussions about data. In particular, teachers seemed to be leading the way in fostering student-level discussions by developing data analysis tools to guide them. At Aldine, departments of teachers created several tools such as the Student Analysis Sheet, which included item analysis and student reflection questions, such as, "What was your target score? On a scale of 1-5 how much effort did you put in? What skills do you need to work on? What will you do to improve those skills?" A Student Reflection Form was also created, including prompts such as, "Briefly explain your grade in terms of effort and mastery level. What is your goal for the next assessment? What can you do differently for the next test to achieve the goal? How can I help you be successful?"

The Student Data Reflection Process

Staff at one school site further refined the student data reflection protocol when they noticed that students were having difficulty applying their knowledge to the test questions. Teachers decided to embed "student self-talk" throughout lessons. They also generated "Know-Do" charts for different units and standards, which they used to teach students how to talk explicitly about what they have to know and what they have to be able to do. In applying this strategy on a test, a student might say to him or herself that, "Here's the key word they want me to infer. Infer means I need to take what I know and what might be in the book, and then make a decision about some question."

One school in Garden Grove developed the tool shown on page 61 to help students keep track of their achievement and goals for improvement. Note that the form also included accountability for teacher and parent actions in helping the student meet established goals. The principal said that they had not yet enforced the parent component and would be interested to see how that worked in the future.

Aspire has also developed tools to encourage student use of data. In one Aspire school, all of the teachers with whom we spoke mentioned analyzing assessments with their students. Some teachers graphed their class results for student discussions. One teacher used the class results of one benchmark assessment to conduct a math lesson on median and mode. Another teacher made biweekly graphs of math, reading, and writing benchmark scores, showing the class average and the names of students who performed above the goal of 85 percent proficient. He also highlighted students who did not make the 85 percent proficient benchmark level but who still made huge gains. During student conferences held two or three times a year, teachers reviewed assessments with students and their parents to establish and monitor goals based on a "Personalized Student Learning Plan." One teacher created a student-led conference form with sample goals and strategies, which included goal statements (e.g., I will earn a ___ on our spelling paragraph) and a list of strategies (e.g., I will practice writing the spelling paragraph every night).

Some schools also made use of self-assessments in order to help students reflect on their achievements and understand their areas of strength and weakness. For example, teachers in Achievement First and Garden Grove schools use the student self-assessments like the samples on pages 62–63 to have students reflect on their math and writing.

Think Like a Statistician

Name _____

Date _____

ELA Benchmark Test: 1   2   3   4

Percentage

Proficiency Level:

How I practiced to improve at school

____   Reteaching sheets/pages

____   Pull out group with teacher

____   Asked questions for clarification

____   Partnered with a classmate

____   Completed my assignments

____   Monitored my own progress

____   Did extra practice to focus on area of need

How I practiced to improve at home

____   Family member/tutor worked with me

____   Family member/tutor monitored my progress

____   Completed additional problems on my own

Areas for Improvement

1. _____%_____

2. _____%_____

3. _____%_____

4. _____%_____

Areas of Strength

1. _____%_____

2. _____%_____

3. _____%_____

4. _____%_____

X _____

Parent/Guardian signature

Figure 12:
STUDENT DATA
REFLECTION TOOL
This form was developed by educators at a school in Garden Grove to help students get familiar with their own assessment data and chart plans for improvement.

Self-Assessment of Chapter 25 Math Standards

Name _____ Date of Assessment _____

Report Card Category	Number Correct	Total of # Problems	Percentage	Grade
AF: Writes, solves and graphs equations				
MG: Understands and represents geometric figures and relationships				
MR: Uses strategies, skills and concepts to estimate, find and justify solutions				

Algebra and Function
AF Standard 3.1: Use variable in expressions describing geometric quantities

Test items: 1 2 3 6 7 10 11 15 18 19   =   %

What is this standard asking me to know? _____
_____
_____

What did these problems ask me to do? _____
_____
_____

How did I do in meeting this standard? Explain. _____
_____
_____
_____
_____

Measurement and Geometry
MG Standard 1.1: To understand the concept of a constant such as pi and to know the
        formulas for the circumference and area of a circle
MG Standard 1.2: To know the common estimates of pi and use these values to estimate
        and calculate the circumference and the area of circle

Test items: 4   5   8   9   13   14   16   17   =   %

What is this standard asking me to know? _____
_____
_____

What did these problems ask me to do? _____
_____
_____
_____

Figure 13: STUDENT SELF-ASSESSMENT IN MATH
This example which is used in an Achievement First school shows the way in which teachers in this CMO attempt make students more accountable for their own achievement on state standards.

Assessing My Assessment Form   Name _____

1. Based on the scoring guide, three strengths I demonstrated in this writing were:
    a. _____
    b. _____
    c. _____

2. I displayed these strengths in my writing when I:
    a. _____
       _____
    b. _____
       _____
    c. _____
       _____

3. Based on the scoring guide, three weaknesses I demonstrated in this writing were:
    a. _____
    b. _____
    c. _____

4. These weaknesses were most apparent in my writing when I:
    a. _____
       _____
    b. _____
       _____
    c. _____
       _____

5. I plan to improve these weaknesses by:
    a. _____
       _____
    b. _____
       _____
    c. _____
       _____

6. I need my editor to clarify the following scores and/or comments:
    a. _____
       _____
   b. _____
       _____
    c. _____
       _____

Figure 14: STUDENT SELF-ASSESSMENT IN WRITING
This reflection tool was used in a Garden Grove school to help students understand their strengths and weaknesses in writing.

As these tools show, schools are becoming increasingly adept at getting students involved in using data to help improve their own achievement. It is important to note that the purpose of this was not to blame the students or "pass the buck," but rather to help students become more engaged in and accountable for their own learning.

5.

Outstanding needs and areas for development for better data-driven practice
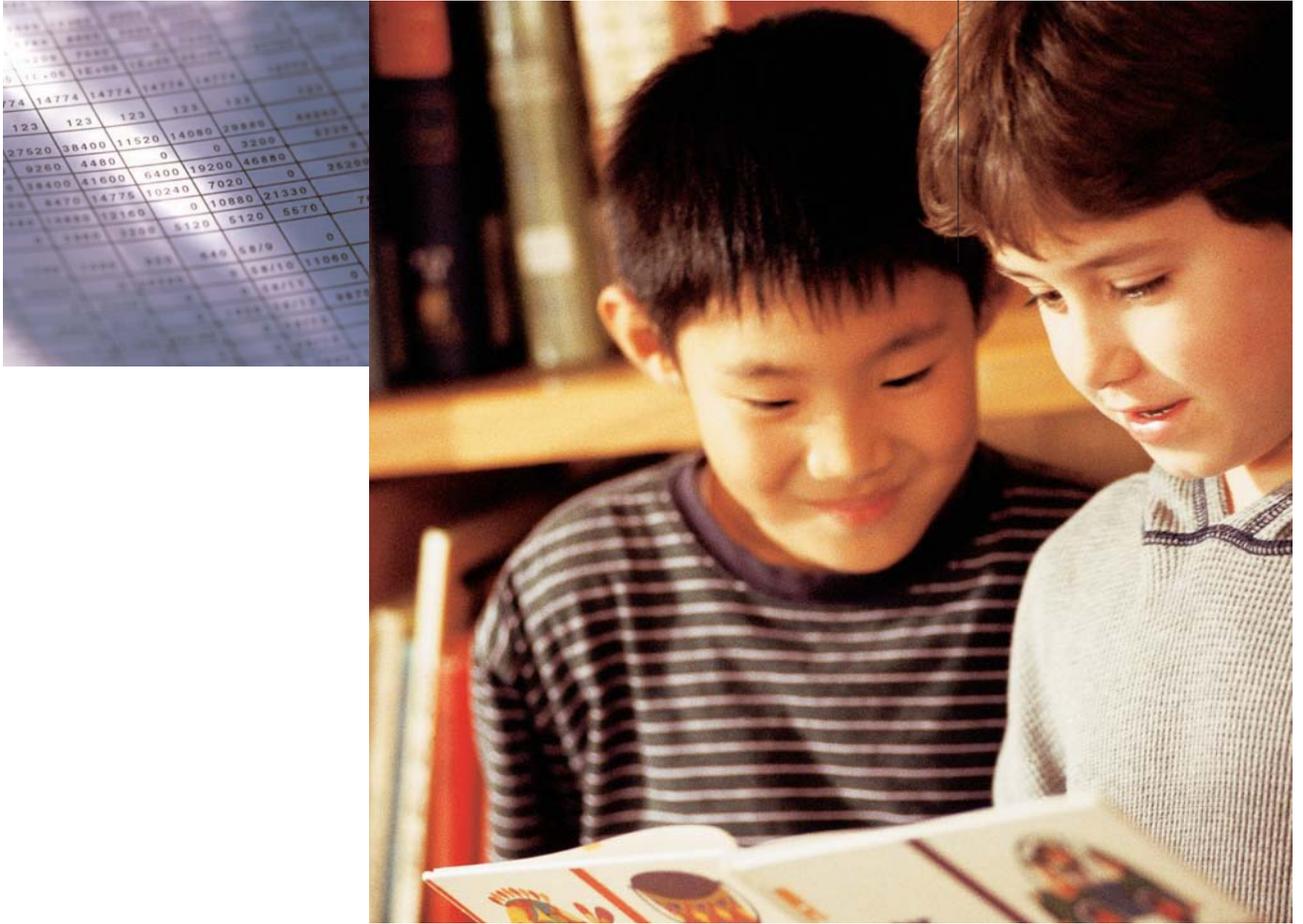
Although it is clear that all four of these school systems made strides in the area of data-driven decision making, they all identified areas for development. First, managing and prioritizing data continued to be a challenge for all of them. Second, school systems identified the need to expand the types of data used and collected. Third, system and school leaders acknowledged that helping staff members to use data appropriately and thoughtfully was an ongoing effort.

1. Managing and Prioritizing Data

All of the school systems we studied can be described as "data-rich" but most did not have a fully comprehensive data system that captured all of the information they needed and enabled sophisticated analysis. As these systems asked more sophisticated questions related to their data, their tools for managing data needed to keep pace. Each school system struggled in its own way with integrating multiple types of data into one comprehensive management system because achievement data, student demographic information, report cards, and discipline data were typically organized separately from one another and in varying formats.

Many educators across the school systems indicated that they would like to see the various types of data organized in a coherent fashion and managed in one system. When data were not organized well, teachers remarked that they felt like they were spending a lot of time filling out paperwork. One principal at an Aspire school noted that teachers are feeling "a lot of anxiety around how we're monitoring it all and keeping track of all the information and all of the different data." Several staff members concurred, indicating that they have a great need for a data management system that would be able to integrate data on student achievement, grades, discipline, behavior, and demographics. Additionally, several teachers expressed an interest in a comprehensive database that would enable them to track students' progress longitudinally—even when students left the system to attend local area high schools or colleges. In the long term, Aspire hopes to track the number of students who attend and graduate from college.

Of the four data management systems, Garden Grove's Data Director appeared to have the highest degree of sophistication, as it enabled the district to estimate likely scores on state tests and to track student achievement data longitudinally. It also enabled data to be disaggregated in various reporting formats, allowing for greater flexibility in how data could be analyzed. However, student achievement data were compiled separately from general student attendance, demographic data, and course registration patterns. The district is currently in the process of working with their vendor to develop a more sophisticated and robust data platform that will integrate the student achievement data on Data Director with attendance, enrollment, and scheduling.

All of the school systems we studied also indicated that they struggled with prioritizing the multitude of types of data that they were collecting. For example, one leader in the Aspire home office believed that the organization as a whole needed to have a broader conversation about how to manage and use data. At Aldine, the director of data mentioned that people had trouble discerning the importance of different types of data and identifying key information which made data interpretation difficult. Teachers in various school systems remarked that, given their access to a diverse array of data, they did not always know how to decide which data were most or least significant. Similarly, Garden Grove struggled with how to prioritize different data. The superintendent emphasized the importance of focusing on high yield areas rather than trying to hit every target and missing them all. Thus, all of these school systems are grappling with using data appropriately, effectively, and efficiently.

2. Expanding the Types of Data Used and Collected; Developing Tests to Capture Higher-Order Thinking Skills

Because student performance data were often garnered from tests in multiple-choice formats, educators emphasized the need to consider a diverse array of data when evaluating student performance. Across school systems, teachers indicated dissatisfaction with current measures of student performance. At Achievement First, teachers expressed a desire for the system to move beyond quantifiable data gathered from tests to more qualitative data gathered informally. Educators in Aspire schools mentioned that they would like to see more sophisticated assessments for reading and math that are aligned with state tests; they would also like to have teachers engage in more systematic data collection and analysis of student behavior as it relates to academic progress.

Educators across the four school systems also expressed the need to integrate assessments that would measure critical thinking skills. At one Aldine school, for example, the staff hoped that the school system would move toward working more on higher-order thinking skills and developing assessments that required students to construct more open-ended responses. On the other hand, the superintendent of Achievement First noted that interim assessments should be seen as "standards-plus." That is, they must include everything on the state standards, but they could indeed include more. The challenge, however, as he explained, was to make sure that schools demonstrate consistent mastery of the standards before adding items that capture higher-level skills. He also noted that higher-level skills can be more difficult to measure.

3.   Maintaining Buy-In

Principal and teacher support for the process of data-driven decision making is still an issue. While the majority of the educators across the systems seemed to embrace the use of data, many school system leaders noted that there were pockets of resistance among some teachers and principals. With regards to testing, one Aldine principal explained, "We see assessment as part of the instructional process, it's not an interruption. But you have to have a balance so that teachers don't see it as an interruption." In the two school districts in particular, lack of buy-in was also attributed to a large wave of reforms and programs implemented all at once. For example, in Garden Grove, the Data Director system was less than two years old, and people were still becoming familiar with it. The district-created quarterly benchmark assessments were also new, as curriculum-embedded chapter tests for math and language arts had been used as benchmark assessments the previous year. In Aldine, staff members at school sites commented that faculty needed time to adjust to the changes, and to implement new processes and strategies. One assistant principal noted that buy-in is still a huge issue, as teachers struggled to use the relatively new data management system. She shared that, although all the district-driven changes were "excellent, right now what we have to do is to not have any more changes. Let us get better at what we're doing now." District teachers also mentioned that one of the main challenges was deciding when to re-teach, how to re-teach, and whom to re-teach, especially given the constraints of the pacing plan.

The CMOs also continue to struggle with teacher buy-in, but for different reasons. According to Aspire, 80 percent of teachers in their schools had less than two years of teaching experience. Young, energetic teachers are often attracted to the opportunity of working in innovative charter schools; however, they also had to be trained in using data effectively at the same time as they were learning to be effective teachers more broadly, and so training was an ongoing process.

Additionally, in CMOs, a tension seemed to exist between allowing teachers the flexibility and autonomy that attracts them to charter school environments, while also maintaining instructional and data consistency. One principal noted that comparing data from classroom to classroom was difficult when teachers were not using common tests to assess student progress. The principal wondered how much she should mandate and asked herself, "If there is no uniformity, how do you systematically measure exactly what teachers do?" The principal in one Aspire school believed that some teachers were still uncomfortable with the home office's requirement of using the Cycle of Inquiry and explained that some "people felt it was somewhat of a mandate and a little bit paper-heavy." The hope was that teachers would see the value gained from having discussions about uniform data and assessments, as this would facilitate group action planning. A teacher in one Achievement First school shared that while some staff members at her school

really valued data and stressed the importance of performing well on tests, other teachers would prefer that students participate in more engaging activities. She believed that data can be handled in two different ways: "Either we're going to work really hard so the data is good or we work really hard, therefore our data is good." In other words, she believed that data can become the end goal or an indicator of progress and effort.

4. Taking the Process of Data-Driven Decision Making Deeper: The Need for Instructional Capacity

Along with gaining more buy-in, helping staff members to use data appropriately and thoughtfully remained an ongoing effort. Expressing a sentiment echoed by several teachers across these school systems, one teacher in Aldine remarked that gathering and disaggregating data was not the problem, but having training on what to do with the data and how to read them more carefully would be welcomed. When asked about what schools should avoid, a teacher stated, "Don't just throw the data out there and expect the teachers to be able to pick it up and run with it." Principals from district schools indicated that they needed to develop skills and capacity to have "quality conversations" around data.

Building teacher capacity for effective data use seemed to go hand-in-hand with building instructional knowledge and skills. Some teachers expressed frustration about assessing so frequently; they constantly asked, "How am I supposed to teach differently?" Although the use of data could pinpoint areas for improvement and areas of strength, data alone could not help improve student learning. Without professional development to build instructional knowledge for re-teaching, differentiating instruction, and scaffolding students, teachers did not have the tools to utilize data to make improvements.

Most educators highlighted their desire to learn from other educators across school systems. One principal revealed that she herself would like more professional development—specifically, someone who could be a coach or a critical friend. Teachers, too, desired more opportunities to observe other schools and learn from other teachers in order to build a broader repertoire of instructional strategies from which to choose. Some teachers specifically mentioned that they would like to see more examples of how schools were conducting data conversations.

In sum, sustaining a continuous improvement model through the use of data-driven decision making requires an ongoing investment in data management resources, human capital, and school culture. As one assistant principal observed, in order to sustain effective use of data, "it just needs to be an expectation; like health benefits and a decent salary, [teachers] ought to expect those tools." When asked about the

sustainability of data-driven decision making, leaders across the school systems believed that data use is a fundamental tool for accountability. As one superintendent stated, "Even if the state system goes away, and NCLB goes away … this is going to stay. We will create our own system because this is good and it's the way our kids get equal access to [learning opportunities] like the kids in more affluent areas."

Conclusion:
Implications and Recommendations

Our goal in this study was to identify the key strategies used by school systems that were leaders in using data for instructional decision making and improving student achievement. We found that the general actions taken by the four school systems in our study — each having a unique history, context and mission — were actually quite similar. However, when one delves more deeply into their processes for data-driven decision making, we found that each system and school approached the process a little bit differently, in ways that made sense to them given the goals they were trying to achieve. Each system also built upon different strengths (e.g., trust from the community and district schools in the case of Garden Grove and the enthusiasm of pioneering teachers and principals in the case of the CMOs), as well as liabilities (e.g., newness and scale-up challenges in the case of the CMOs and bringing along all teachers and principals in the case of the districts).

There are some general lessons we can distill from the study, which are reflected in the "Key Points" sections throughout the text of the report and are summarized below.

First, in terms of building a foundation for data-driven decision making, the critical actions include:

- Setting specific and measurable student achievement goals at the system, school, and classroom levels. The more explicit and targeted the goals are, the more likely they are to provide focus for data-driven decision making.
- Developing system-wide curriculum that is aligned to standards and is accompanied by a pacing plan that allows for some instructional flexibility.

Second, in establishing a culture of data-driven decision making and continuous improvement, the key actions include:

- Creating explicit expectations and norms throughout the system, by stating explicitly that data use is non-negotiable and modeling appropriate behavior.
- Setting and modeling these norms at the school level by showing the relevancy of data to systematically improving student achievement.
- Promoting mutual accountability for data use among teachers, principals, and personnel in the central or home office, such that schools are held responsible for results, and the school system administrators are responsible for support and resources.

Third, when it comes to managing data, the key strategies are:

- Adopting assessment systems that are user-friendly, comprehensible, easily accessible, quick with results, and able to grow with school and system needs.
- Designating data assistance managers at both the school and central office levels. Most central offices have a dedicated individual or team responsible for supporting data analysis system-wide. In addition, most schools have designated staff members (generally principals or lead teachers) as the local experts to whom the teachers turn first.
- Hiring or designating data managers who are experienced, respected educators, not just technologists or statisticians.

Fourth, in selecting the right data, the key points include:

- Gathering multiple types of achievement and instructional data to inform decision making. 'Trailing' data, such as results of annual state tests, indicate effectiveness of past instructional practices, while 'leading' data, such as results from interim assessments, inform immediate instructional decisions.
- Using system-wide interim assessments, aligned to standards and administered at least four times a year. These are the most important data source for instructional decision making.
- Gathering observational data in classrooms (i.e., regarding curriculum implementation) and holding data-driven meetings can help paint a richer picture of a school's progress towards student achievement goals.

Fifth, in terms of building capacity for data-driven decision making at the school level, the key strategies are:

- Investing in professional development of data-informed instruction and provide ongoing training when necessary.
- Realizing that teachers (and other users) will have different comfort levels with data and be prepared to support training at all levels.
- Providing time for within-school collaboration that is distinct from faculty and administrative business meetings.
- Sharing data across schools to promote collaborative discussions and relationships.
- Considering rewards and incentives for data use, student achievement, and professional development.

Finally, and perhaps most importantly, in terms of developing tools for educators, the school systems relied on the following strategies:

- Providing teachers with structured protocols and tools to help facilitate data discussions.
- Creating processes to help monitor progress toward goals for schools and for individual teachers.
- Developing tools to engage students in data discussions and continuous improvement.

The strategies, tools, and case study examples in this report provide a starting point for school systems that are either interested in becoming performance-driven or those wanting to fine-tune their efforts already underway. We hope that the lessons learned will also be useful to policymakers, researchers, and others interested in creating performance-driven school systems.

In addition, this study lays the groundwork for future investigations of the system's role in supporting data-driven decision making. The findings of this study convince us that the system plays a critical role in supporting schools in using data, and there is still much to learn about their work in this area. First, we believe that the processes of data-driven decision making in high schools may be different from those for elementary schools. Most middle and high schools serve much larger numbers of students and are organizational complex. Therefore, they face additional challenges in using data for decision making.

Second, we believe it is important to further examine how school systems grapple with educators who are resistant to using data. The schools we focused on in this study were those in which most educators were excited about using data, but all system leaders acknowledged that there were other schools that were less enthusiastic.

Third, we think it is important to gather more information on how school systems garner board, community, and union support for data-driven decision making. By virtue of their unique histories, the school systems we studied did not face major challenges in these areas. However, we believe that there are interesting lessons to be learned in examining school systems with more difficult political circumstances.

Finally, we believe that further research is needed on how teachers use data to differentiate instruction. This study indicated that teachers are indeed differentiating instruction as a result of finding out which students need additional support in particular areas; however, we did not have sufficient opportunity to gather data on the details. A study that focused on the differentiated instructional techniques that arise out of data-driven decision making would be useful.

REFERENCES

Alwin, L. (2002). The will and the way of data use. *School Administrator*, 59(11), 11.

Anderson, S. (2003). *The School District Role in Educational Change: A Review of the Literature*. Ontario: International Centre for Educational Change, Ontario Institute of Studies in Education.

Armstrong, J., & Anthes, K. (2001). *Identifying the factors, conditions, and policies that support schools' use of data for decision making and school improvement: Summary of Findings*. Denver, CO: Education Commission of the States.

Bay Area School Reform Collaborative. (2003). *After the test: Using data to close the achievement gap*. San Francisco: Author

Center on Education Policy. (2004). *From the Capital to the Classroom: Year 2 of the No Child Left Behind Act*. Washington, DC: Author.

Colby, S., Smith, K., & Shelton, J. (2005). *Expanding the supply of high-quality public schools*. San Francisco, CA: The Bridgespan Group.

Crommey, A. (2000). *Using Student Assessment Data: What Can We Learn From Schools?* Oak Brook, IL: North Central Regional Educational Laboratory.

Dembosky, J.W., Pane, J.F., Barney, H., & Christina, R. (2005). *Data driven decisionmaking in Southwestern Pennsylvania school districts*. Working paper. Santa Monica, CA: RAND.

Diamond, J.B. & Spillane, J.P. (2004). High-stakes accountability in urban elementary schools: Challenging or reproducing inequality? *Teachers College Record*, 106(6), 1145-1176.

Doyle, D. P. (2003). Data-driven decision making: Is it the mantra of the month or does it have staying power? *T.H.E. Journal*, 30(10), 19-21.

Earl, L., & Katz, S. (2006). *Leading schools in a data-rich world*. Thousand Oaks, CA: Corwin Press.

Hoff, D. J. (2006). Delving into data. *Education Week Technology Counts 2006*. 25(5). 12-14, 20-22.

Ingram, D. Louis, K.S., Schroeder, R.G. (2004). Accountability policies and teacher decision making: Barriers to the use of data to improve practice. *Teachers College Record*, 106(6), 1258-1287.

Johnson, J. H. (1999). Educators as researchers. *Schools in the Middle*, 9(1), 38-41.

Johnson, J. H. (2000). Data-driven school improvement. *Journal of School Improvement*, 1(1). Retrieved from http://www.ncacasi.org/jsi/2000v1i1/data_driven.

Lafee, S. (2002). Data-driven districts. *School Administrator*, 59(11), 6-7, 9-10, 12, 14-15.

Mason, S. (2002). *Turning data into knowledge: Lessons from six Milwaukee public schools*. A paper presented at the annual conference of AERA, New Orleans, April 2002.

McIntire, T. (2002). The administrator's guide to data-driven decision making. *Technology and Learning*, 22(11), 18-33.

Olsen, L. (1997). The data dialogue for moving school equity. *California Tomorrow Perspectives*, 5.

Petrides, L., & Nodine, T. (2005). *Anatomy of school system improvement: Performance-driven practices in urban school districts*. San Francisco, CA: Institute for the Study of Knowledge Management in Education and NewSchools Venture Fund.

Slavin, R.E. (2002). Evidence-based education policies: transforming educational practice and research. Educational researcher, 31(7), 15-21.

Supovitz, J., & Taylor B.S. (2003). *The Impact of Standards-based Reform in Duval County, Florida, 1999-2002*. Philadelphia, PA: Consortium for Policy Research in Education.

Sutherland, S. (2004). Creating a culture of data use for continuous improvement: A case study of an Edison Project school. *American Journal of Evaluation*, 25(3), 277-293.

Togneri, W., & Anderson, S. (2003). *Beyond Islands of Excellence: What Districts Can Do to Improve Instruction and Achievement in All Schools*. Washington, DC: Learning First Alliance.

Wayman, J., Stringfield, S., & Yakimowski, M. (2004). *Software enabling school improvement through analysis of student data*. Report No. 67. Baltimore, MD: Center for Research on the Education of Students Placed At Risk.

Wohlstetter, P., Van Kirk, A. N., Robertson, P. J., & Mohrman, S. A. (1997). *Organizing for successful school-based management*. Alexandria, VA: Association for Supervision and Curriculum Development.

Appendix A: **Overview of Student Achievement Results**

Each state reports student achievement results differently, and thus we include a narrative accompanying a table reporting the results for each school and system in our study.

ACHIEVEMENT FIRST CHARTER MANAGEMENT ORGANIZATION
Since 1985, the state requires all fourth, sixth, and eighth graders to participate in the Connecticut Mastery Tests (CMT), which include reading, math, writing, and grammar. According to the Strategic School Profile for 2004–05, School A's African-American eighth graders outperformed their African-Americans peers across the state on the reading, writing, and math portions of the CMT. They also outperformed their peers in the local district (New Haven Public School System). Based on the state's reading assessments, School B has 96 percent of its students reading at or above grade level. Additionally, 56 percent of students are reading at least one year above grade level.

Percentage Meeting the State Goal *(2005-06)*

Grade Level	*Test*	*School A*	*State*
Grade 6	Reading	60	64
	Writing	66	62
	Math	54	59
Grade 8	Reading	69	67
	Writing	60	62
	Math	60	58

ALDINE INDEPENDENT SCHOOL DISTRICT
Based on its 2005 District Accountability Summary from the state (Texas Education Agency), the district overall has been rated as Academically Acceptable. Of its 63 schools, 5 of them are rated as Exemplary, 22 are rated as Recognized, 28 are Academically Acceptable, and none are Academically Unacceptable. Six schools in the district are recipients of the Governor's Award for Excellence based upon improved performance, including the two schools in our study. Below is a table comparing the scores between the schools, the district, and the state.

Percentage Meeting or Exceeding State Standards *(2005-06)*

School	*Subject*	*School Site*	*District*	*State*
School A	Reading	93	86	87
	Math	93	76	75
School B	Reading	95	86	87
	Math	67	76	75

ASPIRE CHARTER MANAGEMENT ORGANIZATION

California's accountability system ranks schools based on the Academic Performance Index with a ranking of 10 being the highest possible. Additionally, California compares similar schools based on student demographics. School A's Statewide Ranking is a 7 and its Similar School Ranking has been a 10 since 2001. School B has an overall Statewide Ranking of 6 and a Similar School Ranking of 7 for the year 2005.

Percentage of Students at Proficient or Advanced Levels *(2005–06)*

Subject	*School A*	*School B*	*California*
English-Language Arts	44	51	45
Mathematics	85	75	48

GARDEN GROVE UNIFIED SCHOOL DISTRICT

Many schools in the Garden Grove district have been recognized by the state and by external groups. The district was the recipient of the prestigious Broad Foundation Award in 2004. Garden Grove schools were also recognized as Title I Academic Achievement Schools for 2005-06. School A was previously recognized as a California Distinguished School and it has consistently been rated a 10 on the Statewide Ranking system. School B has been rated as a 7 on the Statewide Ranking but has been consistently ranked as a 9 or 10 in the Similar Schools Ranking.

Percentage of Students at Proficient or Advanced Levels *(2005–06)*

Subject	*School A*	*School B*	*District-Wide*	*California*
English-Language Arts	86	45	47	45
Mathematics	93	64	56	48

	District 1 Garden Grove	District 2 Aldine	CMO 1 Aspire	CMO 2 Achievement First
STATE *Instructional/* *Student Performance* *Data*	California Standards Test (CST), California English Language Development Test (CELDT), and California High School Exit Exam	Texas Essential Knowledge and Skills, IOWA Test of Basic Skills, Texas Primary Reading Inventory (TPRI), and High School Exit Exam	California Standards Test (CST), California English Language Development Test (CELDT), and California High School Exit Exam	Connecticut Mastery Test (CMT)—in reading (Degrees of Reading Power Test), writing, grammar (Direct Assessment of Writing), and Math
DISTRICT *System Instructional/* *Student Performance* *Data*	1. Quarterly benchmarks in core subjects correlated to state standards. 2. Correlation Studies between tests curriculum, benchmark tests, and teacher grades.	1. Logramos (norm-referenced test for growth for bilingual students). 2. Benchmarks administered every 6 weeks in core subjects (language arts, math, science, and social studies).	1. Benchmarks are administered three times a year in core subjects. 2. State assessment results and analysis for teacher-to-teacher comparison, individual teacher performance, and school-wide performance. 3. Projections of school API and AYP used to create goals for each school. 4. Correlation studies between benchmark assessments and state assessment results.	1. State assessment results. 2. Interim Assessments (IAs)—administered every six weeks in reading, writing, grammar, and math only for fourth, sixth, and eighth grade levels.
Implementation/ *Goal Progress Data*	1. Schools visit one another to examine instructional strategies and student work. 2. Principal's Goal Report –given to principals outlining school-specific goals as they relate to overall district goals.	Quarterly District Scorecard Data to monitor district goals: 1. Academic progress—state assessment results and district benchmarks. 2. Behavior—retention rate, attendance, referrals, suspensions. 3. Parent engagement—number of contacts/communication with parents, types of parent activities offered, home visits, involvement in school-related activities, etc.	1. Cycle of inquiry video-taping to monitor implementation of data talks and to improve data discussions. 2. Discipline data—positive and negative referrals by teacher, student sub-groups, type of infraction and consequence, time of day, and area in which behavior occurred. 3. Instructional coach performance review — team member survey results, state assessment data, review of current research literature on coaching, and informal feedback from principals and team members. 4. Annual Formal Surveys for parents and teachers. 5. Goal reports on finance, student achievement, staff competence, and parent satisfaction to monitor deliverables and targets.	1. Student and teacher attendance. 2. Financial status.

	District 1 Garden Grove	District 2 Aldine	CMO 1 Aspire	CMO 2 Achievement First
SCHOOL *Instructional/* *Student Performance* *Data*	(1) Curriculum embedded tests. (2) Individual Reading /Inventories Comprehensive Literacy Assessment. (3) Assessment Reports — generated by the teachers from Data Director.	(1) Individual teacher created tests and curriculum embedded tests.	(1) Curriculum embedded tests. (2) Edusoft-created tests. (3) Developmental Reading Assessment (DRA). (4) Rigorous Projects—inter-disciplinary units; graded based on rubrics developed by teachers.	(1) "Battle Plan"—6 week instructional plan developed by teacher. (2) Developmental Reading Assessment (DRA)—given to grades K-4 at mid-year and year-end. (3) Curriculum embedded tests. (4) Master Spreadsheet—used to aggregate the school's achievement data.
Implementation/ *Goal Progress Data*	(1) Within school Action Walks.	(1) Campus Scorecards — Principal compiles data related to district and school goals: Schools also record the degree to which course grades correlate with benchmark assessment results. (2) Quarterly Grade-level Scorecards—compiled by teacher grade-level teams. (3) Discipline Report –broken down by homeroom teachers/advisor, potential retentions by student group, by grade level, and subject. (4) Weekly or bi-weekly Triand update reports are compiled by the principal and sent to the area superintendent. The percent of teachers using Triand for lesson planning, student attendance, whether or not the school's Web site is up-to-date are recorded. (5) Classroom walkthroughs. Administrators walk around classrooms, for five minutes, for quick check — to collect data on purpose of instruction, objective, student engagement are recorded.	(1) Cycle of Inquiry Videotaping to monitor implementation of COI as well as to improve conversations around data and action planning. (2) Discipline Data—tracking both number of positive and negative referrals by teacher, student subgroups, type of infraction and consequence, time of day, and area in which behavior occurred.	(1) Homework Data—every student has a homework folder. Using the classroom data turned in by teachers, the principal produces a monthly homework data sheet, which indicates the percentage of homework, by teacher, by student, and by classroom. Used to follow up with students and parents. (2) Pacing Data—a chart is posted on each classroom door and is used by teachers to note their lesson pacing. The principal compiles the data to determine the effectiveness of the curriculum pacing. (3) Attendance data.

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The Center on Educational Governance (CEG) at USC focuses on the linkages between policy, educational governance, and the improvement of urban schools and systems. Center researchers use an interdisciplinary approach to study current policy solutions to the educational issues posed by diverse urban communities – locally, nationally and globally. The main activities of the center are: (1) engaging in rigorous quantitative and qualitative research studies of policy problems; (2) building a knowledge base to provide researchers, educators, parents and policy makers with new tools and strategies for improvement; and, (3) working in partnership with educators and policy makers to use research to improve policy and practice.

The Center on Educational Governance is an interdisciplinary research center that unites faculty from across USC, including the Rossier School of Education, the Marshall School of Business, and the School of Policy, Planning, and Development. The Center is under the direction of Priscilla Wohlstetter. For additional information about the Center on Educational Governance, please visit http://www.usc.edu/dept/education/cegov/.

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