District Central Offices as Learning Organizations: How Sociocultural and Organizational Learning Theories Elaborate District Central Office Administrators' Participation in Teaching and Learning Improvement Efforts

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School district central office administrators face unprecedented demands to become key supporters of efforts to improve teaching and learning districtwide. Some suggest that these demands mean that central offices, especially in midsized and large districts, should become learning organizations but provide few guides for how central offices might operate as learning organizations. This article presents a conceptual framework that draws on organizational and sociocultural learning theories to elaborate what might be involved if central offices operated as learning organizations. Specific work practices that this conceptual framework highlights include central office administrators' participation in new school assistance relationships and their ongoing use of evidence from assistance relationships and other sources to inform central office policies and practices. Sense making and managing paradoxes are fundamental to these processes. I highlight these activities with empirical illustrations from research and experience, discuss conditions that help/hinder these activities, and suggest directions for district research and practice.

School district central office administrators currently face unprecedented demands to play key leadership roles in efforts to strengthen teaching and learning districtwide. As many have noted, district central offices traditionally have served mainly as fiscal or administrative pass-throughs for federal and state initiatives or have managed certain local operations, such as school buses, facilities, purchasing, and the processing of school teachers and administrators

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through local civil services systems (e.g., Hightower et al. 2002). However, in recent decades, various policy initiatives have called on district central offices to shift the work practices of their own central staff from the limited or managerial functions of the past to the support of teaching and learning for all students. To varying degrees, these policy initiatives demand that central office administrators work closely with each of their schools to build school-level capacity for high-quality teaching and learning and to use their experience as school assistance providers and other evidence to guide central office decisions in ways that promise to seed and grow such teaching and learning in schools districtwide. For example, some federal, state, district, and philanthropic initiatives that promote learning communities for teachers and students (e.g., new small autonomous schools policies and small learning communities grants) call on district central office administrators to provide coaching to schools in order to build powerful learning communities and to use various forms of evidence to guide changes in district policies and practices that might strengthen such school-based improvements.[1] Some districts have engaged in standards-based and curricular reform by creating new support relationships between central offices and schools and by promoting new forms of evidence use (Corcoran et al. 2001; Hubbard et al. 2006; Marsh et al. 2006; Supovitz 2006). Major reform efforts in the New York City public schools (ChidrenFirst), California's Oakland Unified School District (Expect Success), and Atlanta public schools, among others, aim to reconfigure central office administrators and schools into school support networks and to demand that central office administrators use their experience with networks and other evidence to improve their work (Honig and Copland, forthcoming). What does central office administrators' productive participation in such efforts entail?

Research on midsized to large school district central offices provides some general insight into these questions by emphasizing the importance of central offices working both school by school and districtwide to improve teaching and learning (e.g., Shulman 1983; Vander Ark 2002) and by stressing that such efforts should involve new forms of evidence-based practice for central office administrators (Massel and Goertz 2002; Togneri and Anderson 2003). However, political and professional incentives for district central office administrators historically have emphasized the opposite of these forms of central office participation—limited engagement in teaching and learning matters;

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top-down, command-and-control relationships with schools; and weak capacity for school-by-school support and the use of evidence in decision making (Hannaway 1989; Honig 2004; Malen et al. 1990).

Some studies highlight districts that purportedly bucked these trends and generally elaborate how these districts, through superintendent leadership or macro policy changes, establish "coherent" visions and "aligned" instructional programs to support teaching and learning improvements (e.g., Corcoran et al. 2001; Elmore and Burney 1997; Murphy and Hallinger 1988; Snipes et al. 2002; Togneri and Anderson 2003). While these findings provide important anchors for district research and practice, they do not penetrate deeply into central offices to address what those who work within midsized to large district central offices do day to day that might support such outcomes.[2] Accordingly, these findings overlook a major dimension of school district central offices—the work practices of their staffs—and thereby risk serving up poor guides for how central office administrators might participate in teaching and learning improvement efforts. Central office administrators and their work practices have been so invisible in such research that it is not uncommon for district studies—even studies purportedly focused on the district role in instructional improvement—to refer to "the district" or "the central office" as a monolithic actor in such reforms. In this way such studies obscure what central office administrators within such organizations may actually be doing daily to foster (or frustrate) high-quality teaching and learning. (For a related point, see Spillane [1998].)

In order to address these research and practice gaps, some educational scholars and reformers have called on school districts and their central offices to operate as learning organizations or learning systems (e.g., Cohen 1982; Elmore 1983; McLaughlin 2006). Such calls conjure up powerful and compelling images of dynamic organizations that seem consistent with central office engagement in teaching and learning improvement efforts. But what does it mean for a public bureaucracy such as a school district central office and its central office administrators "to learn"?[3] Some researchers suggest that organizations such as central offices operate as learning organizations when their members report that they have learned from experience. However, such research generally does not clarify what counts as learning from experience or the difference, if any, between individual and organizational learning. Because these studies rely mainly on respondents' self-reports of whether they believe that they have learned, they raise significant questions about construct validity.

More recently, a few educational researchers have begun to buck these trends by drawing on theories of learning in social settings to elaborate how central offices might operate as learning organizations. Some of these researchers use strands of "sociocultural learning theory" or, specifically, "com-

munities of practice" ideas (e.g., Burch and Spillane 2004; Gallucci 2008; Hubbard et al. 2006). A few others rely on theories of "organizational learning" from the fields of administration and management, decision making, and organizational sociology (e.g., Hannaway 1989; Honig 2003, 2004). These studies suggest the importance of grounding district research in rich conceptual frameworks derived from these specific learning theories. However, research thus far uses one strand of theory to elaborate either assistance for schools or evidence use but not how multiple strands of theory together could reveal how those two activities might play out in mutually reinforcing ways in district central offices.

This article builds on these policy and research developments and starts from the following premises: (1) contemporary demands on district central offices to become able supporters of high-quality teaching and learning, if fully implemented, could help expand student learning throughout district systems; (2) calls for district central offices to operate as learning organizations seem consistent with such demands; and (3) ideas from both sociocultural learning theory and organizational learning theory provide important conceptual grounding for district practice and research. I elaborate such conceptual grounding with a review of some of the main ideas from each strand of learning theory. Where possible, I illustrate these ideas with empirical illustrations from contemporary district studies. I conclude with recommendations for the research and practice of district central office administration.

This article does not provide a comprehensive, comparative review of multiple complex learning theories. Rather, I explore strands of learning theories that recent research on school district central offices suggests may be particularly useful for revealing central office administrators' participation in teaching and learning improvement initiatives. I offer not a complete picture of central office operations—a task that is far beyond the scope of any single essay. Instead, I underscore particular dimensions of central office work practices that seem particularly relevant to supporting teaching and learning improvement efforts in the ways framed above and that selected strands of learning theory make visible.[4] What follows is not intended as a normative prescription for district improvement but as an integrated set of propositions about what central offices do when they operate as learning organizations (O'Toole 1986). This approach seemed appropriate, given the promise of various learning theories to inform district research and practice but the still-nascent stage of work in this area.

This approach brings risks, however. Some scholars working under the headings "sociocultural learning theory" and "organizational learning theory" disagree within and across the two communities of scholarship about such fundamental issues as what counts as learning, whether or not organizations learn, and whom to include as a sociocultural or organizational learning

theorist, despite a handful of attempts to find common ground (e.g., Brown and Duguid 1991; Cook and Brown 1999; Fiol and Lyles 1985). Inevitably, some readers will object to my and others' choices about which strands of these theories should be included in such a discussion and will differ in their views about whether or not the theories should or can be applied to a common problem of work practice—even to emphasize different dimensions of the same practitioners' work. Given these disagreements, my goal here cannot be to offer a universally satisfying reconciliation of these debates. Rather, I explore several ways that strands of both theories seem relevant to district central office participation in teaching and learning improvement efforts with the aim of suggesting potentially promising avenues for future research and practice in applying learning theory concepts to central office work.

Learning Theory and District Central Office Administration

My conception of district central offices as learning organizations engages ideas from sociocultural learning theory and theories of organizational learning from experience under conditions of ambiguity. I chose these lines of theory because, as noted above, district researchers have begun to demonstrate how these theories can help frame district central office participation in initiatives to strengthen teaching and learning. These theoretical areas seem particularly useful because each lens focuses attention on two complementary dimensions of what organizational learning by district central offices may entail: sociocultural learning theory amplifies the importance of central office administrators working with schools to support their teaching and learning improvement efforts; organizational learning theory highlights how central office administrators might use evidence from various experiences, including their school assistance relationships, to inform district operations.

By many accounts, sociocultural learning theory has its roots in the work of Vygotsky and his students and colleagues, such as Leont'ev. These scholars explored how learning unfolds—not through an individual's acquisition of information solely or even mainly within the mind. Rather, learning involves an individual's engagement with others and various artifacts or tools in particular activities. In turn, these activities are nested in particular social, historical, and cultural contexts (Engestrom and Miettinen 1999; Vygotsky 1978; Wertsch et al. 1995). Through such engagements, learners socially construct the meaning of particular ideas and in the process develop and also potentially shape the habits of mind of their cultures (Wertsch 1996). Some scholars in this tradition have emphasized that "joint work"—a problem of practice of long-term value in particular contexts—grounds these engagements, and that these engagements unfold in a community of others, or a "community of practice"

(Lave 1996; Lave and Wenger 1991; Rogoff 1994; Rogoff et al. 1995; Wenger 1998).

Within these communities of practice, various supports or "scaffolding" help learners shorten the distance between their current practice and their deeper engagement in a particular activity (Vygotsky 1978). These supports include assistance relationships that seem particularly relevant to the demands on central office administrators to work in partnership with schools. Through these relationships, those more engaged in or experienced with particular activities assist others in their own engagement (e.g., Cole and Wertsch 1996; Derry et al. 2000; Tharp and Gallimore 1991; Wenger 1998).

Conceptions of "organizational learning" abound, and various scholars have argued that there is no one model or coherent view of what counts as a learning organization (e.g., Fiol and Lyles 1985) and its relationship to improvement or success. Here I emphasize one strand of organizational learning theory, also known as organizational learning from experience, trial-and-error learning, and learning under conditions of ambiguity. This strand emerged within the cognitive sciences as applied to administration and management and has been advanced most notably by Herbert Simon, James G. March, and their students and colleagues (e.g., Levinthal and March 1993; Levitt and March 1988). I draw on ideas from this line of theory to help elaborate how experience and other forms of evidence might become a resource available to others in an organization. As applied to the present case, I use these theories to understand: how central office administrators' experiences in school assistance relationships and other evidence may become a resource for other central office administrators; and how those others outside the direct assistance relationships participate in particular endeavors (such as teaching and learning improvement efforts). Key activities in these processes include the search for relevant evidence and the incorporation or use of that evidence in decisions to change (or in deliberate decisions not to change) formal and informal central office operations.

These theoretical ideas have their roots in fairly technical and otherwise impersonal information-processing activities that are conceptually and philosophically at odds with sociocultural learning theory's basic premises about learning as a dynamic and distinctly nonlinear socially and culturally embedded activity. However, in recent years, this line of organizational learning theory has evolved in conjunction with the New Institutionalism in Sociology and theories of sense making to emphasize, as sociocultural learning theorists do, the social and socially constructed nature of these learning processes. In particular, theorists have begun to reveal how interpretation or the social construction of meaning is fundamental to how individuals in organizations search for and use evidence from experience and other sources (Levitt and March 1988; March 1994; van de Ven and Polley 1992; Weick 1995, 1998).

Relatively recent work in this area also emphasizes that such meaning making has distinct political dimensions highly relevant to central office contexts but generally not well elaborated in sociocultural theories of learning (Steyaert et al. 1996).

Both lines of theory emerged largely outside school-system settings. For example, sociocultural learning theory reflects lessons about learning gleaned from contexts as diverse as supermarkets, Mayan midwife communities, butcher shops, and Girl Scout troops. Organizational learning from experience—what I will call, simply, "organizational learning theory" here—generally reflects ideas abstracted from the experience of successful or innovating private firms across a host of organizational sectors and findings derived from computer simulations of decision making over time. Despite their nonschool origins, each theory seems to shed important light on particular dimensions of central office operations fundamental to contemporary policy demands: engaging in assistance relationships with schools and using evidence to inform the work of the central office overall. Because these theories emerged across settings focused on myriad workplace goals, they promise to sidestep debates about what counts as high-quality teaching and learning to elaborate how central office administrators might participate in teaching and learning improvement efforts regardless of how such efforts are defined. At the same time, each strand of theory has some limitations when applied to central office administrators' work practice that too highlight further avenues for research and practice.

In the subsections below, first, I argue that theoretical ideas from sociocultural learning theory seem particularly useful for revealing what central office school assistance relationships may entail. I highlight how several dimensions of these relationships are also reinforced by organizational learning theory. I then engage ideas mainly from organizational learning theory to discuss activities involved when central office administrators use their experience and other evidence to inform central office policies and practices. Where possible, I point out where sociocultural learning theorists seem to agree with some of the activities that contemporary organizational learning theorists emphasize. For an overview of these activities, see figure 1.

Assistance Relationships around Teaching and Learning

Sociocultural learning theory elaborates forms of assistance that foster participants' increasingly deep engagement in various activities—or, as some theorists put it, novice-expert relationships that aim to bring novices into fuller participation in a given activity. These forms of assistance are a far cry from general calls for central office administrators to coach schools or for central

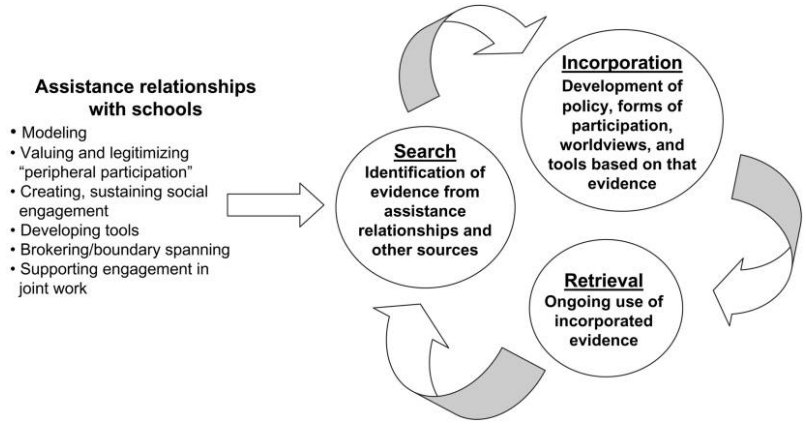

FIG. 1.—An integrated conception of central offices as learning organizations

office administrators to think of assistance mainly as a set of information or as materials that they can deliver to schools. Rather, I draw on ideas from sociocultural learning theory to frame assistance as a relationship in which participants more expert at particular practices model those practices and create valued identity structures, social opportunities, and tools that reinforce those models for more novice participants. In these relationships, certain participants engage in boundary-spanning activities and focus the relationships on particular forms of joint work.

In the discussion below, I locate school-based professionals in the more novice roles, since the assistance relationships in this case focus on deepening school-based professionals' engagement in certain work practices. However, in reality, district central office administrators in many districts may not have the ready capacity to participate in the assistance relationships themselves as the "experts" in sociocultural learning theory's novice-expert relationships. In particular, absent additional, substantial supports, central office administrators may not be able to model the forms of high-quality teaching and principal instructional leadership for school-based staff that these assistance relationships assume. In the subsections below my main aim is to elaborate what these assistance relationships would involve, central office and school capacity not withstanding, if they reflected features of assistance relationships that sociocultural learning theorists, in particular, have associated with deepening participants' engagement in various forms of joint work. To realize these relationships in practice, some central office leaders might consider the short-term strategy of supporting others—master teachers, principals, or external partners, for example—who can engage in these assistance relationships with schools and perhaps in the process help other central office administrators

become more able participants in these relationships themselves. I elaborate on these concerns in the concluding section.

Modeling.—Participants in assistance relationships help deepen others' engagement in particular work practices (e.g., principals' and teachers' participation in teaching and learning improvement efforts) by modeling (or making available those who model) those practices (Brown and Campione 1994; Tharp and Gallimore 1991). By observing models in action, school staff may develop "a conceptual model of the target task prior to attempting to execute it" (Collins et al. 2003, 2). Some theorists argue that these conceptual models are essential to execution, especially at deep levels of participation. Such models provide "an advanced organizer for the initial attempts to execute a complex skill, . . . an interpretive structure for making sense of the feedback, hints, and connections from the master during interactive coaching sessions, . . . and . . . an internalized guide for the period when the apprentice is engaged in relatively independent practice" (Collins et al. 2003, 2; see also Lave 1996). For March and other organizational learning theorists, such models are especially important when feedback on performance is limited, delayed, or somewhat ambiguous, as can be the case in schools and classrooms. In such circumstances, models demonstrate what successful and legitimate participation may involve. In the process these models direct and help to sustain engagement in particular promising endeavors by infusing those endeavors with value and increasing participants' confidence that they may be on a trajectory toward improving their performance (Brown and Duguid 1991; March 1994).

Not all models provide such powerful guides. Collins, Brown, and others specify that models can help individuals engage in new and complex work practices when they also employ meta-cognitive strategies of bringing "thinking to the surface" and of making thinking "visible" (Collins et al. 2003, 3; see also Lee 2001); in other words, models engage others in dialogue about the purposes and nature of particular practices so that they know not just what participation in these practices entails but why they should participate in particular ways. Powerful modeling also involves a strengths-based approach in which the modeler helps others identify and build on their strengths in a deliberate strategy to develop other competencies (Lee 2001).

For example, some districts have contracted with the Institute for Learning (IFL) to work with their school principals and central office administrators in teaching- and learning-assistance relationships. Researchers have observed IFL staff modeling activities in ways that illustrate making thinking explicit. In one instance, the IFL facilitator of a professional development session with principals and central office administrators led participants through a process of establishing norms to guide participants' engagement in the session. During the process, the facilitator repeatedly reflected back to participants that she was engaging them in norm setting because up-front agreements about norms can

help facilitate the kinds of direct, honest, and sometimes difficult dialogue that analyzing professional practice requires. Researchers suggested that such efforts to clarify not only the "what" but the "why" of particular activities (here, not just what the norms are but why to set norms) enable deeper engagement in those activities than would be possible otherwise (Marsh et al. 2005, 2006).

Some sociocultural learning theorists argue that particularly powerful forms of modeling are reciprocal (Tharp and Gallimore 1991; Wenger 1998). In working with school staff to transform their practice, central office administrators also examine and transform their own participation in the process. Such modeling does not involve the provision or transmission of guidance or other forms of information from central offices to schools (Rogoff 1994). Rather, assistance becomes a relationship in which both central office administrators and school staff engage and in which both parties can have experiences and gather various forms of evidence that can potentially inform and deepen their own participation. Such reciprocal assistance seems particularly powerful because the mutual engagement in the assistance relationship may infuse the relationship and its underlying goals with legitimacy and value essential to realizing its goals in practice (Honig and Ikemoto 2006). This view of modeling also suggests that assistance relationships are dynamic—continually evolving as both central office administrators and school staff members deepen their capacity for participating in such relationships and for realizing their teaching and learning goals.

Valuing and legitimizing "peripheral participation."—Various school reform researchers have highlighted the deleterious effects of assigning schools as low performing (e.g., Mintrop 2003; O'Day 2002). The designation may be accompanied by a curtailing of resources or other penalties that may work against school improvement. The label "low performing" itself, like a self-fulfilling prophesy, may actually feed poor performance by fueling negative staff morale and motivation and various activities related to compliance rather than improvement.

In sharp contrast, Wenger and Lave (1991) among other sociocultural learning theorists do no talk in terms of low performance but novice performance. Novices are people whose participation is peripheral or not yet reflective of deep engagement in particular practices. They locate novices on a trajectory toward deeper engagement in higher quality teaching and learning. They call such participation "peripheral" in part to signal that it is on the outside but somewhere within the range of stronger performance. They argue that individuals tend to increase their engagement in various activities when they see themselves as valued participants in the activities and, early on in their engagement, as people capable of strengthening their engagement in those activities, regardless of their starting capacity. Likewise, organizational learning theorists suggest that organizational performance and the capacity for im-

proving performance may decline, absent identity conceptions that locate organizations on a path toward improvement (March 1994).

Creating and sustaining social engagement.—As noted above, social engagement is fundamental to learning. The active construction of meaning unfolds not within individuals' minds but as individuals interact with one another and with problems of practice (Vygotsky 1978). Wenger and Lave, in particular, have elaborated how through social interactions within communities of practice, individuals increase the individual and collective knowledge they bring to bear on situations (Lave and Wenger 1991; Wenger 1998; see also Holland et al. 1998). Through such engagements, individuals may challenge each others' understandings and offer competing theories about underlying problems and potential solutions (Brown and Duguid 1991; see also Blau [1963] on the importance of consultations with colleagues). The models and identity structures discussed above may operate as resources for learning only insofar as community members have opportunities for social engagements with others through which they may observe those models in action (Wenger 1998). These theorists and certain organizational learning theorists (namely, Argyris and Schon; Steyaert and colleagues) reinforce the importance of dialogue to such social opportunities. Through dialogue, individuals may challenge each others' underlying assumptions about root causes of success and failure and make thinking explicit in the ways noted above—all key aspects of efforts that may result in fundamental changes in work practices (Argyris and Schon 1996; Steyaert et al. 1996).

Research on districts is replete with instances of how the structure of central office administrators' work curbs these kinds of social engagement (e.g., Hannaway 1989; Togneri and Anderson 2003). By contrast, San Diego City School District's reforms in the late 1990s aimed to restructure central office administrators' work and relationships with schools in part by creating multiple opportunities for teachers, principals, and central office administrators to participate in sustained, social interactions about how to strengthen teaching and learning. These opportunities included LearningWalks—a protocol for engaging central office administrators, school principals, teachers, and others in capturing and analyzing evidence about teaching practice as a strategy for strengthening teachers' performance. Researchers linked modest improvements in district capacity for supporting high-quality teaching and learning in part to these kinds of social activities (Hubbard et al. 2006). In my own research in Oakland, I demonstrated the importance of formal, facilitated, ongoing meetings among central office administrators and school and community leaders to focus central office administrators on specific problems of practice at individual schools and to engage them in strategies that promised to advance school-community improvement goals (Honig 2003, 2004). In these relationships, leaders of intermediary organizations played particularly im-

portant roles as facilitators, not just of participants' attendance at meetings but their more meaningful engagement in the kinds of social interactions described above (Honig 2004).

Developing tools.—Tools may be defined as "reifications" or the manifestations of ideas (Wenger 1998). Sociocultural learning theorists (e.g., Wenger and Wertsch) and organizational learning theorists (e.g., Feldman and van de Ven) seem to have converged on the importance of tools to learning processes. Tools "specify the parameters of acceptable conduct" and thereby communicate what individuals should and should not do (Barley 1986). At the same time, they operate as jumping-off points for individuals to define new conceptions of acceptable conduct (Barley 1986). Organizational learning theorists sometimes call tools "structures," "referents," or "themes for improvisation" (Feldman 2000; Miner et al. 2001; van de Ven and Polley 1992; Weick 1998). These structures can serve as origins or as "the kernel that provides the pretext for assembling" elements in the first place. . . . These pretexts are not neutral. They encourage some lines of development and exclude other ones" (Weick 1998, 546). As such, tools "trigger" negotiations among individuals about which actions might contribute to particular goals rather than prescribe action (Barley 1986; Brown and Duguid 1991). Sociocultural learning theorists agree that rather than dictating practice, tools create "potential for different kinds of action that may be realized in different ways by different participants" (Smagorinsky et al. 2003, 1407). Tools may "be seen as liberating in their enabling function or limiting in that their historical uses may preclude new ways of thinking" (Smagorinsky et al. 2003, 1407). Such triggers and kernels seem particularly important in school-system contexts where arguably complex challenges of strengthening teaching and learning defy sharp prescription (e.g., Elmore 1983; Shulman 1983; see also Axelrod and Cohen 2000).

Sociocultural learning scholars have identified different types of tools. Conceptual tools include "principles, frameworks, and ideas" (Grossman et al. 1999). These tools generally function to frame how people think about particular issues. "Their meaning is not invariant, but a product of negotiation with a community" (Brown and Duguid 1991, 33). For example, the Institute for Learning created a conceptual tool for district practitioners called "Principles of Learning"—essentially nine statements about rigorous teaching and learning. They intended the language and the ideas communicated in the principles themselves to shape how central office administrators think about, talk about, and steer their own participation in school support (Honig and Ikemoto 2006).

Practical tools provide specific examples of "practices, strategies, and resources" that have "local and immediate utility" (Grossman et al. 1999, 13–14). While conceptual tools are meant to shape decisions across multiple activity settings, practical tools are generally constructed around a particular activity

setting. For example, the IFL's LearningWalk tool focuses specifically on how central office administrators, school principals, and other "instructional leaders" participate in school classrooms to investigate, interrogate, and support a conception of high-quality teaching (Honig and Ikemoto 2006).

Burch and Spillane's 2004 study of 55 midlevel managers in three urban school district central offices confirms the importance of tool development to central office administrators' work. They demonstrated that central office administrators seemed to foster teaching and learning improvements in part when they participated as "tool designers who translate reform agendas into tangible materials for schools to use" (4). Such tools included "handbooks, rubrics, and evaluation protocols," "school planning templates," and "externally developed curricular materials for use within district reforms" (11). Through the creation and revision of these materials, certain central office administrators fostered new relationships between schools and their central office consistent with the assistance relationships of interest here.

Brokering/boundary spanning.—Wenger and other sociocultural learning theorists emphasize the importance of some participants in assistance relationships who operate as brokers or boundary spanners. These individuals work between communities of practice and their external environments (including other communities of practice). In those in-between spaces, they help communities bridge to new ideas and understandings that might advance their participation and also buffer those communities from potentially unproductive ideas and understandings (Wenger 1998). Brokers seem particularly relevant to the challenge of strengthening teaching and learning that many educational scholars have framed as involving the use of various forms of evidence, including student performance data and information about neighborhood and family resources, and contexts that are not always available within individual classrooms or schools.

Organizational learning theorists typically focus on formal organizations and emphasize that boundary spanners contribute to organizational goals when they do not simply pass evidence across organizational boundaries but also translate it into terms that members of the receiving organization may be particularly likely to use (Aldrich and Herker 1977; Cobb and Bowers 1999; Dollinger 1984; Tushman 1977; Tushman and Katz 1980). Boundary spanners' ability to translate evidence into "use-able" forms seems to depend in part on the extent to which the boundary spanners are fluent in the language and culture of particular communities (in this case, schools) and otherwise able to package the evidence in ways that school staff will recognize as useful. Such ability also seems to hinge on whether brokers appear legitimate to the receiving community (Wenger 1998) and therefore a trusted resource.

For example, I have demonstrated how central office administrators in the context of school-community partnership and new small autonomous schools

initiatives operated as boundary spanners between district central offices and schools. In such boundary positions, central office administrators trained their attention both inward on schools' challenges with improving teaching and learning but also outward—scanning their environments for resources within and outside the district that promised to help advance school-community improvement plans (Honig 2006a, 2006b). Burch and Spillane (2004) have demonstrated how central office administrators participated in brokering roles to connect schools with new information and expertise from other schools, the central office, and third-party organizations.

Supporting engagement in "joint work."—Participants in assistance relationships help deepen others' participation in various activities when they focus that participation on what sociocultural learning theorists call "joint work," a "joint enterprise," or an "authentic situation" (Brown et al. 1989; Rogoff 1994; Rogoff et al. 1995; Wenger 1998). Joint work refers to activities that community members value both in the present time and also over time. Joint work in the policy context of interest here could include the overall challenge of improving teaching and learning districtwide, or it could involve more specific endeavors, such as helping elementary school teachers of mathematics to ask questions that push students to develop deep, conceptual understanding of particular mathematical concepts. Whether or not a particular enterprise counts as joint work depends on the extent to which participants in the endeavor view it as meaningful. Accordingly, the concept of joint work serves in part to reinforce the reciprocal nature of the assistance relationships by emphasizing participants' mutual engagement in activities that all parties find valuable. Like the tools discussed above, joint work also calls attention to the importance of structures that focus participation in particular, directed, purposeful, and meaningful ways. Participants in assistance relationships support engagement in joint work by creating opportunities for all participants to co-construct the meaning of particular challenges and the potential fit of given strategies to those challenges (Wenger 1998).

Research on districts underscores the importance of engagement in joint work mainly by negative example. For instance, Finnigan and O'Day (2003) demonstrated that central office mandates that schools work with particular so-called assistance providers or external organizations in their Chicago study generally did not realize their promise of assisting school improvement efforts. The conception of joint work advanced here would suggest that these disappointing results stemmed in part from the top-down focus of the assistance relationships in which the central office prescribed remedies for low-achieving schools. Such a strategy likely failed to engage school, central office, and support organization staff in co-constructing the focus for or terms of the relationship (i.e., the form of joint work that undergirded the relationship).

Use of Evidence from Assistance Relationships and Other Sources

My conceptualization to this point elaborates the characteristics of assistance relationships in which central office administrators (or others on behalf of central office administrators) might engage with school staff. However, as many organizational learning scholars emphasize, a formal organization such as a central office participates in organizational learning when organizational members draw on and use their experiences and other sources of evidence to rethink and perhaps to change how they engage in their work (Fiol and Lyles 1985; Huber 1991; Levitt and March 1988).[5] In this view, learning becomes "organizational" in part when individuals throughout an organization make evidence from experience and other sources a resource for others in the organization.

Such a conception of learning, including but stretching beyond the school–central office assistance relationship, seems important for elaborating central offices as learning organizations. Not all central office administrators can or arguably should be working with schools in the direct teaching and learning assistance relationships described above. For example, some central office administrators manage a host of essential budgetary, human resource, contract management, and other functions supportive of teaching and learning that would not necessarily be enhanced if those central office administrators engaged in direct, intensive assistance relationships with schools around their teaching and learning practices. Central office leaders also engage in various, mainly political, activities in relation to outside groups, including school boards, parents and parent organizations, services agencies, and, increasingly, city mayors. These activities are essential to school-system functioning but are generally outside the assistance relationships. Like any public bureaucracy, central offices support various staff people who maintain the basic operations of the central office itself. For these and other reasons, evidence relevant to the work of these other central office administrators will come in part from the assistance relationships but also from a myriad other sources (Honig and Coburn, forthcoming). How might sociocultural and organizational learning theories apply to the work practice of these central office administrators outside of the school assistance relationships?

Drawing on communities of practice ideas as their main frame, Hubbard, Stein, and Meehan, among others (e.g., Burch and Spillane 2004), address the work practices of these other central office administrators in part by arguing that whole central offices might be conceptualized as nested communities of practice. In this view, central office administrators operate in chains of assistance relationships in which each person assists and is assisted by one or many others in the central office hierarchy. Rogoff might distinguish the direct school assistance relationships as unfolding on an "individual plane" or "interpersonal plane" (i.e., level of analysis); the work of central office administrators less

directly connected to school assistance relationships plays out on a "community plane" (Rogoff 1994). Accordingly, the concepts in the preceding section could serve as an initial set of anchors for how administrators throughout a central office participate in central office administration as a learning organization.

However, particular contemporary realities of working in midsized to large district central offices prompted me to turn to alternate conceptions that might help elaborate the work practices of central office administrators outside the school assistance relationships. For one, there arguably are various models of high-quality teaching and principal leadership available to districts that could anchor assistance relationships with *school-level* practice as the main focus. However, models of high-quality *central office* participation in teaching and learning improvement efforts seem to be in far shorter supply. As noted above, calls for this kind of participation are relatively recent, suggesting that central office administrators may operate in work contexts without colleagues or others who can model this new participation—be they general models or models specific to the subareas (e.g., human resources, budget, community partnerships) stretched across midsized to large central office bureaucracies. Accordingly, calls for central office administrators to participate in assistance relationships focused mainly on central office administrators' practices may not be realistic in contemporary district settings.

Second, central office administrators working outside school assistance relationships face a barrage of experiences, ideas, beliefs, data, and other evidence that might inform their work in ways consistent with the support of teaching and learning. A conception of central offices as learning organizations, then, should elaborate how these other (and arguably all) central office administrators search and select among various sources of evidence—be they from the assistance relationships or elsewhere—and decide whether and how to use them to inform their own participation.

Third, administrators across central offices likely face significant ambiguity regarding basic dimensions of their work practice, such as what evidence they should be tapping, how they should interpret particular evidence, how they might use selected evidence to inform their work, and how they might know whether what they do matters to the strengthening of teaching and learning. Elaborations of central office work practice, then, should deal centrally with how these practitioners manage the ambiguity inherent in their work.

In light of these considerations, I turned to concepts from theories of organizational learning under conditions of ambiguity to help me elaborate dimensions of central office work practice beyond assistance relationships. This strand of learning theory deals centrally with how individuals grapple with participation in various settings when they face limited models of "exemplary" practice, a barrage of evidence that could ground their work (a condition called

"complexity" by these theorists), and significant ambiguity regarding their work processes and outcomes.

In the subsections below I discuss how I have used organizational learning theory to elaborate work practices of these other central office administrators that might support teaching and learning improvement. I argue that main activities for these administrators include searching for particular forms of evidence about how to support teaching and learning improvement and incorporating that evidence into their work practice. Aspects of these processes are quite consistent with certain concepts from sociocultural learning theory, and, where possible, I draw those connections. My main purpose here is not to engage current challenging debates about what counts as the evidence central office administrators and others should use; rather, I aim to reveal how my focal learning theories can elaborate what evidence use processes may involve across different types of evidence. I use the broad term "evidence" to reflect my neutral stance in this paper regarding evidence types.[6]

Search.—Search, also called exploration (Levitt and March 1988), refers to activities by which organizational members, such as central office administrators, scan their environments for various forms of evidence that they might use to inform what they do. In the district policy contexts of interest here, search may involve central office administrators working in assistance relationships with schools to identify school improvement practices or forms of school–central office relationships that might inform the work of other central office administrators. Such evidence might reveal activities at the school level that seem to contribute to high-quality teaching and learning or missing resources that seem to impede school improvement. Evidence may also highlight ways of participating in assistance relationships that seem more or less productive with particular teachers, principals, and schools. Given the detailed, contextual knowledge likely to become available through the assistance relationships, engagement in these relationships appears as a primary potential search strategy—a strategy for bringing in ideas, images, data, examples, and other forms of evidence that could inform how other central office administrators go about their work.

Organizational learning researchers write mainly about other search activities that may also suggest promising search strategies in central office contexts. For example, organizations may bring in staff with experiences new to the organization, such as when district leaders hire into the central office a school principal from a high-achieving school who has firsthand knowledge of potentially exemplary school-level practice that the central office may want to support. An organization also may designate individuals, organizational subunits, and other so-called boundary spanners to venture outside an organization to gather evidence (Huber 1991; Kanter 1988). Search also includes

the unintentional gathering of evidence, such as when a school delivers an unsolicited evaluation of its reform efforts to the district central office.

Incorporation.—Evidence from experience and other sources begins to become a part of what an organization does—what its policies are and how its members think about and participate in particular activities—when it is incorporated or deliberately not incorporated into what some organizational learning theorists call "formal" or "informal" organizational rules, or "any semi-stable specification of the way in which an organization deals with its environment, functions, and prospers" (Levinthal and March 1993, 307). Both organizational learning and sociocultural learning theories address this dimension of learning, although with different terms and emphases. Organizational learning theorists call this dimension of work practice the "encoding" of evidence into organizational memory or an organization's prior knowledge (Argyris 1976; Argyris and Schon 1996; Cohen 1991; Huber 1991; Levitt and March 1988; Miner et al. 2001). Sociocultural learning theorists tend to refer to the "reification" of experience into tools and other forms (Wenger 1998). Regardless of how theorists conceptualize the end result of incorporation, the product of incorporation functions to steer decisions and actions in particular directions.

Organizational and sociocultural learning theorists emphasize different dimensions of the incorporation process and together seem to offer a more complete view of this process than either one alone. For one, organizational learning theorists traditionally have highlighted the use of evidence to ground the development of formal (i.e., written) policies or rules. For example, in a school district central office context, evidence about relative school performance and student income levels districtwide may become incorporated into written central office goals to target assistance at particular schools. These formal policy changes may or may not affect how individuals within central offices actually operate day to day (DiMaggio and Powell 1983; Meyer and Rowan 1977). However, central office administration involves countless daily decisions about formal policy (Hannaway 1989), and formal policies in such settings serve key symbolic and normative functions whether or not they are actually reflected in daily work practices (Feldman 1989). Accordingly, incorporation of evidence into formal policy seems to be an essential dimension of learning in central office contexts.

Sociocultural learning theorists tend to focus on evidence use to ground action or how individuals transform their participation in particular activities. Some refer to the process as appropriation (Rogoff 1994; Rogoff et al. 1995). Through this process, the organizational actor does not necessarily or mainly develop formal rules but "internalizes the ways of thinking endemic to specific cultural practice" (Grossman et al. 1999, 15; see also Holland et al. 1998; Lave and Wenger 1991; Wenger 1998). This form of incorporation too is an essential part of central office contexts. As some educational researchers have

emphasized, much of what counts as policy-in-use may be not formal policies but what practitioners do day to day (e.g., Honig 2004; McLaughlin 1991; Weatherley and Lipsky 1977).

As an example of incorporation as participation, I documented how central office administrators working directly with a group of schools discovered that particular schools were hindered in implementing their school improvement plans in part by the long period of time it took for central office administrators within the human resources department to respond to schools' requests for assistance with screening teaching candidates; they realized that such limited responsiveness stemmed not from the formal organization or policies of the human resources department but from how the administrators within the department viewed their roles in relation to schools and how they conducted their work. In this case, district reform leaders engaged the human resources staff in various conversations and activities that helped them transform how they participated in the activity of screening teaching candidates in ways that were more responsive to schools but that left formal policies unchanged (Honig 2006b).

According to both lines of theory, evidence may shape new worldviews, decision frames, or how individuals and collectives conceptualize problems over time (Brown and Duguid 1991; see also Barley 1986). For example, central office administrators might hear from particular school principals that recent incidents of high teacher turnover stem in part from teachers' perceptions that the district central office does not know about or value teachers' work. This information might be incorporated as a new way of thinking about teacher turnover as a challenge that stems less from school-level conditions than from relationships between teachers and the central office. Central office administrators may not use this framing of the problem to ground immediate decisions but rather retrieve the frame later as they face decisions about how to address teacher supply and quality.

Evidence also may inform commitments, values, or normative conceptions of how individuals, such as central office administrators, should behave (March 1994). For example, experience in the teacher turnover example might be transformed into commitments by particular central office administrators to visit classrooms more often and to establish individual professional relationships with teachers as part of what counts as appropriate central office administration.

Sociocultural learning theorists highlight tool development as a major dimension of assistance and also as a primary form into which evidence may be incorporated or reified (Engestrom and Miettinen 1999; Wenger 1998). Tools, like organizational learning theorists' rules, embody particular evidence. However, the term "tools" is intentionally far more action oriented than the term "rules." Whereas rules may be produced without particular attendant

investments to prompt their use (Feldman 1989), tools typically include specific supports to engage organizational members in particular ideas and practices.

In an example of the reification of evidence into tools from one of my current district studies, central office administrators collected various evidence that they interpreted as suggesting that certain principals were not engaging in effective instructional leadership practices. They could have incorporated this evidence into a central office directive that principals provide more instructional support for teachers. Instead, in partnership with an external support provider, they developed a series of protocols to use with principals when observing teachers' practice. These protocols prompted a principal and participating central office administrators to identify various features of the teaching and learning they observed in classrooms, to compare those features to a rubric describing high-quality teaching and learning, to assess underlying causes for teaching and learning that fell short of their goals, to elaborate how the principal him/herself may be contributing to the observed performance, and to chart specific action steps for improving the principal's practice. The central office administrators in turn were to use the products from those observations to ground their use of another set of inquiry-based tools framed around how they as central office administrators could provide better supports to their principals to deepen their instructional leadership. While both examples—the directive and the inquiry-based protocols—depict using evidence to ground organizational rules, the latter would be more consistent with reification into tools because the products suggest particular activities in which individuals might engage and thereby infuse the evidence with specific opportunities for its use.

Retrieval.—Organizational learning theorists argue that organizational learning includes the ongoing use of incorporated evidence over time—a subprocess some call "retrieval" (Fiol and Lyles 1985). During retrieval, organizational members continually draw on incorporated evidence to guide their subsequent choices and actions (Levitt and March 1988). Retrieval, then, is a sort of internal variation on search and incorporation in that it involves organizational members mining evidence for guides regarding how to respond to new situations and using that evidence in new situations to make sense of whether and how they should reinforce or change it. Unlike the externally focused forms of search noted in the section above, during retrieval, already incorporated information operates as the primary influence on search and incorporation. Sociocultural learning theorists emphasize that retrieval involves organizational members' ongoing participation in joint work as defined above. Through such participation over time, organizational members deepen their ability to engage in particular activities and apply or transfer their developing knowledge and competencies in new settings (Greeno et al. 1993; Grossman et al. 1999; Rogoff et al. 1995). In this view retrieval is not limited to the realm of thoughts or decisions but necessarily extends to actions.

Negotiation and sense making.—Organizations such as district central offices face multiple triggers to search for evidence, but basic limitations of individual attention preclude administrators from responding to all of them (March 1994; van de Ven 1986). In the assistance relationships, in particular, central office administrators almost invariably will surface more evidence than they could actually use. In district offices and other contexts, experience and other forms of evidence rarely present themselves in forms that reveal unambiguously whether and how they should be incorporated into central office work (Honig and Coburn, forthcoming; Kennedy 1982). Even already incorporated experiences are not unambiguous regarding whether and how they should be used in new situations (March and Olsen 1975; van de Ven 1986; van de Ven and Polley 1992; Yanow 1996). In such cases, organizational members, such as central office administrators, must grapple with how to assign value to evidence and with what the evidence suggests about what they should decide and ultimately do. Sociocultural learning theorists similarly argue that reified experience does not come with ready meanings; rather, actors socially construct those meanings (Rogoff et al. 1995; Wenger 1998). Accordingly, negotiation (Wenger 1998) or sense making (Weick 1995) is at the heart of these evidence processes. When people engage in negotiation/sense making, they grapple with whether and how to attend to evidence and, in the process, render evidence meaningful and actionable.

Organizational and sociocultural learning theorists do not disagree that negotiation/sense making is fundamental to learning, but they emphasize different dimensions of and influences on this process. Taken together, these lines of theory elaborate a conception of this process with cognitive, historical, cultural, normative, social, and political aspects.

Organizational learning theorists tend to emphasize that sense making is a process *profoundly shaped by human cognitive limits*. In this view, individuals notice evidence that is relatively easy to understand and can be divided into discrete action steps or phases that individuals believe they can undertake with relative ease and success. Individuals attend to evidence that confirms their competencies and fits their prior understandings (Kanter 1988; Levitt and March 1988; March 1994). In the process, individuals reshape evidence so that it takes on these simpler, familiar, confidence-building forms to increase the likelihood that the evidence will be understood and that organizational members will view it as evidence on which they can take action confidently and successfully (March 1994; Weick 1995).

These cognitive manipulations are *history dependent* in that they are shaped by past experiences, especially recent experiences (March 1994). In this view, a central office administrator is likely to refer to the experiences of schools that he/she visited within the past several weeks when making a host of decisions, even if those schools are not representative of the schools to which

the present decisions pertain. Negotiation is also history dependent in that it involves fitting evidence to individual and collective "prior knowledge"—essentially a body of past evidence that has already been reified and that is retrieved or retrievable for use in negotiation. Individuals typically use evidence that is consistent with prior knowledge to reinforce prior understandings and actions. However, when new evidence conflicts with prior knowledge, then the individual might reject the new evidence, reinterpret the new evidence so it better fits with her prior knowledge, or use the incoming evidence to construct new, basic conceptual understandings. Regardless of the degree to which the resulting understandings fit the prior understandings, "newly constructed knowledge is always an evolved version of an individual's previously held schematic knowledge" (Derry et al. 2000, 48).

Sociocultural learning theorists underscore that negotiation has *cultural dimensions*—some going so far as to define "negotiation" as essentially the active social construction of the meaning of experience in light of long-standing cultural patterns of a community (Cobb and Bowers 1999). Negotiation then involves the cultural processes of coming to understand new evidence in light of long-standing and shared beliefs in particular communities—or, on the flip side, of coming to understand how long-standing shared beliefs relate to new situations. In this view, evidence from experience is not simply taken from one situation to another but is "constituted in circumstances of its use" (Boaler 1999, 276; Greeno and MMAP 1998). New evidence does not appear to decision makers as well defined or established in terms of how it matters and should be used (Derry et al. 2000). Rather, evidence is rendered relevant and usable as decision makers grapple with or negotiate its relevance to their own work and to new situations. Accordingly, some learning theorists sometimes refer to learning as "situated" (Greeno et al. 1993). An emerging literature on organizational improvisation with links to organizational learning theory likewise addresses the importance of culturally embedded meaning structures to negotiation (Steyaert et al. 1996).[7] Organizational members interpret experience by drawing on a "referent" or theme that "both infuses meaning into . . . an action and provides a constraint within which . . . activity unfolds" (Miner et al. 2001, 316; see also Hatch 1997).

Some organizational learning theorists argue that sense making also has *normative dimensions*, in that when individuals interpret evidence, they fit it to particular identity conceptions—what some call "logics of appropriateness"—to guide their decisions and actions. Individuals notice and attend to evidence that they believe fits identities they associate with successful or legitimate professional practice. In the process, they grapple with such normative, identity-based questions as the following: "What kind of central office administrator would I like to be? What kind of evidence is this? How would the central office administrator I would like to be interpret this evidence?" (adapted from

March 1994). Sociocultural learning theorists emphasize that negotiation involves individuals coming to adopt the actions of people whom they view as successful. In other words, they might revise the third question above to read, "What would the central office administrator I would like to be do in this situation?" Taking actions associated with particular forms of participation is fundamental to negotiation, even in instances in which a person does not yet have the capacity for full participation. Adopting particular identities becomes a primary means by which individuals interact with and deepen their participation in the world (Derry et al. 2000; Grossman et al. 1999; Holland et al. 1998; Rogoff et al. 1995).

Organizational learning theorists agree with sociocultural learning theorists that sense making is a *dialogue-rich social process*. Through "generative conversations" (Steyaert et al. 1996, 70), individuals grapple with which schemata, prior knowledge, identities, and other meaning structures should be brought to bear in interpreting evidence and deciding whether and how to act on it (Brown and Duguid 1991; Weick 1995). In fact, some go so far as to suggest that any experience is understood only "in and through a relationship between the actors involved" and "contextualized in the local setting" (Steyaert et al. 1996, 70).

Some organizational learning theorists highlight that sense making should be understood as a *political struggle for power* (Steyaert et al. 1996).[8] In these struggles, individuals and collectives vie with one another to control the meanings or logic brought to bear in making sense of evidence (Ibarra 1993; Kanter 1983). As they navigate these struggles, individuals might band together in coalitions or dedicate resources (e.g., allocate meeting agenda time) to consider some but not other ways of framing experience. Such political struggles are not problematic or barriers to district central office operations that should be minimized, as some reformers urge when they call for less politics in central office administration. Rather, such political conflicts are inherent, unavoidable, and arguably valuable dimensions of negotiation processes. Through political conflicts, central office administrators make certain issues and priorities explicit, marshal evidence and argument to defend positions, attract resources to undergird particular views, and work to convince others of their worldviews—all important contributors to central office decision making and action.

Paradoxes of Learning for District Central Offices

Both sociocultural theory and organizational learning theory suggest that as organizational members, such as central office administrators, engage in the activities discussed above, they will face particular tensions or paradoxes—dual modes of participation that fundamentally conflict but are both essential to learning (Poole and van de Ven 1989; van de Ven and Rogers 1988; Wenger

1998). The challenge for practitioners becomes how to resist reconciling the paradoxes and to pursue the conflicting avenues simultaneously, allowing both to thrive at once. In Steyaert's words, the challenge is "keeping the tensions at a manageable level" to enable decision making and other actions without "solving" or "reconciling" the tension so "both logics can continue to develop and . . . none of the logics are pruned away" to enable their later use (Steyaert et al. 1996, 86). The challenge for researchers becomes how to specify the paradoxes, notice them in practice, and reveal the conditions under which organizational members are more or less able to manage them.

Brokering/boundary spanning: Connecting without overconnecting.—Both sociocultural and organizational learning theorists find that brokers or boundary spanners enable learning when they maintain close relationships with "external" individuals or organizations (applied to this case, schools engaged in the assistance relationships) but also close connections with their home organization (here, the central office); however, these two courses of action sometimes conflict, especially in contexts such as central offices, where time and other resources are limited. Close connections with their home organizations help boundary spanners reinforce their legitimacy with others who may be essential to whether or not other organizational members incorporate particular evidence into their own work practice. Such connections may be especially important when boundary spanners do not have the positional authority for incorporation—that is, to create formal policy or to leverage changes in others' work practices. Such close internal contact also improves boundary spanners' fluency in the norms and language of the central office and its subunits, which is important in translating their experiences and other evidence into forms that other organizational members may actually use. However, if a boundary spanner becomes overly identified with his/her home community, he/she may lose legitimacy with external organizations and fluency in the norms and language of those other communities. As a result, these boundary spanners may have the ability to influence incorporation but lack the evidence to ground such incorporation (Boonstra and Vink 1996; Tushman 1977, Tushman and Katz 1980; van de Ven 1986, 598).

For example, a district in one of my studies hired individuals into the central office to operate as boundary spanners between schools/communities and the central office and to forge new support relationships between the two. These new central office administrators were generally selected for their relatively strong knowledge of and relationships with schools and neighborhoods. However, as central office newcomers, they had relatively weak knowledge of and ties to the central office. I found that these boundary spanners in practice ably engaged schools in assistance relationships (search). However, these individuals lacked the knowledge, relationships, and authority essential to help other central office administrators engage in evidence from their work (in-

corporation/reification, retrieval). Over time, these individuals increased their knowledge of and connections within the central office, but, due to time and other constraints, their knowledge of school/community sites decreased. These individuals then had more resources for incorporation and retrieval but limited evidence on which to base that work (Honig 2006b). The question for boundary spanners then becomes how to maintain connections to both the central office and schools while not overconnecting to either—all in a context in which central office administrators may have limited time and resources to develop the capacity for such dual connections.

Relying but not overrelying on prior knowledge.—A central tension for both groups of learning theorists relates to how organizational members might use but not overuse prior knowledge. Organizational learning theorists refer to this tension as managing both exploration (search) and exploitation (incorporation). Reliance on prior knowledge incorporated into various forms helps organizational members use their experience to deepen their work practice. However, too much reliance on prior knowledge may result in organizational members' failure to notice or act on new evidence and therefore limit their ability to respond to new situations (Levinthal and March 1993; Levitt and March 1988). On the flip side, organizations that overly engage in search may not use their prior knowledge in new situations. March calls the former condition a "success trap" and the latter case a "failure trap" in part to reflect that "successful" and "failing" organizations are particularly susceptible to one pattern or the other (Levitt and March 1988).

Maintaining some diversity and duplication of prior knowledge but not too much.—The more diverse or varied a collective's prior knowledge is, the more likely someone in the group will be prompted and able to search for and incorporate new evidence into their organization's work. However, if the prior knowledge across the organization is too diverse, evidence may become incorporated into one segment of the organization in ways not accessible to most other organizational members (Steyaert et al. 1996). Therefore, some duplication of prior knowledge or shared prior knowledge can aid learning. However, "too much duplication of knowledge within a group may narrow capacity undesirably" (Derry et al. 2000, 56).

Identity structures and tools: Maintaining generativity while also grounding action.—Identity structures and tools enable search when they are generative enough to encourage individuals to search for and notice new evidence and to grapple with how to incorporate that evidence. Some organizational learning theorists refer to these structures as being strategically or deliberately ambiguous. But structures and tools also enable search when they are limiting or relatively unambiguous—directing individuals' attention to certain forms of evidence rather than to others and otherwise helping organizational members manage large volumes of complex and sometimes conflicting messages. Likewise, such

structures enable incorporation when they send a limited number of specific signals about how individuals might make sense of evidence. However, they also enable incorporation when they are flexible enough to maximize the chance that they will help individuals to fit new experience into existing rules and practices (either by reinforcing or changing those rules and practices). Accordingly, identity structures and tools enable learning when they provide some but not too much generativity (Feldman 2000; Wenger 1998).

In sum, ideas from sociocultural and organizational learning theory together help elaborate a conception of learning in school district central offices as involving central office administrators' engagement in particular assistance relationships with schools and in using their experience in these relationships and other evidence as resources to inform central office policies, forms of participation, worldviews, and tools. Interpretation is at the heart of these processes, and managing paradoxes is a fundamental part of the work.

Factors That Help or Hinder Central Offices in Operating as Learning Organizations

Sociocultural and organizational learning theorists also identify several basic conditions that may help or hinder central office administration as learning. First, as previously mentioned, assistance relationships focused on transforming central office administrators' own work practice could provide one substantial source of support, presuming that central office administrators could forge assistance relationships with the features highlighted above. Participants in these assistance relationships might include other central office administrators (Blau 1963; Brown and Duguid 1991; Tharp and Gallimore 1991), members of an intermediary organization or a school reform support organization (Honig 2004), or the focal central office administrators themselves, as they engage in "self-instruction, self-questioning, self-praise, and self-punishment" (Tharp and Gallimore 1991, 87).

Beyond assistance relationships, organizational learning processes also are mediated by prior knowledge and perceived performance levels. With regard to prior knowledge, Cohen and Levinthal (1990) argued that an organization's "absorptive capacity"—its "ability . . . to recognize the value of new external information [or, more broadly, evidence], assimilate it, and apply it . . . is largely a function of the firm's level of prior related knowledge" (128). Prior knowledge may be held by individuals or shared widely across a collective (Wenger 1998). For example, Powell and colleagues revealed that in the context of certain innovating firms—broadly defined as firms continually seeking and using evidence from their environments to enhance their work—such collective prior knowledge was distributed across an organizations' network. Through

alliances with others, organizations may expand the prior knowledge resources they bring to bear on challenges (Powell et al. 1996).

How prior knowledge facilitates central office administrators' engagement with schools in the ways outlined above may depend on the extent to which central office administrators' values, prior experiences, and goals are aligned with those new work practices—what Grossman, from a sociocultural learning perspective, called "institutional congruence" (Grossman et al. 1999) and what Kanter, working in the organizational learning tradition, called "strategic alignment" (Kanter 1988, 201). Other sociocultural theorists refer to congruence as the extent to which settings have similar enough features that individuals will understand how to transfer knowledge across those settings (Pea 1987).[9]

Organizational learning theorists, particularly March and colleagues (Levinthal and March 1993; Levitt and March 1988; March 1991), have elaborated that actual or perceived performance levels shape engagement in search, incorporation, and retrieval. Decision makers in allegedly successful organizations tend to limit their search activities and to overretrieve or overrely on existing evidence even if new evidence might advance organizational goals. These decision makers also are likely to oversample feedback that reaffirms their sense of success—to notice evidence that confirms their competencies and to incorporate new evidence in ways that minimally disrupt their current frames. As noted above, March and others call these tendencies "success traps" (Levitt and March 1988). For example, central office administrators in some of Spillane's studies tended to interpret new evidence as confirming of and consistent with activities in which they were already engaged, although, the researchers argued, the new evidence actually fundamentally challenged their ongoing activities (e.g., Spillane 2000). To the extent that these individuals already perceived themselves as successful, their behavior would reflect the negative influence of perceived success on their performance.

On the flip side, central office administrators' perceptions of organizational failure will tend to fuel search activities but to limit the extent to which central office administrators use new evidence to inform their work practices. These organizations—that is, those in a so-called failure trap—are also more likely to engage in limited search strategies (i.e., to search within a limited range of choices) and to notice evidence that they believe will help them move closer to their performance targets or to create the appearance of improvement rather than to achieve more substantial improvements. For example, studies of how school district central offices respond to high-stakes accountability initiatives reveal various ways that central office administrators in low-performing districts search minimally for improvement strategies and choose those that promise marginal or superficial improvements (O'Day 2002). Such district central offices also take other steps to limit discretion districtwide in an effort both to focus their efforts on meeting minimal targets as well as to improve the

confidence of others (e.g., state and federal officials) that they are "in control" (Malen et al. 1990).

Summary and Implications

In this review I identified key concepts from sociocultural learning theory and organizational learning theory and used them to develop a conceptual framework that elaborates the participation of central office administrators in teaching and learning improvement efforts. I highlight that such participation includes the engagement of central office administrators in particular types of assistance relationships with schools and the use of their experience in assistance relationships and other evidence to inform central office operations over time and across situations. These work practices present tensions or paradoxes. I touched on how assistance relationships and other resources for central office administrators may support these central office work practices.

Like other conceptual frameworks, this framework proposes what central office administrators' participation in implementation may entail. Researchers might use this framework to ground their future studies in particular ways. For example, researchers could use the concepts presented here to design interview and observation protocols and surveys that investigate the extent to which central office administrators' work reflects these concepts and any impacts that seem to be associated with such work. These concepts also offer potentially productive initial codes for data analysis. The helps and hindrances suggest minimal conditions that researchers might use to select strategic research sites—central offices where researchers stand a reasonable chance of observing central office learning in action.

This conceptual framework suggests that researchers take central office administrators and their relationships with schools as the main units of analysis. Such a research focus may present some difficulties for some district and other policy researchers accustomed to treating districts as a context for others' work or as a relatively uniform, impersonal background variable in studies primarily concerned with schools. Central office administrators' participation in these activities likely stretches across days, weeks, and months, as well as various arenas, including formal meetings, school visits, informal conversations, and solitary office work. Accordingly, this framework challenges researchers not only to take central office administrators as the main unit of analysis. It also calls on researchers to adequately embed themselves into central office life in ways that allow them to observe central office administrators' day-to-day work practices and to tap their sense-making processes over time.

When using this framework, researchers should take care to design their studies in ways that do not lead to premature conclusions about central office

success or failure with the learning processes outlined here. As noted above, learning in organizational settings is a developmental trajectory. Especially since many of the conditions that enable learning—including the forms of assistance and opportunities for collective dialogue and negotiation—are typically in short supply in school district central offices, most central offices engaged in such efforts likely will struggle in the process. Central office administration as learning may appear difficult not because it is going poorly but precisely because central office administrators are on the right track. Future studies might advance research in this area specifically by focusing on revealing how central office administrators engage in learning over time to better understand their engagement as a developmental trajectory.

The discussion above also has a number of limitations that researchers might productively address in future studies. First, central office administrators arguably perform a host of relatively routine tasks, such as processing paperwork related to personnel applications. While some of these tasks might be productively accomplished as part of learning processes, the regular and time-sensitive nature of some central office work may not allow for the kinds of practices described here—nor be strengthened by central office administrators' engagement in them. Confirming this view, in research on "innovative" and "productive" private firms, researchers typically observe learning processes within specialized innovating subunits of larger firms while other organizational members engage in more basic organizational management and maintenance functions. Educational researchers might explore for which central office administrators and which specific central office demands the learning processes proposed here seem to be more or less productive.

Second, this framework focuses within central offices to elaborate work practices and highlights some internal conditions that may matter to central office administrators' engagement in those practices. However, central office administrators operate as part of broader systems of actors whose own participation fundamentally shapes central office administrators' participation. For example, my own studies have shown that central office administrators' ability to engage in some of these work practices hinges in part on the readiness of school and community leaders to participate in learning partnerships and the capacity of intermediary organizations to assist with the process (Honig 2003). Others have shown how central office administration depends on federal and state actors and actions (Datnow 2006). Future research might provide more complete guides for practice if they elaborated these fundamental interdependencies.

Third, this framework highlights negotiation and sense making as central to learning and various influences on those processes. But how do central office administrators negotiate the various influences on their sense-making processes in making daily decisions about how to participate in implemen-

tation? Researchers might consider how to design their studies to tap such micro decision-making processes and how they relate to central office administrators' actual practices. In the process, they might specifically consider how central office administrators negotiate the paradoxes fundamental to this work.

Fourth, as some organizational learning theorists have noted, struggles for power and other political tensions are fundamental dimensions of central office administration as learning and basic realities of central office life. However, neither line of learning theory elaborates what such political dimensions involve or how central office administrators might manage them. As research in this area evolves, researchers should consider how to capture those political dimensions of central offices as learning organizations.

This framework sheds light on what it might mean for central office administrators to participate in assistance relationships and other activities that have been associated with deepening participants' engagement in various endeavors. But do district central office administrators who participate in these ways actually fuel teaching and learning improvements? Several researchers of major district studies have purportedly tied district central office actions to learning outcomes by (1) identifying districts with learning achievement gains, (2) documenting broad central office actions in those districts (e.g., the establishment of a vision related to teaching and learning), and (3) concluding that the central office actions mattered to the achievement gains (e.g., Snipes et al. 2002). However, such studies do not advance a strong theoretical or empirical model tying district central office participation to teaching and learning improvements. Despite the substantial body of empirical evidence on which the framework in this article rests, it still mainly offers hypotheses about these connections. Future research might elaborate on this framework not only by examining central office administrators' participation in the ways the framework elaborates but by modeling and investigating empirically how these forms of participation actually relate to teaching and learning in schools.

The primary focus of this article has been to reveal how two learning theories illuminate a common problem of work practice. In the process, I have begun to highlight how these two theories converge and diverge in conceptualizing what learning entails. For example, processes of negotiation in sociocultural learning theory seem analogous to ideas about sense-making processes advanced by organizational learning theorists and others. While "encoding" in early iterations of organizational learning theory focused on information-processing activities distinctly unlike reification, more recent treatments of encoding by some organizational learning theorists seem to reflect the culturally and historically embedded and socially constructed emphasis of reification. The time may be ripe for a fuller explanation of similarities and differences across the two lines of theory. Such an analysis might bring to the

surface other ideas about how concepts from both theories might shed light on central office administrators' work practices.

Ultimately, these theories are not easy terrain. Their main theoretical ideas are conceptually challenging. Advancing scholarship at the intersection of these theories will require researchers to read across and deeply within traditionally distinct bodies of literature, including management and administration; learning sciences; learning within subject areas, such as mathematics and reading; cognitive psychology; and anthropology, to name a few. Researchers interested in taking this road might consider doing so in collaboration with scholars who can assist with their participation in disciplines that are new to them. Researchers might also advance this line of work by taking care to present these challenging theoretical concepts in ways that are accessible across academic disciplines and within practitioner communities.

Further empirical and theoretical development of this framework would strengthen its arguments. In the meantime, the present framework raises a number of questions that central office leaders might consider now in the context of their own practice. First, central office leaders might ask themselves, on a very basic level, To what extent are we as a school system engaging in the development not only of teachers, school principals, and other school-based staff but also of our central office staff as central agents in strengthening teaching and learning districtwide? As noted above, learning processes are people intensive. While a review of professional development opportunities for central office administrators is beyond the scope of this article, my own research and professional work in a state department of education and doctoral leadership programs lead me to argue that such opportunities are limited. Whole industries have built up around the professional development of principals and teachers. But professional development for central office administrators tends to consist of just-in-time workshops on particular procedures (e.g., how to manage changes in use of Title I funds) or EdD programs, where central office administrators participate alongside classroom teachers, school principals, and others interested in this advanced practitioners' degree; such programs with their diverse student bodies do not always address the particularities of central office leadership and far less often consider the school–central office assistance relationships discussed here. How can school district systems, in partnership with institutions of higher education, expand opportunities for central office administrators to organize for and engage in central office administration as learning?

Central office leaders might ask and explore the following question: Do central office administrators in our district have the opportunities to connect with schools and one another in ways that learning demands? My own research studies are replete with comments by central office administrators that they rarely have time to confer with colleagues about basic day-to-day demands,

let alone about the significant challenges that working closely with schools can create. How can central office leaders support opportunities for their staff to engage in such collaboration?

In addition, central office administrators might probe the following point: Are we communicating to our staff that this work is of value, and have we created opportunities for central office administrators to be recognized and rewarded for their work? As the featured learning theories suggest, learning is significantly aided by conceptions/models of appropriate and legitimate practice. However, such models in practice may be in short supply. In both the interim and over the long run, district central office leaders might consider the extent to which they are signaling to staff that the work practices that are a part of learning, as outlined here, are appropriate and legitimate practices, even if they cannot yet be tied with objective changes in student performance.

Finally, central office administrators might ask the following: Do we or will we have access to professionals who can model these new central office work practices? Such professional support seems especially important given the particular demands that assistance relationships place on central office administrators. The ideas about assistance presented above emerged from settings in which some participants in the relationship had the capacity to demonstrate particular forms of participation. Such capacity may not reside in some central offices and may be beyond what some central office administrators can build in the near term. Central office administrators might focus their efforts in the short term on how they can partner with others to bring that expertise into their assistance relationships with schools while they build their own capacity for taking on progressively less assisted forms of participation themselves. Such supports may not become more available absent a strong call from district leaders that creates a demand for these types of supports among school reform support providers, public and private funders, and others who aim to make strategic investments in teaching and learning improvements.

Notes

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1. See, e.g., No Child Left Behind Act of 2001, Title V, Part D, Subpart 4; http://www.gatesfoundation.org/UnitedStates/Education/TransformingHighSchools/Districts/default.htm.

2. Furthermore, some of these studies are examples of what I call "co-incidence" research. In such studies, researchers notice that certain districts have posted gains on various student outcomes, document central office activities underway during the preceding period, and conclude that those activities explain the outcomes. Such studies often do not control for or otherwise address the myriad other explanations for those outcomes or provide a theoretically grounded rationale for tying district actions to the outcomes.

3. The literature on schools as learning organizations has a longer history of drawing on learning research and theories to ground elaborated conceptualizations of schools as learning organizations.

4. Other examples of papers frequently cited in their fields that take this kind of integrative approach (i.e., using strands of multiple theories to frame complex work practice) include Rose 2001; Spillane et al. 2002.

5. I use the term "evidence" to refer broadly to knowledge resources that may come from direct or indirect experience or from other sources, such as district data sets and research studies.

6. For an extended rationale for this approach, please see Honig and Coburn, forthcoming.

7. Scholars debate differences between organizational learning and organizational improvisation (e.g., van de Ven and Miner). However, scholars generally agree that improvisation is a form of learning in which feedback and action are simultaneous (as opposed to other forms of organizational learning from experience in which action follows feedback or experience). For other distinctions between organizational learning and improvisation, see Miner et al. (2001); van de Ven and Polley (1992); Weick (1998).

8. Arguably one of the most significant weaknesses of sociocultural learning theory when it comes to grounding district central office administration is its limited attention to politics and power.

9. To my knowledge, neither line of theory has elaborated how an observer might identify such congruence. Some suggest that congruence is in the eyes of the beholder and depends on whether or not an individual can make a link between prior and new knowledge. However, such an observation creates a tautology—that an individual will link prior and new knowledge if the two are congruent but such knowledge is congruent if the organizational member can link the two. Although such a tautology provides a weak guide for central office administration, nonetheless the foundational importance of prior knowledge to learning warrants its inclusion here and this prompt for further research that better elaborates the connection between prior knowledge and improvement.

References

Aldrich, Howard, and Diane Herker. 1977. "Boundary Spanning Roles and Organization Structure." *Academy of Management Review* 2 (2): 217–30.

Argyris, Christopher. 1976. "Single-Loop and Double-Loop Models in Research on Decision Making." *Administrative Science Quarterly* 21 (3): 363–75.

Argyris, Christopher, and Donald A. Schon. 1996. *Organizational Learning II: Theory, Method, and Practice*. Reading, MA: Addison-Wesley.

Axelrod, Robert, and Michael D. Cohen. 2000. *Harnessing Complexity*. New York: Basic.

Barley, Stephen R. 1986. "Technology as an Occasion for Structuring: Evidence from Observations of CT Scanners and the Social Order of Radiology Departments." *Administrative Science Quarterly* 31:78–108.

Blau, Peter M. 1963. *The Dynamics of Bureaucracy*. New York: Wiley.

Boaler, Jo. 1999. "Participation, Knowledge, and Beliefs: A Community Perspective on Mathematics." *Educational Studies in Mathematics* 40:259–81.

Boonstra, Jaap J., and Mauritis J. Vink. 1996. "Technological and Organizational Innovation: A Dilemma of Fundamental Change and Participation." *European Journal of Work and Organizational Psychology* 5 (3): 351–75.

Brown, Ann, and Joseph Campione. 1994. "Guided Discovery in a Community of Learners." In *Classroom Lessons: Integrating Cognitive Theory and Classroom Practice*, ed. Kate McGilly. Cambridge, MA: MIT Press/Bradford.

Brown, John Seeley, Allan Collins, and Paul Duguid. 1989. "Situated Cognition and the Culture of Learning." *Educational Researcher* 18 (1): 32–42.

Brown, John Seeley, and Paul Duguid. 1991. "Organizational Learning and Communities-of-Practice: Toward a Unified View of Working, Learning, and Innovation." *Organization Science* 2 (1): 40–57.

Burch, Patricia, and James Spillane. 2004. *Leading from the Middle: Mid-Level District Staff and Instructional Improvement*. Chicago: Cross-City Campaign for Urban School Reform.

Cobb, Paul, and Janet S. Bowers. 1999. "Cognitive and Situated Learning Perspectives in Theory and Practice." *Educational Researcher* 28 (2): 4–15.

Cohen, David K. 1982. "Policy and Organization: The Impact of State and Federal Educational Policy on School Governance." *Harvard Educational Review* 52 (4): 474–99.

Cohen, Michael D. 1991. "Individual Learning and Organizational Routine: Emerging Connections." *Organizational Science* 2 (1): 135–39.

Cohen, William M., and David A. Levinthal. 1990. "Absorptive Capacity: A New Perspective on Learning and Innovation." *Administrative Science Quarterly* 35:128–52.

Cole, Michael, and James V. Wertsch. 1996. "Beyond the Individual-Social Antinomy in Discussions of Piaget and Vygotsky." *Human Development* 39 (5): 250–56.

Collins, Allan M., John Seeley Brown, and Ann Holum. 2003. "Cognitive Apprenticeship: Making Thinking Visible." *The Principles of Learning: Study Tools for Educators CD-ROM*. Pittsburgh: Institute for Learning, University of Pittsburgh.

Cook, Scott D. N., and John Seeley Brown. 1999. "Bridging Epistemologies: The Generative Dance between Organizational Knowledge and Organizational Knowing." *Organization Science* 10 (4): 381–400.

Corcoran, Thomas, Susan H. Fuhrman, and Catherine L. Belcher. 2001. "The District Role in Instructional Improvement." *Phi Delta Kappan* 83 (1): 78–84.

Datnow, Amanda. 2006. "Connections in the Policy Chain: The 'Co-construction' of Implementation in Comprehensive School Reform." In *New Directions in Education Policy Implementation: Confronting Complexity*, ed. Meredith I. Honig. Albany: SUNY Press.

Derry, Sharon J., Stephen Gance, Laura Lee Gance, and Mark Schlager. 2000. "Toward Assessment of Knowledge-Building Practices in Technology-Mediated Work Group Interactions." In *Computers as Cognitive Tools*, vol. 2, ed. Susanne P. Lajoie. Mahwah, NJ: Erlbaum.

DiMaggio, Paul J., and Walter W. Powell. 1983. "The Iron Cage Revisited: Institutional

Isomorphism and Collective Rationality in Organizational Fields." *American Sociological Review* 48 (2): 147–60.
Dollinger, Mark J. 1984. "Environmental Boundary Spanning and Information Processing Effects on Organizational Performance." *Academy of Management Journal* 27 (2): 351–68.
Elmore, Richard F. 1983. "Complexity and Control: What Legislators and Administrators Can Do about Implementing Public Policy." In *Handbook of Teaching and Policy*, ed. Lee S. Shulman and Gary Sykes. New York: Longman.
Elmore, Richard F., and Deanna Burney. 1997. *Investing in Teacher Learning: Staff Development and Instructional Improvement in Community School District #2, New York City*. Philadelphia: Consortium for Policy Research in Education.
Engestrom, Yrjo, and Reijo Miettinen. 1999. "Introduction." In *Perspectives on Activity Theory*, ed. Yrjo Engestrom, Reijo Miettinen, and Raija-Leena Punamaki. Cambridge: Cambridge University Press.
Feldman, Martha S. 1989. *Order without Design: Information Production and Policy Making*. Stanford, CA: Stanford University Press.
Feldman, Martha S. 2000. "Organizational Routines as a Source of Continuous Change." *Organization Science* 11 (6): 611–29.
Finnigan, Kara, and Jennifer O'Day. 2003. *External Support to Schools on Probation: Getting a Leg Up?* Philadelphia: Consortium for Policy Research in Education.
Fiol, C. Marlene, and Marjorie A. Lyles. 1985. "Organizational Learning." *Academy of Management Review* 10 (4): 803–13.
Gallucci, Chrysan. 2008. "Districtwide Instructional Reform: Using Sociocultural Theory to Link Professional Learning to Organizational Support." *American Journal of Education* 114 (4): 541–82.
Greeno, James, and MMAP. 1998. "The Situativity of Knowing, Learning, and Research." *American Psychologist* 53 (1): 5–26.
Greeno, James, Joyce Moore, and David Smith. 1993. "Transfer of Situated Learning." In *Transfer on Trial: Intelligence, Cognition, and Instruction*, ed. Douglas Detterman and Robert Sternberg. Norwood, NJ: Ablex.
Grossman, Pamela L., Peter Smagorinsky, and Sheila Valencia. 1999. "Appropriating Tools for Teaching English: A Theoretical Framework for Research on Learning to Teach." *American Journal of Education* 108 (November): 1–29.
Hannaway, Jane. 1989. *Managers Managing: The Workings of an Administrative System*. New York: Oxford University Press.
Hatch, Mary Jo. 1997. "Jazzing Up the Theory of Organizational Improvisation." *Advances in Strategic Management* 14:181–91.
Hightower, Amy M., Michael S. Knapp, Julie A. Marsh, and Milbrey W. McLaughlin. 2002. *School Districts and Instructional Renewal*. New York: Teachers College Press.
Holland, Dorothy, William Lachicotte Jr., Debra Skinner, and Carole Cain. 1998. *Identity and Agency in Cultural Worlds*. Cambridge, MA: Harvard University Press.
Honig, Meredith I. 2003. "Building Policy from Practice: District Central Office Administrators' Roles and Capacity for Implementing Collaborative Education Policy." *Educational Administration Quarterly* 39 (3): 292–338.
Honig, Meredith I. 2004. "Where's the 'Up' in Bottom-Up Reform?" *Educational Policy* 18 (4): 527–61.
Honig, Meredith I. 2006a. "No Small Thing: Managing Innovation in Urban Districts." Paper presented at the annual meeting of the American Educational Research Association, San Francisco, April.
Honig, Meredith I. 2006b. "Street-Level Bureaucracy Revisited: Frontline District

Central Office Administrators as Boundary Spanners in Education Policy Implementation." *Educational Evaluation and Policy Analysis* 28 (4): 357–83.

Honig, Meredith I., and Cynthia E. Coburn. Forthcoming. "Evidence-Based Decision-Making in School District Central Offices: Toward a Research Agenda." *Educational Policy.*

Honig, Meredith I., and Michael A. Copland. Forthcoming. "Reinventing Central Offices to Expand Student Learning." An issue brief of the Center for Comprehensive School Reform and Improvement, Washington, DC.

Honig, Meredith I., and Gina S. Ikemoto. 2006. "Making and Re-making the Link between Research and Practice: The Case of the Institute for Learning." Research Report prepared for the MacArthur Network for Teaching and Learning, Stanford, CA.

Hubbard, Lea, Hugh Meehan, and Mary Kay Stein. 2006. *Reform as Learning: When School Reform Collides with School Culture and Community Politics.* New York: Routledge.

Huber, George P. 1991. "Organizational Learning: The Contributing Processes and the Literatures." *Organization Science* 2 (1): 88–115.

Ibarra, Herminia. 1993. "Network Centrality, Power, and Innovation Involvement: Determinants of Technical and Administrative Roles." *Academy of Management Journal* 36 (3): 471–501.

Kanter, Rosabeth M. 1983. *The Change Masters.* New York: Simon & Schuster.

Kanter, Rosabeth M. 1988. "When a Thousand Flowers Bloom: Structural, Collective, and Social Conditions for Innovation in Organization." *Research in Organizational Behavior* 10:169–211.

Kennedy, Mary M. 1982. *Working Knowledge and Other Essays.* Cambridge, MA: Huron Institute.

Lave, Jean. 1996. "Situating Learning in Communities of Practice." In *Perspectives on Socially Shared Cognition*, ed. Lauren B. Resnick, John M. Levine, and Stephanie D. Teasley. Hyattsville, MD: American Psychological Association.

Lave, Jean, and Etienne Wenger. 1991. *Situated Learning: Legitimate Peripheral Participation.* New York: Cambridge University Press.

Lee, Carol D. 2001. "Is October Brown Chinese? A Cultural Modeling Activity System for Underachieving Students." *American Educational Research Journal* 38 (1): 97–141.

Levinthal, David A., and James G. March. 1993. "The Myopia of Learning." *Strategic Management Journal* 14:5–112.

Levitt, Barbara, and James G. March. 1988. "Organizational Learning." *American Review of Sociology* 14:319–40.

Malen, Betty, Rodney Ogawa, and Jennifer Kranz. 1990. "What Do We Know about School-Based Management? A Case Study of the Literature—a Call for Research." In *Choice and Control in American Education*, vol. 2, *Decentralization and School Restructuring*, ed. William Clune and John Witte. Philadelphia: Falmer.

March, James G. 1991. "Exploration and Exploitation in Organizational Learning." *Organization Science* 2:71–87.

March, James G. 1994. *A Primer on Decision Making.* New York: Free Press.

March, James G., and Johann P. Olsen. 1975. "The Uncertainty of the Past: Organizational Learning under Ambiguity." *European Journal of Political Research* 3:147–71.

Marsh, Julie A., Keri A. Kerr, Gina S. Ikemoto, and Hilary Darilek. 2006. "Developing District Intermediary Partnerships to Promote Instructional Improvement: Early Experiences and Lessons about the Institute for Learning." In *System-Wide Efforts to Improve Student Achievement*, ed. Kenneth Wong and Stacy A. Rutledge. Greenwich, CT: Information Age Publishing.

Marsh, Julie A., Keri A. Kerr, Gina S. Ikemoto, Hilary Darilek, Marika J. Suttorp,

Ron Zimmer, et al. 2005. *The Role of Districts in Fostering Instructional Improvement: Lessons from Three Urban Districts Partnered with the Institute for Learning*. Santa Monica, CA: Rand.

Massell, Diane, and Margaret E. Goertz. 2002. "District Strategies for Building Instructional Capacity." In *School Districts and Instructional Renewal*, ed. Amy M. Hightower, Michael S. Knapp, Julie A. Marsh, and Milbrey W. McLaughlin. New York: Teachers College Press.

McLaughlin, Milbrey W. 1991. "Learning from Experience: Lessons from Policy Implementation." In *Education Policy Implementation*, ed. Allan R. Odden. Albany: SUNY Press.

McLaughlin, Milbrey W. 2006. "Implementation Research in Education: Lessons Learned, Lingering Questions, and New Opportunities." In *New Directions in Education Policy Implementation: Confronting Complexity*, ed. Meredith I. Honig. Albany: SUNY Press.

Meyer, John W., and Brian Rowan. 1977. "Institutionalized Organizations: Formal Structure as Myth and Ceremony." *American Journal of Sociology* 83 (2): 340–63.

Miner, Anne S., Paula Bassoff, and Christine Moorman. 2001. "Organizational Improvisation and Learning: A Field Study." *Administrative Science Quarterly* 46:304–37.

Mintrop, Henrich R. 2003. *Schools on Probation: How Accountability Works (and Doesn't Work)*. New York: Teachers College Press.

Murphy, Joseph, and Phillip Hallinger. 1988. "Characteristics of Instructionally Effective School Districts." *Journal of Educational Research* 81 (3): 175–81.

O'Day, Jennifer A. 2002. "Complexity, Accountability, and School Improvement." *Harvard Educational Review* 72 (3): 1–31.

O'Toole, Laurence J. 1986. "Policy Recommendations for Multi-Actor Implementation: An Assessment of the Field." *Journal of Public Policy* 6:181–210.

Pea, Roy. 1987. "Socializing the Knowledge Transfer Problem." *International Journal of Educational Research* 11 (6): 639–63.

Poole, Marshall S., and Andrew H. van de Ven. 1989. "Using Paradox to Build Management and Organization Theories." *Academy of Management Review* 14 (4): 562–78.

Powell, Walter W., Kenneth K. Koput, and Laurel Smith-Doerr. 1996. "Interorganizational Collaboration and the Locus of Innovation: Networks of Learning in Biotechnology." *Administrative Science Quarterly* 41:116–45.

Rogoff, Barbara. 1994. "Developing Understanding of the Idea of Communities of Learners." *Mind, Culture, and Activity* 1 (4): 209–29.

Rogoff, Barbara, Jackie Baker-Sennett, Pilar Lacasa, and Denise Goldsmith. 1995. "Development through Participation in Socio-Cultural Activity." *New Directions for Child and Adolescent Development* 67 (Spring): 45–65.

Rose, Michael. 2001. "The Working Life of a Waitress." *Mind, Culture, and Activity* 8 (1): 3–21.

Shulman, Lee S. 1983. "Autonomy and Obligation: The Remote Control of Teaching." In *Handbook of Teaching and Policy*, ed. Gary Syles. New York: Longman.

Smagorinsky, Peter, Leslie S. Cook, and Tara S. Johnson. 2003. "The Twisting Path of Concept Development in Learning to Teach." *Teachers College Record* 105 (8): 1399–1436.

Snipes, Jason, Fred Doolittle, and Corinne Herlihy. 2002. "Foundation for Success: Case Studies of How Urban School Systems Improve Student Achievement." MDRC report, Washington, DC.

Spillane, James P. 1998. "State Policy and the Non-monolithic Nature of the Local School District: Organizational and Professional Considerations." *American Educational Research Journal* 35 (1): 33–63.

Spillane, James P. 2000. "Cognition and Policy Implementation: District Policy Makers and the Reform of Mathematics Education." *Cognition and Instruction* 18 (2): 141–79.
Spillane, James P., Brian J. Reiser, and Todd Reimer. 2002. "Policy Implementation and Cognition: Reframing and Refocusing Implementation Research." *Review of Educational Research* 72 (3): 387–431.
Steyaert, C., R. Bouwen, and B. V. Looy. 1996. "Conversational Construction of New Meaning Configurations in Organizational Innovation: A Generative Approach." *European Journal of Work and Organizational Psychology* 5 (1): 67–89.
Supovitz, Jonathan A. 2006. *The Case for District-Based Reform*. Cambridge, MA: Harvard University Press.
Tharp, Roland G., and Ronald Gallimore. 1991. *Rousing Minds to Life: Teaching, Learning, and Schooling in Social Context*. New York: Cambridge University Press.
Togneri, Wendy, and Stephen E. Anderson. 2003. *Beyond Islands of Excellence: What Districts Can Do to Improve Instruction and Achievement in All Schools*. Washington, DC: Learning First Alliance and the Association for Supervision and Curriculum Development.
Tushman, Michael L. 1977. "Special Boundary Roles in the Innovation Process." *Administrative Science Quarterly* 22:587–605.
Tushman, Michael L., and Ralph Katz. 1980. "External Communication and Project Performance: An Investigation into the Role of Gatekeepers." *Management Science* 26 (11): 1071–1985.
van de Ven, Andrew H. 1986. "Central Problems in the Management of Innovation." *Management Science* 32 (5): 590–607.
van de Ven, Andrew H., and Douglas Polley. 1992. "Learning While Innovating." *Organization Science* 3 (1): 92–116.
van de Ven, Andrew H., and Everett M. Rogers. 1988. "Innovations and Organizations: Critical Perspectives." *Communication Research* 15 (5): 632–51.
Vander Ark, Tom. 2002. "Toward Success at Scale." *Phi Delta Kappan* 84 (4): 322–27.
Vygotsky, Lev S. 1978. *Mind in Society: The Development of Higher Psychological Processes*. Cambridge, MA: Harvard University Press.
Weatherley, Richard, and Michael Lipsky. 1977. "Street-Level Bureaucrats and Institutional Innovation: Implementing Special-Education Reform." *Harvard Educational Review* 47 (2): 171–97.
Weick, Karl E. 1995. *Sensemaking in Organizations*. Thousand Oaks, CA: Sage.
Weick, Karl E. 1998. "Improvisation as a Mindset for Organizational Analysis." *Organization Science* 9 (5): 543–55.
Wenger, Etienne. 1998. *Communities of Practice: Learning, Meaning, and Identity*. Cambridge: Cambridge University Press.
Wertsch, James V. 1996. "A Sociocultural Approach to Socially Shared Cognition." In *Perspectives on Socially Shared Cognition*, ed. Lauren B. Resnick, John M. Levine, and Stephanie D. Teasley. Hyattsville, MD: American Psychological Association.
Wertsch, James V., Pablo del Rio, and Amelia Alvarez, eds. 1995. *Socio-Cultural Studies of Mind*. New York: Cambridge University Press.
Yanow, Dvora. 1996. *How Does a Policy Mean? Interpreting Policy and Organizational Actions*. Washington, DC: Georgetown University Press.