
Conceptions of Evidence Use in School Districts: Mapping the Terrain

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Current policies place unprecedented demands on districts to use evidence to guide their educational improvement efforts. How districts respond is likely to be influenced by how individuals in the district conceptualize what it means to use evidence in their ongoing work. This study draws on sensemaking and institutional theory to investigate how individuals in one urban school district conceive of evidence-based practice. The study develops grounded typologies that describe the ways that individuals conceptualize high-quality evidence, appropriate evidence use, and high-quality research. It then explains variation in conceptions, pointing to the ways organizational responsibilities and reform history shape how individuals come to understand evidence-based practice. The article closes by suggesting implications for district response to federal policy demands for evidence-based practice.

In recent years, education policies have placed unprecedented demands on districts to use “evidence” to ground their improvement efforts. In particular, the No Child Left Behind Act (2002) has significantly raised the profile and the stakes of both research and student achievement data. In order to receive Title I funds, districts must show that curriculum adoption, instructional programs, professional development, and other forms of support to schools are rooted in “scientifically based research.” In addition, schools are required to collect and analyze standardized test data and use them as a basis for decisions related to school improvement.

Available research suggests that district leaders embrace this vision of evidence-based educational improvement. In a national survey of superintendents conducted by *Education Week* during summer 2005,¹ respondents consistently emphasized the use of data to guide decisions as the most important strategy for

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improving student achievement. It is not clear, however, what superintendents and other personnel understand this to mean. We know little about what professionals in different positions and at different levels of the district system see as valid evidence of student learning, how they believe evidence should be used, and what they see as high-quality research. These conceptions are significant because, as we know from policy implementation research, pre-existing beliefs influence how people in districts and schools enact new policy (Coburn 2001a; Guthrie 1990; Spillane et al. 2002). Furthermore, we know that understandings of policy are likely to vary according to an individual's organizational location, professional connections, and disciplinary backgrounds (Burch and Spillane 2005; Spillane 1998). These differences matter for how policy plays out in different parts of the system.

This article draws on sensemaking and institutional theory to investigate conceptions of valid evidence, evidence use, and research-based practice among different constituencies in one large urban district. Our analysis uses data from interviews and observations with district administrators at multiple levels and multiple divisions in the central office and with teachers and principals in a sample of district schools. We find that individuals' conceptions of valid evidence, evidence use, and research-based practice vary widely across the system but not randomly. Rather, they vary according to the nature of individuals' work in different parts of the organization and their involvement in different facets of the district's reform history. Thus, we show that individual conceptions of evidence are situated in and constituted by organizational and institutional contexts. We then consider implications for districts responding to federal demands for evidence-based practice.

Literature Review

There is a growing body of literature on the promise and challenges of evidence use.² This literature touts the promise of evidence use for increasing organizational performance (Deming 1986; Teddlie and Reynolds 2000), but it also

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highlights obstacles, including lack of time (Supovitz and Klein 2003; Wayman and Stringfield 2006, in this issue), lack of technological infrastructure (Chen et al. 2005; Lachat and Smith 2005), lack of access to appropriate data (Kerr et al. 2006, in this issue), and a culture of teaching that works against ongoing evidence use (Ingram et al. 2004; Supovitz and Klein 2003; Young 2006, in this issue).

This research, however, is almost entirely focused on the school and classroom levels (Honig and Coburn 2006). It thus fails to take into account the ways in which evidence use in schools is fundamentally situated in the larger multilevel district system (Light et al. 2005). Furthermore, much of this research focuses on practices, charting what people do or do not do when they engage with various forms of evidence; rarely do studies get underneath the practices to uncover underlying beliefs and conceptions that guide these practices (Ingram et al. 2004). This is particularly problematic given that research on policy implementation more broadly provides strong evidence that implementers understand new policy messages through these preexisting beliefs (EEPA 1990; Spillane et al. 2002). This suggests that how people implement evidence-based practice is likely to be shaped by their conceptions of valid evidence, evidence use, and high-quality research.

A few studies provide clues about conceptions of evidence among individuals in schools and districts. These studies find that people in schools value forms of evidence other than the standardized tests emphasized by accountability policy (Ingram et al. 2004; Supovitz and Klein 2003). They also suggest that because of their different roles and responsibilities, teachers and school administrators experience test pressures differently and thus differ in their views of the appropriate use of standardized test scores (Light et al. 2005). Finally, we know that district-level administrators have quite diverse views of what constitutes high-quality research (Fillos and Bailey 1978) and that people in different subunits in the district can vary greatly in the degree to which they value research evidence at all (Corcoran et al. 2001; David 1981). These findings are suggestive. But there are no studies that look across levels of the system to understand how people are thinking about research, evidence, and evidence use or what accounts for the different conceptions in different parts of the system.

We draw on sensemaking theory and institutional theory for theoretical tools to address these issues. Sensemaking theorists are interested in how individuals and groups draw on preexisting beliefs to make meaning of new information or events they encounter (Vaughan 1996; Weick 1995). As part of this effort, they have studied the ways that individual beliefs are situated in and shaped by organizational context. Over time, individuals who work with one another in subunits, work groups, or task forces develop shared ways of thinking (Coburn 2001a; Kennedy 1982; Porac et al. 1989; Vaughan 1996).

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Thus, organizational structure shapes individual beliefs by influencing patterns of social interaction through which they develop.

In complex organizations such as school districts, individuals working in different parts of the system may develop contrasting sets of shared understandings (Coburn 2001a; Corcoran et al. 2001; Spillane 1998). For example, in a study of responses to state reading standards in two districts, Spillane (1998) shows that individuals in different units in a single school district came to understand the standards in quite different ways. Individuals in the Chapter 1 (now called Title 1) subunit in one district promoted literature-based approaches to instruction, while individuals in the assessment division of the same district promoted assessments measuring outcomes consistent with a skills-based approach, and the professional development division promoted direct instruction. Spillane attributes these and other differences among subunits in part to different professional affiliations that contributed to the development of shared norms and commitments within subunits, leading to contrasting interpretations of state policy across subunits.

Individual beliefs are also influenced by broader cultural norms. Institutional theorists argue that individual beliefs and actions are guided by notions of appropriate, natural, or legitimate behavior that are constructed and reconstructed in a given profession or institutional sector (Barley 1986; Scott et al. 2000; Vaughan 1996). These norms define the limits of, or provide a framework for, possible action in the form of taken-for-granted roles, rules, or ways of doing things. For example, in their study of three mid-sized urban districts, Burch and Spillane argue that institutional understandings of the nature of subject matter—in this case, mathematics and literacy—influenced how district administrators understood accountability policy. They show how key local decisions concerning professional development, instructional focus, and resource allocation were rooted in broader, discipline-based understandings about teaching and learning (2005). Importantly, institutionalized norms do not influence people in all areas of an organization in a uniform manner. Rather, they move in and through schools and districts unevenly as they are embedded in policy and materials, carried through professional networks, and promoted by reform efforts that put forth ideas about what schools and districts should or must do (Coburn 2001b).

Clearly, there is still much to learn about how people in school districts conceive of research and other forms of evidence. We contribute to this line of inquiry in three ways. First, we look across multiple levels of the district to develop four typologies that describe the range of ways that individuals conceptualize what constitutes high-quality evidence, appropriate evidence use, high-quality research, and the value of research. These typologies help to surface variation among professionals within the district, exposing issues that will need to be resolved if coherent approaches to evidence-based practice are

to be developed in school districts. We then provide an explanation for this variation, pointing to the role of organizational responsibilities, professional ties, and reform history. Finally, in so doing, we show how individual beliefs are situated in and constituted by their organizational and institutional context, and identify strategic levers for intervention.

Method

Data come from two years of research in a large urban K–12 school district that was involved in a reform initiative promoting evidence-based practice. The district serves approximately fifty thousand students, the majority of whom were poor students of color and one-fourth of whom were classified as English-language learners at the time of the study during 2003–2005. Like most urban districts its size, it has a history of reforms that have brought a variety of instructional programs and assessments into the system. In the context of pressure toward evidence-based practice, the district offered fertile ground for documenting diverse meanings of evidence and its use for improving student learning.

We collected data at multiple levels of the system. At the central office level, we interviewed all senior-level administrators (superintendents and assistant superintendents) and department directors. In this article, we draw on data from 10 top district administrators whom we interviewed a total of 17 times. (See the appendix for details on data-collection activities.) We also interviewed what we refer to as frontline administrators (Honig 2003), central office personnel who work below the top district administration and in direct contact with schools. We draw on data from 14 frontline administrators, whom we interviewed a total of 38 times. We supplemented central office interviews by observing planning meetings and professional development and analyzing district policy documents, copies of the union contract, grant proposals, the district organizational chart, and records from outside the system (e.g., outside evaluations and policy reports) that identify district schools that were involved with particular reform initiatives.

We conducted case studies of eight district schools (six K–5 or K–8 and two 6–8 schools) selected to overrepresent the poorest schools in the district (all were above the district mean on student poverty) and, within this stratum, to represent the range of school grade levels participating in an initiative to promote evidence-based practice, the differences of region, student demographic and language composition, and differences in professional culture among schools in the district. We used a 2003 survey of all district teachers to obtain data on the schools' professional culture; we selected case study schools that scored high, medium, and low on survey measures of teacher

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community and use of evidence. We conducted four visits to each case study school (twice yearly for two years) that included (a) interviews with the principal and other instructional leaders, (b) interviews with frontline district administrators working with the school, (c) interviews and focus groups with teachers who participated in district professional development in reading or math, and (d) observations of teacher grade-level meetings and of classroom instruction of two to three teachers.

Data analysis addressed two key questions: How do individuals' conceptions of evidence and research differ within the district? What accounts for these differences? We used N6 qualitative software to analyze interview and observational data, developing codes inductively through iterative coding (Miles and Huberman 1994; Strauss and Corbin 1990). That is, we began with codes that described, with little interpretation, respondents' (a) conceptions of valid evidence on student learning, (b) conceptions of appropriate evidence use, (c) conceptions of high-quality research and "research-based" practice, and (d) degree of faith in research. We then worked within each of these categories, using the constant comparative method (Strauss and Corbin 1990) to develop grounded typologies (Glaser and Strauss 1967) that captured and characterized the different viewpoints present in the district. Definitions of codes are presented in the next section.

Next, we developed a matrix that located respondents within the typology, allowing us to tabulate the prevalence and coincidence of particular conceptions. Drawing on prior theoretical work, we analyzed this matrix by organizational level, division, roles and responsibility, and professional affiliation. During the course of analysis, reform history emerged as a possible explanation of patterns of variation in conceptions within the district. We tested this idea by analyzing the nature of messages about evidence that were promoted by key reform initiatives in the district and charting the degree to which respondents were involved with different reform movements.

Conceptions of Valid Evidence of Student Learning and Its Use

A central argument behind policy promoting evidence-based practice is that evidence of student learning should be used to evaluate and improve educational programs and practices. However, what people take as valid evidence of student learning is likely to shape how they envision this process and how they respond to pressures to enact it. In this district, there was considerable disagreement about what constitutes evidence of student learning and how that evidence should be used.

The different conceptions of valid evidence and appropriate evidence use that coexist in this district are not necessarily mutually exclusive. In theory,

they could be embraced simultaneously by an individual or school or district; indeed, assessment experts promote the development and use of instruments and data that satisfy multiple validity standards. However, most individuals in this district tended to place primacy on one or another conception. This is partly because assessments linked to alternative validity standards competed for scarce testing time and attention and for legitimacy in guiding decisions. Individuals were therefore pushed toward more unitary positions on issues of evidence validity and use.

What Makes Evidence of Student Learning Valid?

Psychometric properties of assessment data.—Some individuals placed primacy on the technical properties of assessments as criteria of valid evidence of student learning, pointing to such things as the reliability of student scores, their predictive validity, and their ability to measure change over time. For example, one individual explained the value of evidence yielded by a particular assessment instrument:

[It] is a widely researched tool to screen students and to measure or monitor progress. And we have spent a lot of time and resources developing local norms. We've normed thousands and thousands of [district] students at each grade level using the local curriculum that we use. And we can show, using curriculum-based measurement, what trajectory they need to have in order to pass the [state basic skills test] and then graduate.

Individuals who subscribed to this view emphasized the importance of a research base for the assessment tool to determine levels of reliability and correlations with other measures and made claims of validity on the grounds that “this is a widely researched tool.” They also placed heavy emphasis on the “objectivity” of data, conceived in terms of quantifiable measures of discrete skills and behavior.

Alignment with valued academic outcomes.—Others saw valid evidence of student learning in terms of its link with grade-level outcome standards in particular subject areas. These individuals considered evidence of student learning as valid if the assessment measured what is being taught and tested in the district. They were critical of assessments that measure “generic” skills, regardless of whether they were strong psychometrically. For example, one person commented that the district’s “levels” assessment, which was designed to track individual student growth over time on generic academic skills, “really doesn’t fit the idea of grade-level standards.” Instead, these individuals promoted

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assessments that enabled them to show progress toward meeting the standards. “Standards-based reform is being able to say, ‘Here’s what the target is,’ and we’ve produced some posters for example that say, ‘Here’s what the standard is, here’s what the large concepts and processes are, and here’s what the quality of a “three” looks like.’”

Insight into thinking and reasoning.—A third conception of valid evidence emphasized the ability to access students’ thinking and reasoning in a particular discipline. In this view, evidence on students’ learning is valid to the degree that it provides information about student performance as process rather than outcome—decoding strategies in reading or problem-solving strategies in algebra, for example. One person holding this view explained:

The collaborative assessment protocol that Steve Seidel has done, I think, is very useful for trying to figure out how differently kids might be able to express the solution to a problem or be able to describe their understandings of a story. [It is useful] to get more deeply into kids’ understanding and to say, “What is it these kids are understanding? Where is it that I want them to go? How do I get from where they are to where I need to go in my instruction?”

Although complementary with the conception of valid evidence as aligned with content and outcome standards, this view seeks evidence of the micro-processes and skills that underlie successful performance on standards.

Authenticity and teacher judgment.—This conception emphasizes the validity of teachers’ observations of students in the classroom. People holding this view emphasized two sources of validity: the degree to which student behavior was assessed in the course of ongoing instruction (authenticity) and the unique ability of teachers to make connections between instruction and student responses. One person who exemplified this view explained:

When I deliberately as a teacher in a classroom put in place a clearly defined practice and tie it to specific needs that I see one [student] or a group or whole class needs, then I see progress on that skill or thought processes or whatever. I can see it based on their behavior, on the product they crank out, and their ability to have a discussion, say, on whatever it is. I have controlled other factors. I then know that that strategy met the needs of whatever group it is that I was focused on and targeting.

Echoing findings from prior studies of teachers’ attitudes about evidence (Ingram et al. 2004; Lortie 1975; Supovitz and Klein 2003), those who held this view saw teachers’ clinical judgment as the most valid source of evidence and viewed external measures like test scores with suspicion, regardless of whether the test was aligned with valued outcomes such as standards. Im-

portantly, there was considerable diversity in the kind of evidence that individuals who held this view favored. Some focused on the affective, paying attention to indicators such as student engagement and enjoyment. Others focused on student learning as revealed in discussion and student work. Still others emphasized the need for evidence produced through systematic action research.

Multiple measures of student outcomes.—A few individuals took the position that evidence of student learning should be based on multiple assessments in order to be valid and useful. As one individual put it:

We have multiple indicators . . . for making decisions about schools, for example, classifying schools as exceptional performers or moderate or in need of assistance based on 33 different indicators. Some are state test scores similar to what the state is using in their accountability system. But then the local assessments . . . give you a much more detailed look at gains. . . . So we can look at the whole performance for a school and not just be narrowly focused on a single test score.

This view acknowledges that various state and local assessments yield different kinds of information and reasons that together they provide valid evidence of student learning.

How Should Evidence of Student Learning Be Used?

Meeting accountability demands.—Some individuals in the district conceptualized evidence use in terms of meeting demands for accountability. As one person put it: “We’re basically judged on how our eighth graders do on the [state basic skills test] and how our twelfth graders do on that. And so if that is what the legislators are going to judge us on, by golly, that’s what we’ve got to be.” While some people holding this view focused outward on state or federal demands, others focused on the accountability of schools to the district. One person stated that evidence-based practice

is having the action plans and then actually coming back to show the work. You know, what data are we gathering to show that what we’re doing is really working? . . . There was that accountability there of, you know, that self-imposed accountability where people were holding themselves accountable for the work.

Central to this conception is the idea that evidence of student learning should be made public to leverage improved practices in the district, schools, and classrooms.

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Informing program and policy decisions.—Many saw the main use of evidence on student learning as evaluating programs and policies. One person stated that local data are needed “to really look at the impact of the curricular decisions on trends [in student achievement] in the overall district.” In this view, summative assessments were seen as valuable in providing a robust and rigorous picture of how the district or school was doing and in guiding policy decisions at the school or district level.

Some in the district, however, seemed to conceive of evidence use not as a precursor to decision making (sometimes called “instrumental use”) but rather as a mechanism to legitimize already existing or enacted program and policy decisions (“symbolic” or “political” use; Weiss and Bucuvalas 1980). One individual, for example, explained that his school used data to “justify how we’re spending Title I dollars for our next year’s budget. . . . We need to justify why we’re spending the dollars the way we do, what are our targets, and what are our goals and what are we wanting to accomplish. So anything we do, we need to justify [with evidence of student learning].” In this view, it is appropriate to use evidence after the fact to justify prior decisions on program and policy.

Informing student placement decisions.—Some individuals emphasized the primary importance of monitoring student skills in order to make decisions about their placement in programs or ability groups. These individuals tended to conceive of learning in terms of students’ sequential development of skills and teaching as the matching of instructional programs or treatments to particular skill levels. In this view, evidence of student learning should be used to ensure a proper match. As one person explained:

We have encouraged the K–8s . . . to use curriculum-based measures three times a year so that site leadership can use that along with other scores and information to see how students are progressing through the curriculum. It can help them look at what skill groups kids can be in and just help them see if they’re on track.

Informing classroom instruction.—Others emphasized using evidence of student learning to adapt instructional approaches to learner needs. For example, one individual described how standards-based assessment data should guide instruction:

What we have [for looking at student work] is exemplars—that’s problem-solving activities and quarterly assessments which have the mastery items—and then using formative assessments on a daily basis or on a weekly basis to really look at instruction and plan for intervention.

Those who talked in terms of adjusting instructional approaches on the basis of evidence tended to see the learning process as less linear than those who emphasized student placement. In this view, learning is not necessarily acquiring a sequence of skills but is the active process of constructing understanding and building on students' prior knowledge. Evidence, then, is used to understand what children know and what strategies they are using as a way to adapt instruction to the learner.

Conceptions of "Research Based"

As part of increased pressure for districts to become evidence based, recent policy has encouraged and in some instances required schools and districts to adopt and implement "research-based" practices and programs. How this plays out in schools and districts, however, is likely to be shaped by what people see as high-quality research. As with conceptions of valid evidence and evidence use, individuals in this district held quite diverse conceptions of the nature of research necessary to consider programs or approaches "research based." There was also a great deal of variation in attitudes about the legitimacy of research as a guide to practice and policy. Some individuals had great faith in "scientifically based" studies, while others were suspicious of anything claiming to be rooted in research.

What Makes Research "High Quality"?

Scientific rigor.—Some in the district conceptualized high-quality research in terms that resembled the definitions promoted by recent federal and state policy.³ That is, they emphasized one or more of the following: experimental or quasi-experimental design, replicated or replicable findings, publication in peer-reviewed journals, conclusions based on observable phenomena, or having statistically significant effect size. For example, one individual maintained that for a program to be considered research based, "it needs to have gone through several refereed journals that show a significant effect statistically and have been used in a population similar to ours." Another stated:

What I refer to most [by "research based"] is some kind of meta-analysis design or some kind of random assignment. . . . I'm one of those people that really wants to see the hard numbers before I'm going to tout something as research based. It has got to have some evidence and

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hopefully it is in a published referred journal. Then, I will pay more attention to it.

Most people who held this view also advocated that the district do its own studies of program effects to develop evidence in areas where the established body of research is thin. Here, the notion was to reproduce elements of high-quality research locally using a quasi-experimental design.

Cumulative theory based.—Others had views of high-quality research that seemed rooted in different research traditions. Rather than emphasizing experimental or quasi-experimental design, they saw high-quality research as having a robust theoretical base, carried out by multiple investigators over a long period of time, and contributing to convergence around key findings or trends. The following quote illustrates this view:

I look at the research that Jim Cummins did in the late 70s, early 80s about [how] the goal is for all kids to be learning to read in English and learning in English and successfully achieving academically in English. So a way to get there is to take kids and have them learn to read in their native language until they are ready to transition. Steven Krashen's work builds on that. The work of Collier and Thomas builds on that and then the work of many researchers [more recently] that have done further experiments and further research based on these fundamental belief systems. . . . When you look at the depth of the field started by Cummins, that to me is good research. What are the trends over time? Not just a single study.

Individuals with this view had difficulty with the district's own efforts to study the effectiveness of interventions using quasi-experimental designs, variously citing the limitations of single studies to constitute an adequate research base, questioning the short length of time innovations are in place at the time of the study, and pointing to limitations of the quasi-experimental designs to understand why a program was successful or not.

Undeveloped conceptions of research.—Most of the people we interviewed in the district had less fully developed notions of what constitutes high-quality research or research-based programs. These individuals tended to talk about good research in vague terms linked to stereotypical notions of "science" (e.g., "[it has] solid research numbers and data and things to back up what they did") or had the single criterion that the research was done in localities that were similar in student population. Others judged the quality of the research by reference to the reputation of the researcher. As one district administrator explained, "You need to know who has a good reputation in the research community."

How Much Faith Should Be Placed in Research as a Guide to Practice?

Great faith.—Some individuals felt strongly that if a program has “scientifically based” studies confirming its efficacy, it will improve student achievement if used appropriately. For example, one teacher argued that the reason students in his school were failing was because teachers chose not to use research-based practices. In another example, a frontline district administrator discussed the need for teachers to more consistently use research in order to improve student achievement:

I think we just need to get much better at [using research]. We need to really be somewhat more like surgeons and doctors and we have to get much better at how we diagnose kids and how we then draw on research-based interventions.

It is important to note that those professing faith in research-based practice crossed all categories of conception of high-quality research elaborated above. That is, those who saw high-quality research in terms of scientific rigor and those who saw it in terms of cumulative, theory-based research both professed great faith, as did many individuals who had undeveloped conceptions of research. For example, one school leader discussed recent district professional development in the following way: “Although I can’t tell you the specifics [of the research behind it], I know that it was research based. I know that it was where we need to be going.”

Conditional faith.—Some were not willing to grant legitimacy to a set of findings or a particular approach without first testing it out in their classroom. Here, the proof was not located in the quality of the design or the degree to which it was replicated over time but in how a given approach worked in *their* classroom or school with *their* students. As one district professional developer explained: “As far as research goes, . . . you need to . . . read it with skepticism yourself and then you try it yourself with some real, live, little human beings. And if your results coincide and you did it with purity, then I could buy into it.”

Strategic faith.—Some appeared to support the notion of using research to guide practice in some instances and indicated great skepticism about research in others. A closer analysis of their statements suggests that they tended to evince faith in research to the degree that it supported their position or approach but evinced skepticism of research when it contradicted their position. We call this category strategic faith, because it seems that these individuals had faith in research when it was politically expedient to do so.

Skepticism.—Finally, there were many who were skeptical of the power of research or research-based programs to improve practice or student outcomes.

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These individuals cited a number of concerns. Some questioned the trustworthiness of research. For example, one school principal put it this way: “My personal feeling is that you have to be careful about all of the research because I think it has been proven that research can prove whatever you want it to prove.” Others saw the label of “research based” mainly as a marketing tool for textbook companies: “You know, we have all these supposedly research-based programs in our school, . . . and I’m suspicious of that because we’ve just taken the sales rep’s word for it!” Still others were skeptical that programs would work for them, even if they showed favorable results elsewhere: “There’s tons of research and a lot of it doesn’t have any significance to me—only because programs work for some and not others. It’s just trial and error. You never know.”

Explaining Patterns in Conceptions of Evidence-Based Practice

We found substantial diversity in conceptions of valid evidence, evidence use, and conceptions of high-quality research among people in the district. However, conceptions did not vary randomly. Variation in conceptions appears to be influenced by two key factors: (1) the nature and demands of individuals’ work roles and (2) individuals’ involvement in particular district reform efforts historically, which itself was shaped by the organizational structure of the district and patterns of informal linkages inside and outside the district. In other words, individuals who shared a position or work unit in the district had similar conceptions, as did people who had been involved in particular reform efforts that implicated evidence use.

Nature and Demands of Work Roles

Individuals’ conceptions of valid evidence, of evidence use, and of high-quality research differed in part according to their location in the local education hierarchy. This pattern appears to stem from the fact that different positions carry different kinds of responsibilities that shape individuals’ conceptions. This phenomenon was especially apparent with conceptions of high-quality research. As table 1 shows, those at the central office were much more likely to have well-developed conceptions of high-quality research than those in schools. For example, two-thirds of top-level district administrators (mostly division heads) and 45 percent of frontline district administrators (mostly subject matter directors) had well-developed conceptions of what constitutes high-quality research. Their notions were rooted in either a logic of scientific rigor or of cumulative, theory-based research. In contrast, just one-third of principals

TABLE 1

Individuals in a Position Holding a Given Conception of High-Quality Research (%)

Dimension	Top-Level District Administrators	Frontline District Administrators	Principals	Teachers
Conception of “research based”:				
Developed	67	45	33	29
Undeveloped	33	55	67	71
Degree of faith in research:				
Strong faith	100	50	33	50
Conditional faith	0	10	0	20
Strategic faith	0	20	0	20
Skepticism	0	20	67	10

NOTE.—See the appendix for the number of individuals for whom data on conceptions are available. Here, we include only those individuals who commented on a particular dimension.

and under one-third of teachers had well-developed conceptualizations. Thus, it seems that individuals in positions that required them to interact with research tended to have much more developed views than people in schools who had relatively little interaction with research in their day-to-day work.

Individuals at different levels also had differing degrees of faith in research as a guide to policy and practice, regardless of whether they had well-developed beliefs or not. Top-level district administrators were more likely to profess faith in the promise of research to inform and improve student achievement than people at other levels of the system. All top-level district administrators interviewed on this matter evinced a high degree of faith in research. In contrast, the frontline administrators who worked with schools and teachers had more mixed responses. School principals were most likely to express skepticism in the value of research to inform policy and practice; two-thirds of principals interviewed expressed such skepticism. We surmise that this pattern reflects the pressure on high-level district staff to use research to inform their decisions, pushing them to express belief in the efficacy of this approach. In contrast, those in the middle level of the district system are in positions where they must bridge between the pressure to use research with the experiences of people they work with who face the challenges in schools and the complexities of implementing research-based programs and policies. This position requires them to mediate between beliefs prominent at the top and the bottom of the system, which perhaps encourages an attitude of skepticism to research orthodoxies.

Conceptions of valid evidence also varied systematically by location in the

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TABLE 2

Individuals in a Position Holding a Given Conception of Valid Evidence and Appropriate Use (%)

Dimension	Top-Level District Administrators	Frontline District Administrators	Principals	Teachers
Conception of valid evidence:				
Psychometric properties	37.5	9.0	17.0	.0
Alignment with valued academic outcomes	62.5	55.0	.0	39.0
Insight into thinking and reasoning	25.0	45.0	17.0	61.0
Authenticity and teacher judgment	.0	27.0	.0	22.0
Multiple measures	12.5	.0	83.0	5.6
Conception of appropriate use:				
Meeting accountability demands	56.0	.0	.0	.0
Informing policy and program decisions	22.2	10.0	28.6	10.0
Informing placement	.0	.0	43.0	40.0
Informing classroom instruction	89.0	100.0	57.0	50.0

NOTE.—Categories are not mutually exclusive. Some individuals held more than one conception in a given category. See the appendix for the number of individuals for whom data on conceptions are available. Here, we include only those individuals who commented on a particular dimension.

system. First, district administrators were far more likely to conceive of valid evidence in terms of its psychometric properties and/or alignment with valued academic outcomes than teachers or principals. As shown in table 2, just over 37 percent of top-level administrators saw evidence as valid if it had favorable psychometric properties, while only 9 percent of frontline administrators, 17 percent of principals, and no teachers drew on this criterion. Similarly, just over 60 percent of top-level administrators—including all at the superintendent and assistant superintendent level, as well as directors of divisions most connected with instruction—and 55 percent of frontline administrators saw evidence as valid if it was aligned with valued academic outcomes. In contrast, no principals and less than 40 percent of teachers held this view.

Teachers and frontline district administrators were far more likely to see evidence as valid if it provided insight into student thinking and reasoning or was authentic and rooted in teacher judgment. Over 60 percent of teachers

and 45 percent of frontline administrators saw valid evidence as that which reflects student thinking and reasoning, while only 17 percent of principals and 25 percent of top-level administrators held this criterion. Similarly, 22 percent of teachers and 27 percent of frontline administrators saw evidence as valid if it was authentic, while no top-level administrator or school principal mentioned this as a criterion.

Again, these contrasts seem to reflect differences in the nature of administrators' and teachers' work. Those who had functions most closely linked with testing and accountability held conceptions consistent with those demands. For example, those upper-level administrators and staff who were responsible for testing and meeting accountability demands were most keenly focused on the psychometric properties of tests as a validity criterion. Those in the district most responsible for meeting the state standards in subject areas—upper-level administrators as well as frontline administrators within subject divisions—were most likely to see valid evidence in terms of the standards. In contrast, the tendency for classroom teachers to see measures that capture student thinking or that are rooted in authentic instruction as valid appears to reflect teachers' need to design instruction on an ongoing basis in the classroom, a task that requires fine-grained information in a timely fashion. Frontline district administrators' embrace of these criteria may reflect their role in supporting teachers in this work.

One final pattern emerged. School principals, more than individuals in any other role, pointed to the need for multiple measures as a criterion for valid evidence; more than 80 percent of principals expressed this view. In contrast, just over 5 percent of teachers, over 10 percent of top-level administrators, and no frontline administrators considered multiple measures to be an important criterion for valid evidence. Principals' roles require that they develop school policy and manage school accountability to the district and to parents. Their position in the system places demands on them to bring coherence among multiple kinds of validity standards represented in various assessments and data. Furthermore, schools must develop annual School Improvement Plans (SIPs) that provide plans for the future based on evidence; such protocols prompt principals to draw on multiple kinds of evidence to focus and legitimize their SIPs. Thus, the nature of principals' work encourages them to value multiple measures as a key criterion for validity.

Although the nature and demands of work roles account for some patterns of conceptions in the district, it does not account for all of them. In particular, it fails to explain differences within a given level of the district system, especially among different units in the central office and among different schools. For example, while work roles help to explain why a greater percentage of individuals at the district office have well-developed conceptions of what constitutes high-quality research than individuals in schools, they cannot account for the

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differences we observed in the substance of these conceptions among district personnel. Similarly, while it helps explain why teachers are more likely to see evidence of student learning as valid when it provides information about student thinking or when it is authentic, it does not account for differences in emphasis among teachers in different schools. Our data suggest that individuals' connections to prior reform efforts in the district help account for these differences.

Role of Reform History

Like many, this district has been involved in multiple reform efforts over the past two decades promoting specific approaches to assessment or uses of research. These different movements tended to promote particular clusters of the conceptions we have discussed. For example, one movement promoted the use of evidence with strong psychometric properties to inform program and policy decisions and to inform student placement decisions. It also promoted a view of high-quality research as scientific rigor. In contrast, another movement promoted the use of evidence that focused on valued academic outcomes to inform instruction and promoted a view of high-quality research that was theoretical and cumulative.

Different sectors of the central office and different schools were involved to varying degrees in these different movements. Those individuals who were connected to particular movements historically tended to hold the same clusters of conceptions promoted by the movements. To make this argument, we begin by describing the district's history of reforms and indicate the routes through which individuals became connected with them, arguing that the district's organizational structure and informal professional networks mediated individual's access to the alternative views of evidence use carried by these reforms. We then provide evidence that those connected to these reform movements were likely to hold the cluster of conceptions associated with them.

District reform history.—Beginning in the early 1980s, the district's special education division was involved in national efforts to promote *progress monitoring* (Fuchs and Fuchs 2005). It trained special education teachers to use assessment regularly as a way to determine whether students were benefiting from instruction or whether to make changes. The special education department adopted curriculum-based measures (CBMs)—which assess reading fluency by measuring the number of decoding errors that students make in one minute—as the main assessment to monitor progress. The district subsequently expanded CBMs beyond special education into mainstream education, arguing that it was a way to identify children needing classroom intervention early so as to ward off unnecessary placement in special education. It held training

TABLE 3

Conceptions of Valid Evidence, Evidence Use, and High-Quality Research Associated with Major Reforms in the District

Reform	Conceptions of Valid Evidence	Conceptions of Evidence Use	Conceptions of High-Quality Research
Progress monitoring	Psychometric properties	Inform program and policy decisions; inform placement	Scientific rigor
Early literacy	Insight into thinking and reasoning	Inform classroom instruction	
Standards-based reform	Aligned with valued academic outcomes; insight into thinking and reasoning	Inform classroom instruction	Theoretical and cumulative
Teacher action research	Authenticity and teacher judgment	Inform classroom instruction	Conditional skepticism

for school administrators and mainstream teachers that promoted a view of valid evidence as rooted in psychometric properties of the assessment, emphasizing the value of CBMs in predicting reading problems and achievement on state standardized tests. It also promoted a view of high-quality research as being rooted in this conception of scientific rigor. Finally, the training emphasized using CBMs for policy decisions, as well as for student placement (see table 3).

From the early 1990s through 2005, a small cadre of teachers and schools were involved in literacy reforms that focused on promoting an approach to *early literacy* known as “guided reading” (e.g., Fountas and Pinnell 1996). Among other things, this approach advocated teaching decoding strategies in response to student needs and development, rather than following a prescribed order of skills. To facilitate this targeting, the approach relies on an assessment called “running records.” Running records provide insight into a child’s reading process (what strategies they use to decode) and reading level. District staff trained small groups of teachers to use running records, emphasizing that they should use the assessment to uncover the strategies students were using for decoding. Teachers were encouraged to then use this information to guide instruction in ways that addressed the particular needs of groups of students. Thus, the training emphasized an approach to assessment that provided insight into students’ thinking processes (in this case, the strategies they use to decode) and using the information to inform classroom instruction.

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Initiatives related to *standards-based reform* also implicated issues of evidence. Several grant initiatives, largely focused on particular subjects, encouraged teachers to use assessments that would allow them to ascertain students' progress toward state standards. The district also initiated its own efforts to develop rubrics to assess student work linked with state standards. While subject-specific initiatives varied somewhat in their focus, they all tended to emphasize alignment with valued student outcomes (in this case, standards) and put forth a view of high-quality research as cumulative and theory based. In some of these efforts, teachers were asked to discuss assessments in grade-level groups as a way to learn about and improve their approach to instruction.

Finally, the local teachers' union promoted data use through a *teacher action research* initiative. The union provided professional development that promoted the notion of valid evidence as being rooted in authentic student behavior during instruction, calling for rigor in teachers' documentation of connections between instruction and such student outcomes. The initiative aggressively promoted the notion that the most important use of evidence was to inform classroom instruction (as opposed to teacher evaluation). It also promoted the idea that teachers (rather than researchers or administrators) were in the best position to assess student learning. The program did not, however, endorse a particular kind of assessment, and teachers were given wide latitude in the kinds of research questions they asked and the kinds of evidence they chose to examine to answer their questions.

Patterns of involvement in the district's evidence reforms.—Each of these reform movements penetrated the district to different degrees and in ways that were related to both the formal organizational structure and informal professional networks. We found that individuals who were connected to particular reform movements—because of their organizational division and/or their professional network—tended to hold a similar cluster of conceptions as those promoted by that movement.

The district formal organizational structure appeared to play a role in the patterns of spread of evidence conceptions. At the central office level, different organizational units tended to be involved in the separate reforms described above. In this district, as in many, grant-funded initiatives tended to be associated with different units. For example, high school reform initiatives related to standards emerged out of the assistant superintendent's office in charge of high schools. Mathematics reform initiatives came out of the math division of the curriculum and instruction office. Special education grants largely came out of the special education division. Thus, individuals' exposure to particular evidence conceptions and their current views depended on their connections to these divisions, both at the central office level and in schools.

For example, given that progress monitoring and CBMs emanated from

the special education office, it should perhaps come as no surprise that those at the school and district level who were affiliated with special education were most likely to have beliefs about evidence, evidence use, and research consistent with the messages promoted by progress monitoring. All district staff in both the special education division and the research office (whose leadership used to work for special education) and all special education–trained principals voiced conceptions of valid evidence as rooted in psychometric properties, had a vision of high-quality research that invoked the language of scientific rigor, and saw the purpose of using evidence as informing program and policy decisions and student placement. All but one of the special education teachers interviewed in eight case study schools and all the teachers interviewed in schools run by special education–trained principals (where there was a more intense focus on CBMs) talked about the use of evidence in terms of informing student placement.

Informal networks also played an important role in bringing reform ideas into particular subunits and spreading these ideas between units and levels of the district. For example, the district became involved in early literacy when it hired a reading specialist with connections to Reading Recovery, a national organization that promotes this approach. Early literacy ideas further spread through the district to schools that had relationships with one of the district literacy professional developers with that expertise. Those connected to early literacy in this manner—including teachers in two of our case study schools—tended to have the clusters of conceptions promoted by the movement. Thus, two out of three frontline district administrators who participated in the early literacy training saw assessments as valid to the degree that they provided information about students' thinking and reasoning processes. All teachers in one school and two-thirds of teachers in the second school who were involved in the training held this conception. All three district administrators and all of the teachers in the two schools saw the main function of evidence as informing instructional approaches in the classroom. However, there was no pattern of responses in conceptions of high-quality research among those involved in early literacy. This is not surprising given that the movement was largely silent on what constitutes high-quality research.

There were similar patterns with those involved in standards-based reform projects and those heavily involved in teacher action research. Thus, this district's prior reform efforts, and the particular views of valid evidence that each of the reforms carried, had moved through the district in ways that were shaped by its organizational structure and professional networks. Disagreements among district leaders about evidence-based practice were strongly related to their organizational unit and prior experience with reform initiatives.

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Discussion

The federal NCLB legislation has created new pressures and incentives for districts to use evidence of student learning to assess their policies and practices and to adopt improvement strategies rooted in research. Like other reform movements, this legislation promotes a cluster of conceptions of valid evidence and appropriate use. More specifically, it privileges evidence that satisfies psychometric standards such as standardized tests. It focuses attention on using evidence for school and district accountability and informing program and policy decisions. Finally, it promotes a logic of school improvement centered on adopting programs rooted in scientific research, where high-quality research is defined in terms of experimental or quasi-experimental studies with conclusions based on observable phenomena that have been published in peer-reviewed journals.

Yet NCLB and the accountability movement follow on and coexist with other reform efforts in the policy environment that also promote evidence use, albeit with somewhat different emphases. Professional preparation programs provide role-specific and discipline-specific conceptions of valid evidence, professional associations embed meanings of evidence in their standards, and teacher associations promote views of evidence use consistent with practice in the professions. Thus, there are multiple and at times conflicting norms of evidence use that coexist in the environment of public schooling, both currently and historically.

As suggested by institutional theory, individuals in districts become connected to these institutional pressures as their personal and professional networks bring them in contact with reform movements. Messages associated with these movements then become embedded in districts as individuals and groups who take part in the reforms continue to carry those messages into their ongoing work. District organizational structure—the presence of multiple divisions with different missions and few mechanisms to communicate or collaborate across them (Meyer and Scott 1983; Spillane 1998)—encourages the development of multiple views of evidence-based practice in a district as reform movements get channeled into particular units.

Conceptions of evidence are further shaped by the nature of work roles and responsibilities that vary depending on an individual's location in the system. Work roles frame problems of practice for which particular kinds of evidence are useful. For district administrators, elaborate breakdowns of student performance trajectories on standardized tests are valuable for meeting accountability demands and for assessing policies and programs; for teachers, fine-grained assessments of student performance in discipline content are useful for guiding instruction on a daily and weekly basis.

All of this means that federal accountability policy does not find a vacuum

when it enters a district. Rather, it enters local systems where multiple meanings of evidence-based practice have already been rooted in work roles, formal and informal organizational structure, and the history of previous reform. As research on policy implementation suggests, how individuals and groups respond to new accountability pressures is likely to be shaped by their preexisting beliefs related to evidence and research. In this and other districts, this set of circumstances is likely to result in variable responses to accountability policy across multiple divisions and levels of the system. Thus, even in the face of mounting federal pressure for particular conceptions of evidence, alternative views among district leaders and teachers are likely to persist. The question of how they coexist in a particular district—with what levels and kinds of conflict and coherence—becomes an important issue for local reform efforts aiming to use evidence to improve educational quality and equity.

Our exploration of the sources of conceptions of evidence provides some guidance for districts as they attempt to address this challenge. First, our research suggests that moving toward a coherent systemic strategy for evidence-based practice may require a system of evidence use that allows for and supports access to different kinds of evidence for different purposes at different levels of the system. Individuals with different work roles have substantively different data needs. A strategy for evidence-based district reform must acknowledge these differences and create mechanisms to bring productive dialogue and coordination across them. Here, congruence does not mean the same conceptions of evidence; rather, it means creating complementary approaches at different levels and functions. This requires going beyond the sole use of standardized test scores to collect and make accessible to educators a broader range of data capable of answering different kinds of questions that people in different roles face in the course of their ongoing work (Supovitz and Klein 2003).

Second, our research suggests that frontline central office administrators may play a key role in mediating between conceptions of evidence and research at the top of the district and those at bottom. Previous research on system reform highlights the importance of the “middle system” in carrying and forging meanings between schools and the central office (Burch and Spillane 2004). Building on this finding, our research suggests that the cadre of individuals in these positions could play a key role in mediating diverse conceptions both within a central office and between the central office and the schools they serve. Building the capacity of district staff to serve in these roles may be crucial to the development of coherent and complementary conceptions of evidence-based practice in district systems.

Third, organizational subcultures appear to be key vehicles for growing and sustaining new conceptions of evidence. Prior research has discussed preexisting culture largely as an impediment to evidence use (Ingram et al. 2004;

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Supovitz and Klein 2003). These studies argue that aspects of the culture of teaching first identified by Lortie (1975) in the 1970s—norms of privatization, preferences for anecdotal information, and a reliance on intuition—work against systematic evidence use in schools. Yet in our study, conceptions associated with this view of teaching culture were relatively few (e.g., only 22 percent of teachers saw evidence as valid if it came from teacher judgments during ongoing instruction). Instead, we found conceptions of evidence that were associated with several different reform movements, each of which challenged these traditional conceptions. This suggests that individuals' sustained interaction with ideas related to reform can influence their beliefs about the nature of evidence.

Significantly, patterns of alternative conceptions of research and evidence were strongest—and we saw the emergence of what can be considered alternative evidence subcultures—where organizational unit, disciplinary background, and reform movement coincided. These subcultures appeared to emerge in organizational units that had sufficient ongoing interaction to develop shared norms but also connections to external reform movements and professional associations that brought new conceptions of evidence into a particular segment of the district. This provides preliminary evidence that productive subcultures emerge when there is a balance between the stability necessary to develop shared norms and connections to external sources of reform ideas. But it also suggests the importance of creating mechanisms for communicating across different segments of the district to mitigate the development of parallel and divergent evidence subcultures, each connected to and legitimized by competing ideologies of evidence present in the policy environment.

Appendix

TABLE A1

Distribution of Interviews

Position	No. of Individuals	No. of Interviews
Top-level district administrators	10	17
Frontline district administrators	14	38
Principals	7	25
Teacher interviews	27	59
Teacher focus groups	11	2

Notes

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1. A nationally representative sample of 813 top district officials participated in a telephone survey conducted by Belden, Russello, and Stewart, a Washington-based polling organization. The margin of error for overall results is 3.3 percentage points. For details, see Archer 2005.

2. Recent federal policy explicitly promotes evidence-based practice, citing variously the desire to make education an “evidence-based field” (U.S. Department of Education 2002, 59) and assist people in schools to “value the scientific method over personal opinion or comfort with familiar practices” (10). In the No Child Left Behind (NCLB) legislation and various supporting documents, “evidence” appears to refer mainly to research-based evidence. Yet there is a tradition of research focused on data-driven decision making that predates NCLB. This research concerns the use of student outcome and other data, rather than evidence from scientific research. Scholars in this tradition use the term “data” (which they define as facts in their raw form) and distinguish it from “information” (interpretation of data in a context) and “knowledge” (understandings of information developed through social interaction; for discussion see Brown and Duguid 2000). Our research straddles these two traditions and focuses on practitioners’ conceptions of “evidence” as it might be derived from local data and from research. For that reason, we use “evidence” and “evidence use” throughout the article.

3. Definitions of scientifically based research embedded in federal and state policy have evolved somewhat since they first made their debut in the late 1990s (Eisenhart and Towne 2003). Recent definitions in the Read Excellence Act and NCLB have emphasized that research must be systematic, empirical, involve observation or experimentation, be published in peer reviewed journals, and ensure reliability and validity to be considered “scientific.” Interestingly, these definitions do not point specifically to the use of experimental or quasi-experimental designs. However, experimental design does appear in definitions of scientific research in aspects of NCLB related to technology (although not in most other places where definitions of high-quality research are offered). Experimental design also appears in the influential National Reading Panel report (National Institute of Child Health and Human Development 2000) and in criteria for inclusion of studies in the federally funded What Works Clearinghouse.

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