

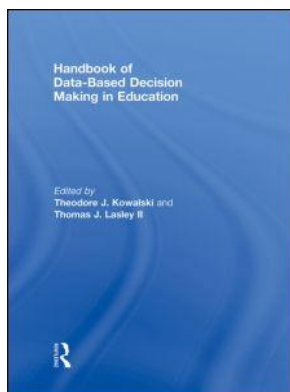
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Handbook of Data-Based Decision Making in Education

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School System Strategies for Supporting Data Use

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Handbook of Data-Based Decision Making in Education

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School System Strategies for Supporting Data Use

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Introduction

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)

As part of a study of data-driven decision making, we were fortunate to visit schools and districts where such practices are indeed becoming commonplace. In this chapter, we capture the work of four school systems that were identified as leaders in data-driven decision making. As we show in our case studies of these 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 chapter, we highlight the choices and tradeoffs made by these schools and school systems.

Background

With the advent of the No Child Left Behind Act (NCLB), 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 schools, pinpoint successes and challenges, identify areas of improvement, and help evaluate the effectiveness of programs and practices (Mason, 2002). In fact, the theory of action

underlying NCLB requires that educators have the will and expertise 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; Peterson, 2007). 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; see also Borja, 2006). 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, Louis, & Schroeder, 2004; Marsh et al., 2005; Mason, 2000; Petrides & Nodine, 2005; Wohlstetter, Van Kirk, Robertson, & Mohrman, 1997). To address this problem, districts have invested in management information systems and professional development to develop expertise and capacity at the school level (see, for example, Borja, 2006). Some districts have also contracted with external agencies and consultants to assist in their capacity-building efforts district-wide (Jacobson, 2007; Marsh et al., 2005).

Similarly, in the charter school arena, education service providers, including education management organizations (EMOs) and charter management organizations (CMOs), have also sought to build capacity in schools and districts (Colby, Smith, & Shelton, 2005). 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 EMO helped to cultivate a culture of data use and data-driven practice through its curriculum, assessment, and organizational structure (Sutherland, 2004).

In spite of system-level investments to build capacity and expertise for data-driven decision making, many studies conclude that teachers are not actively using data to guide planning and instructional decisions (Earl & Katz, 2006). Teachers need not only the capacity to use data, but also the empowerment and the will to do so. Thus, how can data-driven decision-making plans be most effectively executed at the system level? This chapter addresses this question.

Research Methods

During the 2006–2007 school year, we conducted a qualitative case study of four school systems to capture the details of data-driven instructional decision making. The study was supported by a grant from NewSchools Venture Fund, with funding from the Gates and Hewlett Foundations. 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 was 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 (see Datnow, Park, & Wohlstetter, 2007).

In collaboration with NewSchools, we chose four 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 websites, 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 were also careful to note that their work was “in progress.” Our study included the four school systems described in Table 12.1.

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.

We studied two schools in each of the four school systems, with a focus on practices in the elementary Grades (K-8). These schools were recommended to us by system personnel because of 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. Table 12.2 gives a detailed demographic picture of the individual schools and the systems themselves.

Table 12.1 Overview of system sample.

<i>System</i>	<i>No. of schools</i>	<i>Location</i>	<i>Type</i>
Garden Grove Unified School District	70	CA	Regular public school district
Aldine Independent School District	63	TX	Regular public school district
Achievement First Public Schools	6	NY; CT	Nonprofit charter management organization
Aspire Public Schools	14	CA	Nonprofit charter management organization

Table 12.2 Characteristics of schools and systems.

	Grades	Size	Race/ethnicity					Free-lunch status		LEP status		Location
			% Afr. Am.	% Asian or Pac. Isl.	% Latino	% White	% Nat. Amer.	% Eligible	% ELL			
<i>California</i>												
Garden Grove		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	1,223	1	25	67	7	<1	73	56		Urban	
<i>Aspire</i>												
School A	K-8	3,600	15	0	72	0	0	88	66		Urban	
School B	K-5	351	9	13	37	35	<1	34	30		Suburban	
<i>Connecticut</i>												
Achievement 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	
<i>Texas</i>												
Aldine	PK-12	57,931	32	2	61	6	<1	78	27		Urban fringe	
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.

Our site visits to the school systems and schools took place between March and May 2006. We interviewed two to three administrators from the home or central office, including the superintendent, assistant superintendent (in three of the four 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 five 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, classrooms and relevant meetings. Finally, we gathered a plethora of documents at the school and system levels that were pertinent to our study.

All interviews were taped and transcribed verbatim at the conclusion of the site visits. Interview transcripts were then coded with the aid of HyperResearch, a qualitative data analysis software package. We initially coded the data according to an early conceptual framework we had developed about the role of the system in supporting school-level data-driven decision making. The coded data were then used to develop detailed case reports on each system in the study. These case reports were organized according to a common outline, thus facilitating cross-site analysis.

Findings

Our findings are organized around the key strategies that we identified systems using to support data-driven decision making. These include:

- (1) Building a foundation for data-driven decision making;
- (2) Establishing a culture of data use and continuous improvement;
- (3) Investing in an information management system;
- (4) Selecting the right data;
- (5) Building school capacity for data-driven decision making; and
- (6) Analyzing and acting on data to improve performance.

Each of these is discussed below.

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.

Setting Student Achievement Goals 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. 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.

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.

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 school in Achievement First expected teachers to establish goals in three areas: student learning, personal/professional, and community. Ultimately, both at the system and school levels, goals were tied to improving learning and instruction.

Developing and Monitoring a 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 followed the state standards and was divided into six-week periods. At the same time, the district curriculum had flexibility built into 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 this perspective and noted, “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, the Aspire system decided to focus on the “literary response and analysis” strand of

the standards after scores on the California Standards Test (CST)—the state’s standardized assessment—indicated that this was an organization-wide weakness.

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. However, it seems that a balance can be struck, with a district pacing plan that allows 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.

Establishing a Culture of Data Use and Continuous Improvement

Establishing a culture of data use was also 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.

System Efforts to Foster the Culture of Data Use System leaders found 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 system 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.

School Efforts to Foster the Culture of Data Use 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 responded 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?”

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 “open your eyes more” because they help teachers realize that teaching does not 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.

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.

Investing in an Information Management System

Merely having data does not ensure that data-driven decision making will take place. In order to conduct meaningful analysis and to use data to create effective action plans, each of the school systems had to grapple with organizing data in an accessible format and presenting them in a comprehensible manner. Therefore, they had to figure out how to organize, prioritize, and manage data.

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 easily to 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 its 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 complex 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 used Edusoft, a system which it

purchased “off the shelf” rather than having software customized for its needs. Achievement First was in the process of negotiating with an external provider, Acsys, to build a data management system to meet its specific needs.

Utilizing Personnel to Assist in Data Management and Use 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 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.

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.

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 to 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.

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.

A Diverse Array of Student Learning and Instructional Practice Data 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 retaught 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. 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.

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 of 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.

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.” The four school systems studied administered benchmark assessments frequently, somewhere between three times a year to as often as every six weeks.

The four systems 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. 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.

Using Implementation Data and Other Sources of Information 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% to 75%. 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 tape-recording its 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.

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 investing in professional development, providing support for staff in how to use data and modeling data discussions, and structuring time for teacher collaboration.

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 website.

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 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. 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. 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 became 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.

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 it 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 them up and run with it." Principals from district schools indicated that they needed to develop the 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 reteaching, differentiating instruction, and scaffolding students, teachers did not have the tools to utilize data to make improvements.

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 once a month, two meetings 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 of the school systems recognized that data-driven decision making was enhanced when educators shared data not only within schools, but also 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.

Analyzing and Acting on Data 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. The systems also created explicit data analysis protocols and goal-monitoring reports for administrators, teachers, and in some cases for students as well.

Tools to Help Teachers Discuss and Act on Data The school systems found that they had to develop tools in order to ensure that discussions about classroom-level data occurred and that actions were taken as a result of these conversations. All of the school systems developed some type of discussion template that typically began with a discussion of basic trends and then delved into more detail regarding strengths,

weaknesses, grade-level trends, and ethnic, gender, and language subgroup trends. These discussions were then generally followed by brainstorming on strategies and action plans. These discussions typically took place after the results from benchmark assessments had been analyzed and often arose even more frequently.

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 in 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.

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 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.

Aldine schools were also required to have action plans at the system and campus levels. Each campus had an action plan that detailed its 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.

Tools for Engaging Students in Data Discussions Most of the 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?”

Aspire 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 bi-weekly graphs of math, reading, and writing benchmark scores, showing the class average and the names of students who performed above the goal of 85% proficient.

Overall, the schools were 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.

Conclusion and Implications

Our goal in this chapter 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 differently, in ways that made sense to them given the goals they were trying to achieve. Each system also built upon different strengths, as well as liabilities.

Although all four of the 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.

In addition, the study reported in this chapter helps to lay 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. We are currently undertaking a new study that focuses on secondary school data use.

Second, we believe it is important to examine further 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 show 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.

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