Teachers’ Use of Data: Loose Coupling, Agenda Setting, and Team Norms

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This article explores the influence of grade-level team norms and district and school leadership on teachers’ data use. Using an embedded-systems perspective to consider teachers’ data use in four schools located in two different districts, the research takes the practitioners’ perspective on what constitutes data. Findings indicate that establishing rationale for teachers to use particular data, modeling such use, and structuring time for teachers to learn about using data are deliberate agenda-setting activities. Varying degrees of loose coupling between the case study districts underscore how grade-level norms and agenda setting mediate teachers’ collaborative use of data.

I. Introduction

State and federal accountability policies place tremendous faith in the power of data—especially standardized test data—to effect school improvement. Yet practitioners commonly complain that those kinds of data lack instructional usefulness. For example, year-end standardized test results reflect what teachers already know of their students based on in-class performance. Those results are also often untimely, arriving after the students tested have moved to another teacher. These objections to large-scale standardized tests are common (see, e.g., Popham 1995; Stiggins 1997); but if teachers make such limited use of standardized tests, which types of data do they use and under which conditions do they do so?

My research explores what constitutes data in teachers’ eyes and how organizational conditions shape teachers’ use of specific data. In taking the teachers’ perspective, I approach practice as both the source of teachers’ appetite for particular types of data and the lens through which they judge the appropriateness and usability of the data present in their organizational and policy environments.

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Previous studies find barriers to teachers’ data use, such as technical difficulties with the management information system (Watson 2002), teachers’ lack of quantitative prowess (Choppin 2002), “philosophical commitments and political necessities [that] often prevailed over evidence” (Corcoran, Fuhrman, and Belcher 2001, 80), “data management policies and assessment practices” that do not yield data useful to the targeted practitioners (Choppin 2002), disensus around organizational goals (Herman and Gribbons 2001), and school norms inconsistent with the intents of accountability policies (Ingram, Louis, and Schroeder 2004). Beyond technical process, these barriers spotlight the vital role of organizational contexts in enabling or hindering the use of data.

The hierarchical nature of school organizations—teachers within grade levels or departments, within schools, within districts—creates a confluence of factors originating from multiple levels to potentially shape teachers’ data use. Policies set at the district level juxtaposed against schools’ relative autonomy result in organizational loose coupling (Weick 1976). Under the institutionalized logic that analyzing data contributes to superior decision making, schools and districts may display outward signs that conform to such logic—for example, formulating annual plans based on disaggregated test scores. However, old practices dissociated from that logic may persist internally through loosely coupled systems, such as accountability policies that do not reference the school plans.

The policy logic of using data for instruction further assumes that teachers and schools analyze assessment results to investigate their instructional practices. Implicit in this purpose is a conception of teaching as an evolving process, one in which practitioners become proficient—not simply by repeating routines, but by adjusting routines based on systematic input. Using data in teaching thus demands reflection (Schön 1983) to build “knowledge of practice” (Cochran-Smith and Lytle 2001). Moreover, learning from data invokes the norms and structures shaping social interactions between colleagues, which can be more or less conducive to learning (Bransford, Brown, and Cocking 1999; Brown and Duguid 2000; Lave and Wenger 1991; McLaughlin and Talbert 2001). Grade-level or departmental norms—and how the broader school leadership and culture affect them—thus can influence whether teachers view using data as a legitimate improvement strategy.

This article elaborates on how teachers’ most proximate context—their grade-level team norms—and agenda setting facilitate or hinder teachers’ efforts to infuse data analysis into their instructional practices. I use “agenda...
setting” as shorthand for leadership in articulating rationale, setting expectations, and structuring time and teachers’ learning about data.

II. Method

Data for this article come from four embedded case studies. I followed one grade-level team of teachers in four schools across two districts. Multiple embedded cases offer two key advantages. They afford analyses that take into account inextricable influences originating at different levels of a multilevel system and heighten understanding of the conditions under which case-based findings may hold (Firestone and Herriott 1984; Yin 1994). To ensure an opportunity to study teachers’ data use, I purposefully selected sites (Patton 1990) where questions about using data would be relevant to practitioners. I sought schools and districts that have an espoused goal of being data driven, while maintaining variation in the key factors I expected to shape teachers’ practices. The case study districts participate in a regional network promulgating data-driven, inquiry-based school reform; my research was situated in a broader evaluation of that initiative. Because of an explicit accountability-based rationale underlying data-driven, decision-making rhetoric, I selected in each district one higher-performing school and one low-performing school subject to state accountability sanctions. To focus the study, I selected literacy as the context within which to understand teachers’ data use. Literacy lends itself to such a study because federal, state, and local policies have widely institutionalized diagnostic and formative assessments. Accordingly, I chose upper-primary grades as case study teams in each school.

Data collection occurred from June 2003 through February 2005. Data consist of 90 repeated interviews with district administrators, school principals, teachers, and reform and literacy coaches and 73 observations of grade-level team meetings, staff meetings, and school- and districtwide professional development sessions.

Semistructured, role-specific interview protocols guided all interviews. Following a grounded theory approach (Strauss and Corbin 1994), analysis was iterative, as I posed emerging themes to informants during subsequent interviews. Thus repeat interviews with informants were tailored to the person’s role, activities, and organizational context to hone in on specific examples of data use, to check my interpretation of observed events, and to reflect on emerging themes.

All interviews were audiotaped and transcribed. Transcripts and observation notes were coded first for descriptive, then analytic codes as themes emerged. Descriptive and analytic codes were entered into a qualitative database using
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N6 software. Within-case and cross-case analyses drew on the database for supporting and disconfirming evidence for each descriptive and analytic theme.

Brief case study summaries follow, reviewing the districts’ literacy and assessment policies, and grade-level team data practices. The subsequent section will analyze the influence of agenda setting on grade-level norms and organizational capacity. The article concludes with implications for practitioners.

III. The Cases

Fulton and Hilltop Schools in Oak Park District

Oak Park Unified School District is a midsize, urban, K–12 district in the San Francisco Bay Area. Oak Park student enrollment reflects the ethnic diversity of California; no single racial/ethnic group accounts for more than one-third of the student population. Fulton, as an alternative K–8 program, has historically drawn its 400 students from across the city. Changes in student demographics are under way, however, as more neighborhood children attend the school. Since 1997–98, the number of English learners has more than doubled, to 25% of school enrollment, and the number of students eligible for free or reduced-price lunch has risen from 25% to 35%.

By comparison, Hilltop Elementary has been one of the poorest schools in Oak Park for a quarter-century. African-American students represent the school’s largest single racial/ethnic group (44%), with 19% Asian, 13% Latino, and 11% Filipino. Eighty-seven percent of Hilltop students are eligible for free or reduced-price lunch, and an increasing proportion, above one-third, are English learners.

Oak Park Literacy and Assessment Programs

In 2003–04, Oak Park adopted Houghton-Mifflin, one of two state-approved English/language arts programs. The district directed kindergarten through second-grade teachers to implement the program with “fidelity,” meaning teachers must complete virtually all of the activities in sequence and according to a districtwide pacing guide. This new literacy program stands in marked contrast to the teacher-developed, individualistic literacy approach entrenched in the district for at least the prior decade. Even though the district adopted reading programs throughout that time, the district assessment coordinator reports, “There was no accountability whether anyone
ever used them or not,” and, “after 12 years, we’ve got a bunch of seniors who can’t read!”

In support of the new literacy program, the district created a K–2 assessment plan featuring frequent and varied testing. Grade 2 students, for example, take:

- diagnostic tests on phonemic awareness and phonics decoding in the fall;
- end-of-story tests, approximately every other week, on story-specific vocabulary and comprehension;
- theme skills tests, six per year, on phonics, conventions, vocabulary, and comprehension strategies specific to the theme in Houghton-Mifflin;
- California summative tests, three per year, tied to state content standards; and
- fluency tests, three times per year, measuring accurate words per minute in individual oral reading, referenced to national norms.

The literacy adoption and new assessment program form the dominant policy context in understanding which data Oak Park teachers have available and which they choose to use.

Fulton School

School context.—Opened in 1992, Fulton’s identity as an alternative school is palpable among the teacher and parent community, even though only three of the founding teachers remain on staff. Following a philosophy of developing the “whole child” through cross-curricular themes, building the program forged school traditions of teacher leadership and collaboration.

The school participated in the initial 1996 cohort of a regional inquiry-based reform network, and continued its involvement through 2003–4. Through this experience, inquiry language imbibes grade-level meetings and staff discussions, and teachers express confidence in critiquing and using multiple forms of data.

The second-/third-grade team of six teachers had been together for four years by 2003–4. All have long-term teaching experience, ranging from 12 to more than 30 years. Each team member takes on a leadership role in some way, serving on committees or supporting fellow teachers. Of the three founding teachers still on staff, two are on the second-/third-grade team. In short, this team feels ownership over the school and has strong roots across the district.

Examples of data practices among Fulton second-/third-grade team.—Fulton’s reform
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history—both in teachers’ collaborating to create thematic instructional units and engaging in data-driven inquiry—helped establish teachers’ data practices as joint activity. Although teachers individually review their students’ results after each assessment, their most extensive uses of data occur during full-day, grade-level team meetings every six weeks.

The district assessment results constitute only one source of data for the second-/third-grade Fulton teachers. Consistent with their philosophy of teaching the whole child, the teachers rely on their collective observations of student work, oral responses, and independence. Sharing students for reading and math motivates them to use each other as resources in making sense of various data.

Situated within ongoing discourse, the second-/third-grade team primarily uses assessment data and their observations of student work and behavior to group students for literacy instruction, to move students between groups mid-year, and to create and review intervention strategies for individuals. The second-/third-grade teachers make these decisions collaboratively. For example, because multiple team members teach a particular child, each teacher contributes her understanding of a child’s instructional needs as they jointly write individual intervention plans (IIPs). The homeroom teacher also assigns a colleague where appropriate to implement the IIP strategies. For instance, after discussing a student’s needs, one teacher directed a student to “reread at least twice any materials to read more like [the student] speaks” and listed the student’s literacy teacher as the responsible party. The routine way in which they commit others and allow themselves to be committed to an instructional task suggests a sense of joint responsibility for each student.

One pod’s use of their homework system further illustrates how teachers assume communal responsibility for the students and use student work to complement their understanding of formal assessment results. Because some students do not have their homeroom teachers for math or reading, the teachers seek ways to “make sure that [the teacher] get[s] to know that kid.” And they find that the Houghton-Mifflin assessment results—in one teacher’s words—“say this is where you [the student] are, but I haven’t experienced you—at all.” To fill this gap, the pod’s collaborative homework system provides weekly student work as data on their students’ learning and needs. The homeroom teacher corrects the homework that the reading and math teachers give to her homeroom students. The teachers thus see the nature of work that her colleagues assign and their expectations for student performance. This window provides a concrete way for them to “experience” the strengths and weaknesses of the homeroom students to whom they do not teach reading or math in a way that the quantitative formative assessment results do not.
School context.—A historically low-performing Title I school on the district’s literal and figurative margins, Hilltop Elementary is striving for cultural transformation. Leveraging an accountability-driven reform mandate, the principal began at the school in 2001 with a clear agenda to “create an adult learning community.” She relies on her direct instruction expertise and professional development skills to guide the teachers in implementing new instructional strategies. Under her stewardship, the staff’s work together—in their words—“became data- and standards-driven examination,” and “it was not so isolated by grade level and content.” The school became “a more academic place instead of a place of ‘when’s the next recess?’” This cultural shift fundamentally underpins Hilltop teachers’ motivation to work with data—the premise of using data to improve is lodged in newfound optimism that they can improve. Three teachers belong to the second-grade case study team—one novice and two veterans with more than 25 years of experience.

Examples of data practices among the Hilltop second-grade team.—The second-grade team’s data practices represent explicit professional learning opportunities for the teachers. Frequent team meetings—three full days during the year and 90-minute “collaboration times” twice per month—begin to cultivate a data mindset among the teachers. School leaders structure team meetings with guided activities that require teachers to review together various types of data, such as student writing samples, journal responses, and district-required formative assessments. By design, these activities purposely give teachers experiences that build collaborative norms and knowledge of how to integrate data analysis into instructional concerns. According to the principal, “If you don’t have teachers talking to each other and working collaboratively and using data, you might as well close up shop.” For example, the second-grade teachers pooled student work samples in literacy to evaluate commonalities and inconsistencies within each performance level. The teachers could see that “Advanced” students “have imagery, [the students] have a comfort with words,” whereas “for low kids, there’s a paucity of vocabulary compared to ‘Advanced,’” and “Approaching’ is all over the place.” As a result, the team selected common, standards-based assignments to forge joint expectations for student performance.

Because of the range in experience among the second-grade Hilltop team, the teachers’ individual orientations toward data reveal differences between expert and novice literacy teachers. One teacher, considered a “master” by her peers and principal, contends, “A lot of this stuff I could have figured out . . . without the testing.” With her expertise, she values those assessment data that give her information she would not otherwise have. For example, “the fluency [test] . . . [for] some of my EL [English learners] kids who can read
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but just have a lot of trouble with the comprehension, it gave me a measure for them.” This expert teacher firmly believes in listening to students read as data. She circulates through the class with “a basket of books” and notebook, jotting down “mistakes, patterns, questions I asked them, level [of book] that’s good for them.” These data tell her “that [students are] able to choose books on their independent reading level; that they’re able to understand what they’re reading . . . actually read the sentences and with correct inflection.” Other than the one-minute fluency test, none of the district assessments furnish this kind of information.

In contrast, the novice teacher struggles with how to make sense of the abundant district assessment data. For example, she did not know what performance level to mark on the midyear report card for a particular student, because her experiences reading with the student contradicted the formative assessments results. Moreover, the teacher puzzled, “I don’t know what I expect at this time of year.” The expert teacher, relying on oral reading as definitive data, suggested that the novice teacher assess the student using leveled books and “if [students] are more than a half-year behind, they are ‘Below’ [for this time of year], but if they are less than a half-year behind, then she’s ‘Approaching’ [for this time of year].” On this advice, oral reading thus became the final arbiter in determining the student’s performance level, mediating the district’s quantitative formative assessment results.

Cascade and Olmo Schools in Bosque District

Bosque Union is a small, suburban, K–8 district in the Bay Area, serving a mixed community of professional and working-class families. Cascade is the largest elementary school in Bosque, with over 700 students in 2003–4. Drawing from one of the most affluent neighborhoods in the district, the school historically boasts high student achievement. Changing student demographics, however, present Cascade teachers with new instructional and social needs. From 1997–98 to 2003–4, English learners almost doubled, to 32% of students. The percentage of poor students at the school also increased, from 17% in 2001–2 to 31% two years later.

Olmo Elementary sits less than 2 miles from Cascade, but in that short distance the language and affluence of the community—and hence the students—completely change. Olmo students are predominantly Latino (72% in 2003–4). Eighty percent of the school’s students are English learners and virtually all (99%) are eligible for free or reduced-price lunch.
The twin philosophical pillars of balanced literacy and differentiated instruction support the Bosque literacy program. “Balanced literacy” refers to direct instruction in skills such as phonics and conventions, combined with literature-based reading comprehension and process-based writing. Differentiated instruction requires teachers to organize lessons around diagnosed student needs and to address varying needs through simultaneous small-group or individual learning activities. The district has trained teachers in Readers’ and Writers’ Workshops as the primary formats supporting differentiated instruction.5

This approach to literacy relies on deep teacher knowledge about how students learn to read and write and on masterful classroom management. Implicitly, this vision of literacy instruction demands an investment in every primary teacher in the district and a persistent infrastructure to support their learning.6 The vision requires teachers to know how to assess student reading and diagnose the causes of reading failure, create lessons that best meet the diagnosed student needs, and integrate specific reading and writing skills with the more authentic work of reading literature and writing original text.

District leaders explicitly promote the importance of teachers’ professional judgment. According to the curriculum and assessment director, “this district has never said [to teachers] ‘you need to be on this book from point A to point B at this page at this day, and if you’re not on this book when I walk in the room, you’re in trouble!’” Rather, teachers need to “address standards, and the students [need to] understand what standard the teacher is teaching when they walk in the room.” Teachers—especially those in high-performing schools—thus exercise discretion over numerous aspects of their literacy programs. Little formal accountability surrounds the nature of instruction. As a result, students in the same grade at the same school—especially those meeting accountability targets—may experience substantively different literacy programs. The story is slightly different in Bosque Title I schools, where more students are struggling readers and generally have lower English proficiency. Under more accountability scrutiny, these schools increasingly emphasize instructional consistency across classrooms. The two Bosque case studies—Cascade and Olmo—illustrate these variations.

The district mandates two formative assessments—the Reading and Oral Language Assessment (ROLA) and writing—three times per year. Students take the ROLA one on one, reading leveled passages unassisted. The assessments produce a grade-equivalent reading level.7 The district writing assessment requires students to write to a prompt unassisted and is scored on a six-point rubric.

District leaders expect principals to implement key district initiatives at their
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sites. As “instructional leaders . . . they’re held accountable for that [implementing instructional changes] through their evaluation,” according to the curriculum and assessment director. To support their efforts, principals are required to review disaggregated formative assessment results with the superintendent three times per year. Also, principals walk through each other’s schools, guided by a district administrator and using an observation protocol focused on classroom learning environments.

Cascade Elementary

School context.—The experienced and expert faculty at Cascade faces rapidly increasing proportions of English learners and children in poverty. The teachers differ in their sense of urgency to seek alternative instructional strategies that better serve these students.

Six teachers make up the third-grade team at Cascade. Five have more than 10 years of experience, and one is a novice teacher. Two come from low-performing Title I schools in the district, while three have been at Cascade for at least 10 years. The team cleaves into a group of four who band together to offer social studies, science, physical education, and art (“cluster grouping”) and another two who have partnered for decades and do not trust others to teach their students. For part of 2003–4, the team regrouped students across all six classes according to need for a weekly English language development (ELD) block.

Cascade teachers’ autonomy and artisan pride result in a substantial amount of individualistic curriculum. Teachers’ personal literacy programs are “different programs that [they] like or pieces of different things that [they]’ve found that work for [them].” Generally, the third-grade teachers offer a combination of Readers’ and Writers’ Workshops, literature circles, guided reading, and a smattering of skills instruction in writing conventions and phonics. They draw on materials from their own collections and prior district adoptions. Teachers’ writing programs combine journals, weekly “published” works, book reports, and other projects. To these general models of instruction, the teachers add distinctive features based on their own experiences, interests, and resourcefulness. For example, two teachers incorporate ELD strategies that they learned while teaching at Title I schools. Another developed and continues to expand an entire curriculum based on literature circles, creating book- and job-specific weekly “contracts” for each student.

Examples of data practices among the Cascade third-grade team.—The third-grade teachers organize their classes for small-group instruction and independent work, to varying degrees incorporating individual student conferencing and focusing on individual needs. Thus classroom-based student work products
constitute the teachers’ primary forms of data, which they use to simultaneously gauge student progress and provide students with immediate instruction. The teachers’ belief in those data as the most valuable overlays differences in the nature of the products and what they look for in them. For example, one teacher conferences daily with her students about their writing ideas and drafts as they “publish” one piece per week. Another teacher monitors the quality of each student’s weekly assignments and ensures that students rotate through small-group “jobs,” such as facilitator, graphic illustrator, and “vocabulary maven.” Three of the teachers also use ROLA in their own isolated planning efforts to group students, select appropriate reading material, and identify discrete skills gaps.

Olmo Elementary

School context.—Olmo Elementary features a young, outspoken staff dedicated to serving the district’s largest population of English learners. Literacy—and necessarily English language development—are the school’s primary foci. Correspondingly, the school improvement plan incorporates extensive training in literacy and English language development strategies. Diverse data collection under the guidance of its external professional development partner is intended to support those instructional reforms.

Four teachers comprise the third-grade team at Olmo. The teachers vary in both experience and expertise. One teacher is acknowledged by teachers and principal alike as an expert reading teacher; the newer teachers clearly model their literacy instruction on hers. Some part of the third-grade team turns over each year, and the veterans use the grade-level team structure to support novices.

The third-grade teachers’ literacy instruction combines the district-encouraged Readers’ Workshop with specific comprehension strategies that their professional development partner has trained them in, such as question-answer-response, story hill, and link word webs. All but one of them also use guided reading techniques with small groups. They vary in how frequently they administer the ROLA, from the mandated three times per year to monthly.

Examples of data practices among the Olmo third-grade team.—The school’s long-term professional development partner promotes a portfolio of data-collection activities unique in the district, contributing to the data that the third-grade Olmo team chooses from. The school efforts feature walk-throughs for the ELD instructional block, as well as monitoring ROLA scores for target students at each ELD level for each class. The standard district assessment program, district-led walk-throughs for literacy, and state testing reports make up the array of externally mandated data available to Olmo teachers.
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Third-grade Olmo teachers, however, report that school- and district-led data collection hold little instructional value for them. Rather, they rely on classroom-generated data, listening to the most struggling students read in guided reading groups, and attending to curriculum-embedded student writing.

As “a fairly close team,” the third-grade teachers’ teamwork revolves around both instructional and logistical concerns. However, they seldom analyze formal data together. Meeting weekly and voluntarily, the third-grade teachers plan jointly and agree to similar curricular emphases, sequencing, and pacing in literacy and math. However, they rarely discuss how they use ROLA, state testing information, and student work for instruction. Interestingly, a system of collecting oral reading data by individual student did spread across the third-grade team even though the teachers do not share the assessment results per se.

These thumbnail sketches of the case study teams portray a range in the data forms they value and use, and the degree to which they do so within a team setting. The next section discusses organizational factors that help explain these variations.

IV. Organizational Factors Influencing Teachers’ Use of Data

Multiple levels in school organizations give rise to the influences on teachers’ data use. Leadership focused on data use—or agenda setting—affects teachers’ impetus for using data and correspondingly loosens or tightens the connections between data-driven rhetoric and teachers’ data practices. Grade-level norms of interaction—subject to agenda setting—further act to facilitate or deter teachers’ collaborative uses of data. Finally, a broad and deep capacity to fulfill a range of data-related functions concretely supports teachers in increasing their instructional uses of data. This section discusses each of these factors in turn.

Agenda Setting and Loose Coupling in Promoting Data Use

Agenda setting sets the stage for teachers to engage with various and specific kinds of data. This leadership function encompasses articulating the rationale for and expectations of how teachers use particular forms of data, modeling data use, planning and scaffolding teachers’ learning about using data, and structuring time to allow teachers to do so collaboratively. Both school and district leaders play agenda-setting roles. District leaders convey to teachers which data matter and the expectation that they use those data through
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curriculum and assessment policies and related practices. However, such district messages are heavily mediated by school leaders’ agenda-setting and norm-building efforts. Agenda setting across these two levels can mitigate or exacerbate organizational loose coupling.

Oak Park and Bosque administrators both expect local assessments to constitute the primary data principals and teachers use, but their specific strategies differ. The Bosque strategy promotes principals’ use of local assessment data to monitor their schools’ performance. Oak Park policies and local collaborative efforts, however, promote grade-level teams’ use of local assessment data to identify instructional problems and to understand whether specific instructional strategies improve student learning.

In Oak Park, district and school administrators pursue mutually reinforcing agenda-setting activities. Oak Park district leaders convey the logic of using data for improvement through a local school planning process. The school plan template requires school teams to evaluate their state achievement and formative assessment data to identify instructional areas for improvement. During the school year, district administrators provide time for school teams to assess collaboratively—and publicly—the effectiveness of their improvement strategies. The school planning process represents the district’s strongest message about how to use various data.

Within the district context, the Fulton and Hilltop principals also lead practices that promote the value of being data driven. Fulton’s long history with the regional inquiry-based network has ingrained in teachers the need for data to support school- and grade-level teamwork. The Fulton principal’s approach aligns with teachers’ expectations, modeling data use in schoolwide decisions such as whether to change the school’s multiage classroom structure. Such modeling simultaneously reflects and replicates the school’s inquiry norms.

Compared with Fulton’s established inquiry culture, Hilltop’s inquiry practices are less mature and depend on the principal’s leadership strength. The Hilltop principal articulates the need for analyzing behavior and performance data to understand potential instructional problems and to chart progress on behavioral changes, whether among teachers or students. She holds “learning sessions” rather than staff meetings. She consistently models data use by providing teachers feedback from her informal classroom observations, substantiating instructional strategies with the research behind them, and presenting data at staff meetings to frame a particular problem, such as the disproportionate number of disciplinary referrals for African-American boys. In addition, she provides clear learning objectives for teachers with respect to using student work as data and structures grade-level team meetings such that teachers collaborate on instruction-related tasks that involve sharing data.

In contrast to the consistent agenda-setting efforts of district, Fulton, and
Hilltop administrators, Bosque exemplifies loose coupling at multiple levels of the district and school organizations. At the district level, the superintendent meets three times a year with each principal to review each round of formative assessments. The review underscores overall performance, as well as results for each teacher and student subgroups of greatest concern in the district (i.e., African-American, Latino, English learners, and gifted and talented education students). The superintendent expects the conferences to inform principals' plans for instructional change. But at Cascade and Olmo, principal monitoring is decoupled from teachers’ data use for instruction. Despite analyzing the data for the superintendent conferences, the principals do not communicate how teachers might use those data or create arenas for teachers to engage collaboratively with those data. Teachers’ use of the formative assessment data is individualistic within both Cascade and Olmo case study teams. Although the Cascade team has no consistent pattern of collaboration within which they might share assessment data, Olmo teachers do not share data either, despite their strong tradition of sharing war stories and planning together.

The Bosque district leaders also attempt to model the importance of using data in their own work. For example, the superintendent leads principal groups on classroom walk-throughs using a protocol intended to improve classroom observation rigor. Assessment and other data are also integral to the district’s strategic planning process, under the assistant superintendent’s charge. And the director for assessment, curriculum, and professional development builds data collection and analysis into her many projects, including cost-benefit analyses on individual school programs and a field study of the Houghton-Mifflin program.

The effectiveness of such modeling, however, seems circumscribed by whether the purpose is clear and valid to principals and teachers. For instance, the Cascade and Olmo principals do not agree with the purpose of the classroom walk-through protocol. Thus, even though they ostensibly provide feedback to teachers on the basis of the walk-throughs, case study team teachers in those schools uniformly decry the walk-throughs as lacking instructional purpose and benefit. Similarly, teachers poorly understand the goals of the district-led Houghton-Mifflin field study. Teachers assume it is a “pilot,” consistent with past district adoption processes, but they are skeptical, believing that the district will adopt Houghton-Mifflin regardless of the study results.

Other processes creating loose coupling likewise operate within Cascade and Olmo. The Cascade principal monitors school performance using the required formative assessments, confers with the superintendent about those results, and participates in the administrators’ classroom walk-throughs. However, he stands on the metaphorical doorstep of the school, shielding his teachers from what he deems as unnecessary intrusions, including teacher collaboration, schoolwide follow-up on the walk-throughs, and results of con-
ferences with the superintendent. Moreover, the principal places a low priority on actively leading the staff in using data. He assumes, “With this staff, [knowing that he meets with the superintendent] does most of the accountability job. These teachers are sophisticated; they know what the data mean.” For their part, teachers greatly appreciate this latitude and respect him as an “amazing” principal. They believe that “he really trusts his teachers, and he respects them, and he basically says, ‘I know you’re doing your job.’” He demonstrates outward compliance with the logic of using data as manifested in the specific district initiatives, while protecting the technical core of the school. As a consequence, the third-grade Cascade teachers do not engage in the team-based inquiry using assessments and student work envisioned by district administrators.

Olmo illustrates similar loose coupling within the school. The Olmo principal views the district activities in the same skeptical light as the Cascade principal. She differs, however, by pursuing other data-based strategies to improve the school’s performance. These initiatives—walk-throughs during the ELD block and tracking the performance of target ELD students—are intended to evaluate how well teachers are implementing the ELD strategies they were trained in. Like the district strategies, though, teachers report “zero impact” from the school-specific, data-based activities because the purpose behind the efforts and how they might use those data are unclear to them. One third-grade teacher underscores the need for change leadership: “Somebody needs to find a way to introduce [data-based activities] . . . that makes them doable. And make a persuasive argument for why they believe [using data] will help you.”

Contradictory agenda setting between school and district administrators thus contributes to loose coupling in Bosque case study schools. In contrast, agenda setting in Oak Park—especially by the principals in the case study schools—tightens the connections between the professed organizational goal of using data, strategies for doing so, and teachers’ activities.

Building Collaborative Norms

Comparing norms across the case study grade-level teams helps illuminate how practices can incorporate or be insulated from such reforms as using data for instruction. Certain norms strengthen teachers’ efforts to use data, and strong agenda setting can foster collaborative norms that facilitate such use. Contrasting the level of teacher-initiated collaboration to the degree of collaborative data use, after factoring in leadership specifically focused on using data, demonstrates that such leadership can move teacher teams to greater collaboration around data analysis than they demonstrate in other instruction-
related activities. Figure 1 depicts the relative position of each case study team according to their degree of collaboration on instruction-related activities and the team’s level of cohesion. The collaboration axis (x-axis) uses a continuum from “story-swapping” to “joint work” (Little 1990), and the cohesion axis (y-axis) ranges from high cohesion to high discord. The plot is founded on interview and observation data.

Moving clockwise from the bottom left quadrant, the third-grade Cascade teachers have the highest discord and the weakest level of collaboration. They prize their autonomy over deciding what students need and how they spend their instructional time, they view curriculum and instruction as creative outlets, and they strive independently to be masters of their craft.

The grade-level team fractures along multiple fault lines. They differ most profoundly in their views of students and whether the increasing numbers of English learners and disadvantaged students at the school require new instructional practices. They have varying levels of discomfort in letting their peers teach their students, which ultimately collapsed at midyear their efforts to group students by ELD level for a dedicated ELD block. They also disagree with some curricular choices their peers make—for example, on whether to include sustained silent reading during the day and what topics to include in social studies and science. Correspondingly, the third-grade Cascade teachers
trade limited tips in like-minded pairs but sustain virtually no teamwide collaboration.

The second-grade Hilltop teachers exhibit relatively high cohesion. They face a common struggle in terms of helping their mainly poor and minority students advance more than one grade level each year to reach proficiency in the academic standards. And they labor under the strictures of a new and overwhelming reading and assessment program. On their own, however, they do not collaborate to a high degree; their collaboration consists primarily of one outspoken veteran teacher assisting a talented novice teacher through tips and war stories.

The third-grade Olmo team has a high level of cohesion relative to the other case study teams. The school’s history as “underperforming” aids in drawing the teachers together to face adversity and makes improvement an imperative rather than an option. The third-grade Olmo team considers planning and coordination as their primary group activities, and voluntarily carves out substantial time—anywhere from one to four hours weekly—for members to share how they fared with specific lessons and to give each other suggestions about what to do differently. In this collaboration, they implicitly believe in grade-level consistency and view each other as their most valuable resources—“we each have something to offer”—in solving problems and gaining efficiency.

Fulton teachers have a strong sense of joint work. The second-/third-grade teachers switch students for literacy, and those serving nonstruggling readers agree to take more students than those teaching the most struggling students. Norms established during the team’s four years together allow them to question each other about individual students’ progress. As one teacher summarizes, “Everybody’s now at the point where it’s like ‘okay, these are our students.’ It’s not ‘my class’ and ‘her class.’ It’s ‘they’re our students’” and “[We] don’t have that fear that [we’re] going to get dinged because there’s someone who’s struggling in [our] class.” Moreover, teachers feel interdependent; they see their colleagues as integral to their own personal success in the classroom. The teachers with the most struggling students rely on their colleagues to achieve a smaller class size, without which they would be far less able to provide the individual attention the school prides itself on. The teachers with the larger class sizes acknowledge that those with the smaller class sizes have a more difficult job, and they entrust their lowest-performing students to another teacher, even under high-stakes accountability. Although the teachers embody a common mission of serving the whole child and each individual, they are not a uniformly tight team. One pod works more closely together than the other, for example, developing a homework system to alleviate the stress of “not knowing my students,” which the other pod struggles with.

Figure 2 reveals shifts in the case study teams’ relative positions when considering leadership for data use and collaborative data uses specifically.
Hilltop and Olmo show the greatest movement from figure 1 to figure 2. Hilltop falls in the high leadership/high collaboration quadrant in figure 2, compared with its relatively low position on collaboration in figure 1. The Hilltop principal’s vision centers on teachers’ learning about instruction as revealed in accounts of classroom practices and in classroom artifacts, supported by a community that holds its members accountable for learning. The agendas and structured activities that the principal and her leadership council establish for the second-grade team’s collaboration time define the data in this setting. Data for them consist both of what teachers reveal of their classrooms, as in war stories and student work samples, and how they measure progress, as in assessment results. These times also give Hilltop teachers collaborative experiences around data analysis that begin to build the principal’s desired norms. For example, over several meetings in which second-grade teachers jointly scored student writing, one reluctant team member moved from withholding student work, to sharing writing she had already scored on her own, to finally accepting joint grade-level decisions on certain samples to calibrate her scores with the team’s interpretation of the district writing rubric. The second-grade team is thus deepening their collaboration, their professional trust in sharing student work, lesson plans, and formative assessments results, and their sense of joint enterprise. However, the principal’s agenda drives these changes, and such collaborative data practices are not yet ingrained in teachers’ independent interactions with each other.
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Moving in reverse, the third-grade Olmo team falls in the low collaboration/low leadership for data quadrant in figure 2, despite the team’s regular and meaningful collaboration on other instructional work. The Olmo principal launched a number of data-collection activities to support their ELD program; yet the results are strikingly different from those at Hilltop. The Olmo principal does not follow up with teachers on the various data-collection efforts. Indeed, teachers initially collected the ROLA scores for target English learners as compliance, “an additional level, layer of work . . . every once in a while.” But by midyear, even this was taken over by ELD specialists and instructional coaches; as the principal concluded, “They [teachers] probably didn’t have the buy-in to it that we [the principal and school coaches] did.” Olmo leadership also does not scaffold the data-collection activities with a consistent set of purposeful and team-based activities, such as Hilltop’s structured collaboration time.

The Olmo teachers repeatedly and consistently point out that the principal’s various data-collection demands feel like accountability pressure and do not benefit their classroom practices. As one third-grade teacher put it, “[Using data] doesn’t help me get through the day on a daily basis, which is frankly everybody’s priority.” The Olmo teachers’ priorities are many—and daily requirements pressing—so, without reason or incentives to work with data collaboratively, they focus on preparing for lessons in other ways that they find effective. The disconnect between data-collection activities spearheaded by school leadership and teachers’ lack of interest in those data suggests that, although the third-grade team’s collaborative norms support learning among colleagues, those norms alone do not precipitate joint learning through data analysis.

Fulton and Cascade hold similar positions between figures 1 and 2. Fulton remains high under both analyses. Fulton teachers’ history with data-driven, inquiry-based reform has entrenched data as a taken-for-granted tool in understanding instruction and school organization, and their effects on teaching and learning. The principal and teachers alike expect to discuss collegially any significant issues and to make joint decisions in a process that incorporates collecting appropriate data. For example, in a schoolwide discussion of whether to continue the school’s multiage structure, teachers suggested a detailed list of data they need to inform their decision, including staff and parent surveys, student achievement trends, and student journal entries reflecting whether they have a sense of belonging in their homerooms. The leadership role at Fulton is one of exemplifying these norms of collaboration and “data-driven-ness,” and maintaining collegial ties, all hallmarks of advanced inquiry communities (McLaughlin and Mitra 2003).

The position of the third-grade Cascade teachers on figure 2 reflects the loose coupling between the principal’s data use for monitoring the school and...
his lack of agenda for teachers to use data in instruction. He does not set an
organizationwide expectation that teachers work collaboratively with the par-
ticular data in their institutional context. He is ambivalent about the purpose
of grade-level collaboration and does not enact any strategies to develop col-
legial learning norms within grade-level teams. As a result, using data to reflect
on and guide instruction also falls into private practice among the third-grade
Cascade teachers and as such is not a means for organizational learning. In
a school culture that does not encourage the teachers least inclined or able
to work with data and that does not promote specific data uses as common
teaching practice, teachers’ work with data occurs inconsistently across
individuals.

These contrasts between the four grade-level teams indicate that the teams’
norms of interaction—levels of autonomy, assumptions about joint work, will-
ningness to learn from shared instructional practice, student work, and per-
formance data—and the influence of agenda setting on those norms—help
shape whether and how team members use data for instruction.

Dedicated Roles for Data-Related Functions

Agenda setting also builds other organizational capacity to support teachers’
data use for instruction, in particular, key functions that facilitate new data
practices. Compiling across the cases, the main functions include:

- **Dealing with data reporting**: Alleviating time-consuming and frustrating
data inputting and downloading, especially where teachers’ knowledge
and comfort with data systems vary and access to computers is uneven.
- **Interpreting data and teaching teachers about data**: Providing expertise to
answer teachers’ questions and guide them in accurately interpreting
data reports.
- **Furnishing instructional resources linked to issues arising from data analyses**: Aiding teachers in accessing professional development, lesson plans,
curricular materials, and colleagues’ expertise to act on data analyses.
- **Facilitating meetings so that teachers answer “so what”**: Purposefully moving
teachers’ discussions toward implications for instruction and concrete
instructional plans that address problems revealed in data analyses.
- **Following up with teachers on responses to data analyses**: Translating plans
into action by charting teachers’ progress on expected reforms, reass-
esessing the effectiveness of supports and resources available to them,
and establishing professional accountability for instructional changes
that address identified concerns.

Although these functions seem commonsensical, the case studies illustrate who
takes up these responsibilities and illuminate what significance failing to execute these functions has on teachers’ opportunities to use data. The case study schools distribute these functions across different roles, and not all of the functions appear explicitly in every school (table 1).

The distribution of data-related responsibilities helps explain the relative depth of the case study teams’ collaborative data use. At Fulton, certain functions are explicitly delineated, while others are unaccounted for. The literacy lead teacher—a full-time teacher with additional responsibilities—helped smooth over data inputting and reporting problems in the first year of the Houghton-Mifflin adoption. He also facilitated a portion of one meeting, leading the teachers in analyzing their winter assessments and identifying conventions as a common focus. At all the other meetings, the teachers collectively examined their assessment data but created discrete plans for individual students rather than grade level–wide responses. Also, the second-/third-grade Fulton teachers generally do not seek external professional development or additional curricular resources to address weaknesses revealed in the data. Instead, they generate shared lessons or search their collective repertoire of instructional strategies to respond to data analysis, reflecting in part their long experience as teachers and as a team.

Compared with the other schools, Hilltop covers more of these data-related functions with specialized roles. The literacy coach, local collaborative coach, Title I teacher, and principal all assume multiple and overlapping data-related functions. The explicitness of the responsibilities and the multiple roles to which they are assigned reflect the principal’s goals of creating a coherent system to facilitate teachers’ learning about their practice and of forging consistent instructional strategies throughout the school. The emphasis on special, nonclassroom roles may be developmental, as—according to the principal, the local collaborative coach, the reform coordinator, and the teachers—the school learns about being collaborative and learns to use data.

The data-related functions are least explicit and incorporated into the fewest roles at Cascade. From an organizational standpoint, only the peer coach offers resources such as reviewing writing strategies during districtwide professional development, in response to teachers who observed that third-grade students underperform in the state writing exam. None of the other data-related responsibilities fall to nonclassroom teacher roles at Cascade. Instead, Cascade teachers privately analyze and interpret ROLA and student work data for their own individual practices. Although experienced and knowledgeable teachers may do so expertly, Cascade’s organizational capacity to understand or support the data teachers use, to bring consistency to their purposes for using data, and to develop novice teachers’ data use is limited to the peer coach’s efforts and other teachers’ volunteerism.

Olmo teachers similarly hold private responsibility for interpreting ROLA.
<table>
<thead>
<tr>
<th>Locus of Responsibilities for Data-Related Functions</th>
<th>Data Reporting</th>
<th>Interpreting and Teaching</th>
<th>Providing Instructional Resources</th>
<th>Facilitating Meetings</th>
<th>Following Up</th>
</tr>
</thead>
<tbody>
<tr>
<td>Oak Park:</td>
<td></td>
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<tr>
<td>Fulton</td>
<td>Literacy lead teacher</td>
<td>Teachers collectively</td>
<td>Literacy lead teacher</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Hilltop</td>
<td>Literacy coach</td>
<td>LC coach, literacy coach, Title I teacher</td>
<td>LC coach, literacy coach, Title I teacher</td>
<td>LC coach, literacy coach, principal</td>
<td></td>
</tr>
<tr>
<td>Bosque: Cascade Olmo</td>
<td>Teachers individually</td>
<td>Peer support provider Teachers, Reading Recovery teacher, ELD teacher</td>
<td>Principal (within whole faculty meeting)</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**NOTE.**—LC (local collaborative) coaches are district employees externally funded to facilitate teachers’ inquiry practices and to build understanding of how to interpret student and teacher data.
and student work data. Teachers do provide each other with resources, however. For example, the Reading Recovery and ELD teachers offer materials and extra professional development to individuals, as well as to the whole faculty. Although the principal facilitates all staff meetings and introduces state testing reports, she does not lead discussions analyzing data or connecting data to implications for instruction. Whereas professional development at Olmo is abundant, and the walk-throughs ostensibly hold teachers accountable for certain aspects of the instructional environment, accountability for analyzing data and acting on the analysis is virtually nonexistent. Variability in how the four case study schools structure these data-related functions indicates that the depth of capacity as represented by multiple roles taking on data-related functions and breadth in terms of covering the range of functions may be critical in fostering teachers’ learning about data and institutionalizing norms that support collaborative data use for instruction.

V. Conclusion and Implications

The Fulton and Hilltop case studies in Oak Park and the Cascade and Olmo cases in Bosque illustrate how grade-level team norms, school- and district-level agenda setting, and functional supports shape teachers’ data practices. Contrasts among these four case studies demonstrate that grade-level team norms legitimize—or squelch—teachers’ requests for help, joint analysis of student work and assessment data, and war story swapping. Other studies conclude that data reports occasion discussions about student learning (e.g., Brunner et al. 2005; Wayman and Stringfield, in this issue). Contrasts between the four cases presented here indicate that preexisting norms and leadership strength shape whether these conversations occur and at what depth. The lesson for reformers, then, lies in purposefully developing broad collaboration and learning norms in teachers’ everyday instruction-related practices as the context within which teachers’ instructional uses of data can advance.

Norms of interaction are deeply ingrained in the local school—even departmental or grade-level—culture (McLaughlin and Talbert 2001). But as the Hilltop case illustrates, they evolve under organizational leaders’ strong agenda setting. Specifically, leaders of schools in the developmental stages of using data can structure team interactions with instructionally relevant activities—for example, sharing student work as evidence of report card performance levels—such that teachers practice data analysis while simultaneously forging new collaborative norms.

Agenda setting comprises deliberate and strategic activities to set the stage for teachers to use data. Leaders in the case study schools who engage in agenda setting establish rationale and expectations for teachers to use partic-
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icular forms of data, model such use, and structure time for teachers to learn about using data within instructionally relevant collaboration. Indeed, others have noted the importance of school leaders’ championing collaborative inquiry norms (Copland 2003; Lachat and Smith 2005; McLaughlin and Mitra 2003) and defining common purposes for using data (Ingram, Louis, and Schroeder 2004). Agenda setting reflects elements of instructional leadership, whereby curriculum, accountability, and professional development systems revolve around the central goal of instructional improvement (Alvarado 2004; Elmore 2000). School leaders aspiring to establish effective and systematic data use need to embed teaching and learning and their improvement in the heart of data-related activities. They need to attend to instruction intentionally, or risk data analyses as compliance activity divorced from teachers’ classroom actions, as was the case in Olmo.

The cases also reveal specific organizational capacities affording the data uses that reformers promote. These capacities span data-related functions beyond managing data to include teaching teachers about using data, facilitating discussions about the instructional implications of particular analyses, providing instructional resources to address diagnosed problems, and following up with teachers on their responses to data (see Halverson et al. [2005] for corresponding functions in their “data-driven instructional system”). Technical know-how distributed across multiple roles, with persistent channels that permit teachers to learn from those individuals, results in robust support for teachers, as evidenced at Hilltop. Such dispersed functional supports reflect other research on distributed leadership for school reform (Copland 2003; Spillane, Halverson, and Diamond 2001) and for teachers’ data use (Halverson et al. 2005). As none of those functions are entrenched in typical school operations, leadership for data use entails defining the functions explicitly and allocating them to specific roles. From an organizational perspective, depth and breadth in these data-related functions can ameliorate the variation in teachers’ inclination to use data and their skills and knowledge to do so.

The case studies illustrate how organizational influences on teachers’ use of data thus arise from multiple levels. For administrators, particularly, district- and school-level alignment in agenda-setting functions contribute to looser or tighter coupling between teachers’ data use within their instructional practices and leadership’s espoused expectations for such use. The organizational loose coupling witnessed in both Bosque case study schools stands in contrast to the tighter technical core at Hilltop school in particular. The difference implies that districts seeking to institute data-informed practices need to attend to principals’ commitment to such practices in their schools. District leaders should also consider building principals’ skills in and accountability for implementing organizational change strategies consistent with the overall goal of data-based improvement.13
Agenda setting, collaborative norms, and organizational capacity are individually insufficient to result in teachers’ data use, as this study suggests. Compelling arguments to use data and norms professing collaborative learning remain good intentions unless capacity furnishes teachers with opportunities to use data—opportunities that match the particularistic way in which they think about their instruction. Leaders aiming to infuse teachers’ daily work with data, then, need to recognize the comprehensiveness of such a reform. In tandem with technical solutions such as training teachers on data systems, reformers need to effect organizational change in collegial and learning norms, role definitions, and structured time use that permits teachers to make sense jointly of the data they have available.

In sum, using data to improve instruction and overall school performance is a rational outlook on the core technology of schools: teaching. However, the benefits of solving the technical problem—building data management systems and developing expertise in individuals—will be limited by the normative problem. This research challenges reformers to ask: How does using data fit with teachers’ views of teaching? How does using data alter teachers’ relationships with colleagues? What are the values implicit in using data as a reform strategy, and how will teachers be supported in embracing those values? Normative change alone cannot establish concrete practices of using data. But building a rational system of data-driven instruction requires agenda setting that engages the nonrational aspects of the system: norms, values, and capacity situated in role definitions and hierarchy.

Notes

I am grateful to Pai-rou Chen, Celine Toomey Coggins, Milbrey McLaughlin, Heidi Ramirez, Joan Talbert, and Aurora Wood for their insights pertaining to teachers’ data use. I would also like to thank Joan Herman and reviewers at the American Journal of Education for comments on an earlier draft of this article.

1. The Center for Research on the Context of Teaching at Stanford University conducts the evaluation of the Bay Area School Reform Collaborative, within which data for this research were collected.

2. Demographic data are approximate to avoid inadvertently identifying the district.

3. The school’s philosophy of developmentally appropriate instruction is manifested in multiage groupings in each classroom for K–1, 2–3, 4–5, and 6–8.

4. In two pods of three teachers, teachers exchange students for reading and math to create one smaller class of struggling second-grade students, one class of on-grade-level second-grade and struggling third-grade students, and one class of on-grade-level third-grade students.

5. The workshop model begins with a skills-focused “minilesson” of five to 20 minutes. The teacher demonstrates the skill, then gives feedback to students during whole-group and independent practice. Also, that this time, the teacher can pull smaller
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groups of students for guided reading instruction while others work independently (Literacy Connection 2005).

6. Studies of reforms in New York City Community District 2 (e.g., Elmore and Burney 1998) and San Diego City Schools (Hightower 2002) reveal the demands that similar visions of literacy instruction place on a district system, especially around devising districtwide infrastructure for principal and teacher learning and reallocating resources according to instructional need.

7. Teachers note specific errors and type of error, ask preset comprehension questions, and script the student’s retelling of the story.

8. Literature circles organize students in independent small groups. Students in a group read the same book. Each student in a group assumes a different role, such as facilitator, illustrator, or “vocabulary maven,” and teaches the others the area for which he or she is responsible.

9. Kingdon (2003) also uses “agenda setting” in government arenas to describe the political process of framing problems and matching solutions. My use of “agenda setting” refers to organizational leadership and management and differs from Kingdon’s political definition in that school leaders’ attempts to set the agenda around using data are underpinned by a rational view of the organization.

10. The local collaborative includes four Oak Park schools—Fulton, Hilltop, a middle, and a high school—united by a common goal to use data-driven inquiry practices. These four schools all participate in the regional inquiry-based reform network.

11. Reading Recovery is a one-on-one intervention program for low-achieving students.

12. Halverson et al. (2005) identify six functions in their data-driven instructional system, including data acquisition, data reflection, program alignment, program design, formative feedback, and test preparation. Excepting the last function, these map to the data-related functions that emerged from the case studies presented in this article.

13. See Kerr et al. (2006, in this issue) for a discussion of districtwide strategies for supporting teachers’ data use. The researchers also found that principals’ support in building teachers’ capacity to use data and teachers’ and principals’ beliefs about data validity helped determine the extent to which practitioners used various data.

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