

Policy Implementation and Learning: **How Organizational and Socio-Cultural Learning** **Theories Elaborate District Central Office Roles in Complex** **Educational Improvement Efforts**

An Occasional Report

by
Meredith I. Honig
University of Washington

January 2007
(Document O-07-1)



Center for the Study of Teaching and Policy
UNIVERSITY OF WASHINGTON



Center for the Study of Teaching and Policy

A National Research Consortium

UNIVERSITY OF WASHINGTON (lead institution)

STANFORD UNIVERSITY

TEACHERS COLLEGE/COLUMBIA UNIVERSITY

UNIVERSITY OF MICHIGAN

UNIVERSITY OF PENNSYLVANIA

Other active participants in CTP's research and dissemination program include researchers affiliated with Indiana University, Michigan State University, Pennsylvania State University, the University of California at Santa Barbara, the University of North Carolina, and Education Matters, Inc.

CTP studies the way policies and conditions in schools, districts, states, and teacher education institutions shape the quality of teaching and learning in the nation's elementary and secondary schools. The Center pays particular attention to the ways these policies and conditions interact with each other to influence the teaching profession and its practice.

The Center's program of research is carried out in collaboration with various other research organizations, among them other OERI-funded research centers, including the Consortium for Policy Research in Education (CPRE), the Center for Research on Education, Diversity, and Excellence (CREDE), and the Center on English Learning & Achievement (CELA). The Center is affiliated with a variety of professional and advocacy organizations that represent teachers, teacher educators, state and local policymakers, disciplinary groups, and educational reform interests.

This paper was originally prepared for the invitational conference, *Marrying Organizational Learning and Sociocultural Learning Theories: How School Districts "Learn" to Improve Instruction* (Seattle, WA, September 13-14, 2006) sponsored by the Spencer Foundation and the Center for the Study of Teaching and Policy, University of Washington.

The author thanks several people who provided extremely helpful comments on earlier drafts of this paper including: Mike Knapp, Kenneth Leithwood, Morva McDonald, and Bud Mehan. The author first integrated these two theories as part of an analysis of the Institute for Learning (IFL) conducted with Gina S. Ikemoto who provided important feedback on the framework. Lauren Resnick, Nancy Israel, and Mary Kay Stein also provided essential input on the framework as part of the IFL case study.

Suggested Citation: Honig, M.I. (2007). *Policy implementation and learning: How organizational and socio-cultural learning theories elaborate district central office roles in complex educational improvement efforts*. Seattle, WA: University of Washington, Center for the Study of Teaching and Policy.

TABLE OF CONTENTS

Abstract	3
Introduction	4
District Central Office Administration as Learning	5
Search, Encoding, and Retrieval	9
Interpretation Across Search, Encoding, and Retrieval	13
The Centrality of Joint Work	16
Outcomes of Central Office Administration as Learning	18
Conditions that Shape Learning in Organizations	20
Assistance for Central Office Administration as Learning	20
Conditions that Mediate Learning	24
Tensions and Tradeoffs	25
Brokering/Boundary Spanning: Connecting without Over-Connecting	25
Prior Knowledge	26
Identity Structures and Tools: Maintaining Generativity while also Grounding Action	27
Discussion and Implications	27
Directions for Future Research	28
Questions for Practice	29
Endnotes	31
References	32

ABSTRACT

School district central office administrators face unprecedented demands to shift their roles from regulating to supporting schools. Some educational researchers suggest that such roles demand that central offices become learning organizations but generally provide limited empirical or theoretical guides for how a central office might operate as a learning organization. This paper addresses that gap with a review of literature on organizational learning and socio-cultural learning theory. I show that despite their different disciplinary and methodological origins, these strands of learning theory have come to converge on a conception of learning that frames central office administration as a profoundly social process grounded in specific activities and embedded in particular geographic, historical, and institutional settings. These theories also diverge in several ways that reveal how combining the theories in an integrated conceptual framework can provide a fuller picture of central office administration as learning than any one theoretical strand elaborates. I conclude with implications for the research and practice of school district central offices that might help to support student learning districtwide.

INTRODUCTION

School district central offices face unprecedented policy demands to fundamentally transform their relationships with school and community agencies to expand student opportunities to learn. Such policies include those that promote certain types of standards-based curricular reform and accountability, data-based decision-making, new small autonomous schools, and school-community partnerships among others. To varying degrees, these types of policies call on school leaders to build relationships within and beyond their school walls, to collect and use evidence in new ways to foster high-quality learning environments for all students, and otherwise build their capacity to deepen the learning supports they provide to all students—altogether, a multi-dimensional process sometimes called “continuous improvement.” School district central offices in turn must transform themselves from top-down regulatory agencies to agencies that partner with schools in ways that build each school’s capacity for continuous improvement. Are school district central offices up to these challenges?

Research on school district central offices provides limited insight into this question in part because it does not elaborate what central offices’ new school support roles entail and the conditions under which central office administrators might engage in them. For decades, district central offices have appeared only infrequently in educational research. Occasionally central offices emerged in school studies as barriers to implementation of various policies, especially those of interest here. This and related research suggest that political and professional incentives for district central office administrators historically have emphasized top-down command-and-control relationships with schools and not central office-school partnership relationships (Darling-Hammond, 1998; Malen, Ogawa, Kranz, 1990; Walker, 2002; Weiss & Gruber, 1994; Wildavsky, 1996). These incentives may be exacerbated by some contemporary high-stakes accountability policies that emphasize district central office control over school improvement decisions and relatively uniform districtwide reform strategies (Finnigan & O’Day, 2003; Katz, Fine, & Simon, 1997; Malen, et al. 1990; Raywid & Schmerler, 2003).

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 embracing ambitious reform efforts and promise to help guide contemporary research and practice. However, what it means for a public bureaucracy like a school district central office to operate as a learning organization has not been well conceptualized.¹ For example, some researchers suggest that learning organizations are organizations whose members report that they have learned from experience, but such research generally does not clarify what counts as learning from experience. Because these studies rely mainly on respondents’ self-reports regarding whether or not they believe they have learned, they raise significant questions about construct validity.

More recently, a few researchers have begun to improve on past research by drawing on specific theories of learning to elaborate what school district central offices do when they operate as learning organizations. Some of these educational researchers use socio-cultural learning theories from anthropology, psychology, and the learning sciences—especially communities of practice theory (e.g., Burch & Spillane, 2004; Hubbard, Meehan, & Stein, 2006). A few others rely on theories of learning and related ideas from the fields of administration and management, decision-making, and organizational sociology, generally called “organizational learning” theory (e.g., Honig, 2003, 2004, 2004. See also, Hannaway,

1989). While researchers tend to apply theories of socio-cultural learning or organizational learning singly, these lines of theory have actually developed in recent years in ways that have increased their points of convergence. The promise of these theories and their growing consensus about what learning in social and organizational settings entails suggests that a look across the two traditionally distinct theoretical traditions might facilitate cross disciplinary dialogue essential to strengthening the research and practice of district central offices as learning organizations.

This paper builds on these policy and research developments and starts from the following premises: (1) contemporary policy demands on district central offices to become supporters of what I and others call schools' continuous improvement reflect research-based ideas that if fully implemented could expand student learning throughout school district systems; (2) calls for district central offices to operate as learning organizations hold great promise for advancing central office reforms that might enable implementation; (3) the relatively recent convergence of ideas within traditionally distinct lines of learning theory may provide important conceptual grounding for the practice and research of such central office reforms. Accordingly, in this paper I draw on literature from both organizational learning and socio-cultural learning theories to highlight what organizations do when they operate as learning organizations and the conditions that help or hinder them in the process. I show that despite their different disciplinary origins, these strands of learning theory have come to converge on a conception of learning as a profoundly social process grounded in specific activities and embedded in particular geographic, historical, and institutional settings. These theories also diverge in several ways that reveal how combining the theories in an integrated conceptual framework can provide a fuller picture of learning in organizational settings than any one theoretical strand elaborates. I conclude with implications for the research and practice of school district central offices that might help to support student learning districtwide.

DISTRICT CENTRAL OFFICE ADMINISTRATION AS LEARNING²

This framework links two traditionally distinct lines of theory about learning. Theories of "organizational learning from experience" (also known as "trial-and-error" learning or learning under conditions of ambiguity) emerged within the cognitive sciences as applied to administration and management. The empirical studies at the root of this work traditionally drew on the experience of successful or innovating private firms to link particular activities with positive performance outcomes including survival (e.g., March & Simon, 1958). This line of theory also stems from computer simulations of decision-making over time and the relationship between particular types of decisions and decision-making processes to performance outcomes. In recent years, organizational learning theory has evolved in conjunction with the New Institutionalism in Sociology and theories of sense-making to emphasize decision-making as a process of learning that unfolds in social settings as decision-makers grapple with how to fit new information into their prior knowledge in institutional environments—contexts rich in norms, values, and other influences on decision-makers' interpretations of their experience (Levitt & March, 1988, March, 1994, van de Ven & Polley, 1992; Weick, 1995, 1998).

The empirical base for "socio-cultural learning theories" too emerged primarily outside formal educational settings. Empirical findings at the root of this theory reveal the features of environments

across settings that seem to support individuals' engagement in particular activities at deepening levels of expertise. Some contributors to this line of theory have been anthropologists working to understand the communication and transfer of cultural activities and other patterns across generations and groups, sometimes within what theorists call "communities of practice" (e.g., Lave, 1993; Lave & Wenger, 1991; Rogoff, 1994; Rogoff, Baker-Sennett, Lacas, & Goldsmith, 1995; Wenger, 1998) or in the context of "activity" (e.g., Engestrom & Miettinen, 1999). Consistent with some recent theoretical reviews (e.g., Derry, Gance, & Schlager, 2000; Tharp & Gallimore, 1988), I also include in this camp theoretical ideas that emerged relatively recently from the learning sciences and cognitive psychology that frame learning less as an individual phenomenon that unfolds within individuals' minds and more as a profoundly social process through which groups of individuals work to integrate new knowledge into their ongoing practices; these processes too are culturally embedded and history dependent (e.g., Cobb & Bowers, 1999; Pea, 1987; Resnick, 1991).

These theories provide promising initial anchors for conceptualizing central office administration as learning. As demonstrated in my initial attempts to use these theories in studies of urban school districts, these conceptions of learning seem consistent with policy demands on central offices to work in partnership with schools to build their capacity for continuous improvement (Honig 2003, 2004, Honig & Ikemoto, 2006). In particular, these theories conceptualize these central office challenges as a social and political process of grappling with whether and how to use information about school-level conditions, experiences, and decision to inform how the central office operates with the specific goal of supporting schools' continuous improvement processes. No one theory or merger of theories can capture the whole of central office administration which likely includes a host of more mundane individual tasks and crisis management activities not easily amenable to the policy demands highlighted above nor the learning activities highlighted below (e.g., Hannaway, 1989). This disclaimer seems especially important given that the learning theories featured here have developed in organizational sectors quite different from public education or district central offices which likely have some organizational and institutional idiosyncrasies. Nonetheless, these theories begin to elaborate activities consistent with particular policy demands and seem to offer one set of guides for a strand of central office administration that educational research is only beginning to address.

In the following subsections, I argue that organizational learning in central offices involves district central office administrators working in partnership with schools to collect information about schools' conditions, decisions, and actual experiences (search); using that information (or deliberately deciding not to use that information) to influence how the central office is organized and operates in ways that aim to advance schools' decisions and improve implementation (encoding/reifying); and continually drawing on that encoded information to ground their work. Interpretation or opportunities to negotiate the meaning of the information is central to each activity and has cognitive, historical, cultural, normative, social, and political dimensions and is profoundly shaped by central office administrators' prior knowledge and perceived performance levels. All three arenas of activity unfold in the context of "joint work" or pressing problems of practice considered important or valuable within local districts. I also draw on both theories to elaborate the outcomes that tend to result from these learning processes and the conditions that help and hinder learning in organizational settings that seem particularly relevant to district central offices. Theory, mainly organizational learning theory, suggests that central office administrators will face particular tradeoffs when it comes to making sense of experience to advance

their school-support efforts. I highlight the management of these tradeoffs as part-and-parcel of district central office learning. For an overview of these dimensions of learning, please see Figure 1. For a summary of the complementary and divergent contributions of each line of theory to this conceptualization, please see Table 1.

Figure 1. An integrated conception of learning in organizations³

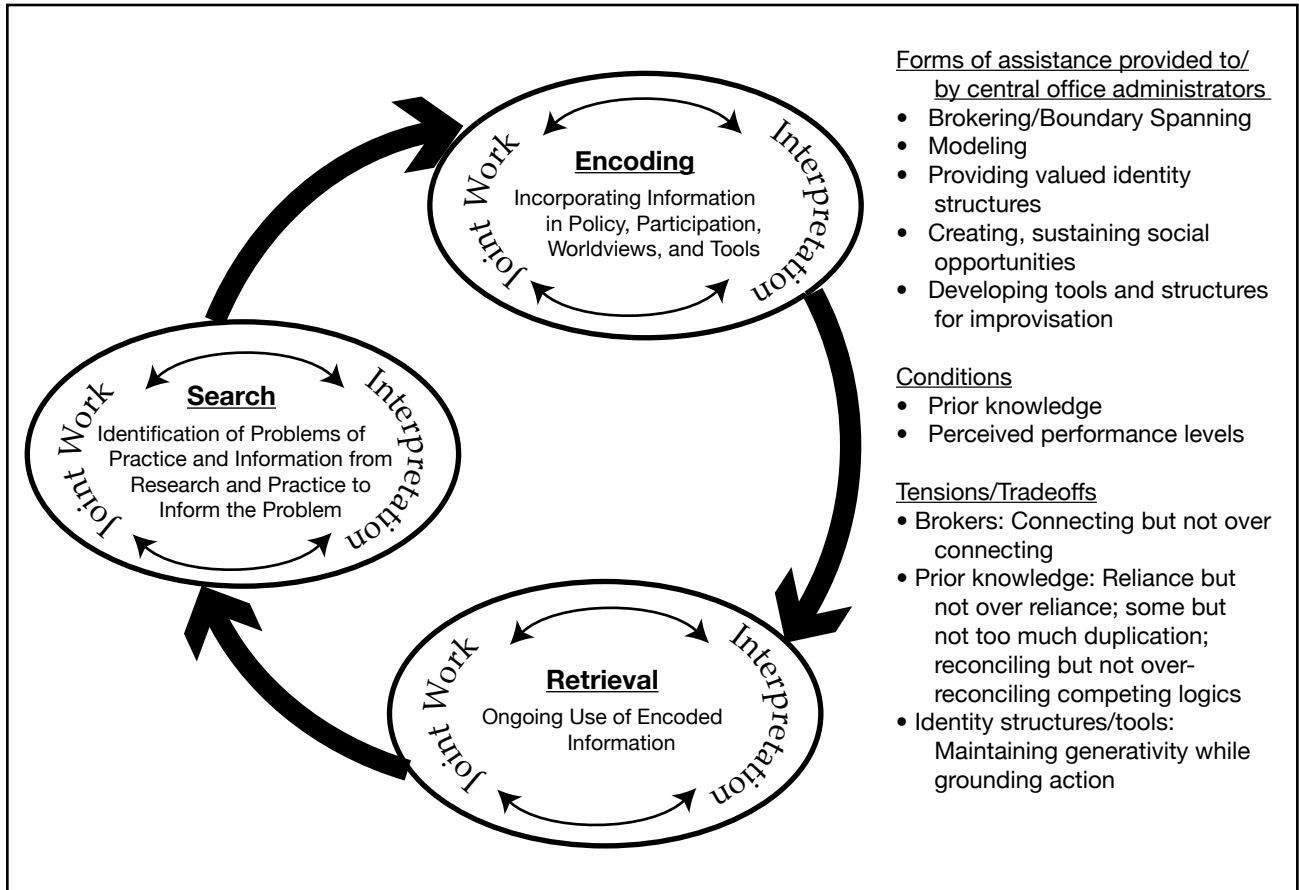


Table 1. Contributions of Organizational Learning and Socio-cultural Learning Theories to Understanding District Central Offices as Learning Organizations

	Organizational Learning	Socio-cultural Learning Theory (with ideas from theories of Situated Cognition)
Primary Authors (Selected)	Stephen Barley Martha Feldman James March Anne Miner Andrew van de Ven Karl Weick	Paul Cobb James Greeno Jean Lave Roy Pea Barbara Rogoff Etienne Wenger
Origins and Evolution	Cognitive sciences applied to decision-making. Began with a conceptualization of learning as the relatively mechanistic transfer of information. More recently evolved in conjunction with the New Institutionalism in Sociology to elaborate social and normative dimensions of decision-making at the heart of learning.	Anthropologists examining the transfer of cultural practices across generations and groups. Learning scientists and psychologists whose theories of learning have recently evolved from conceptualizing learning as an individual cognitive phenomenon to a social process that is culturally and historically embedded.
Overall foci	<ul style="list-style-type: none"> • Thinking, decision-making. Generally does not elaborate a theory of participation • The flow of information in learning: important in this context because some say bureaucratic activities center on transactions and exchanges around information. 	<ul style="list-style-type: none"> • Acting, doing, participating. Generally does not elaborate a theory of decision-making. • The development of practices in learning: important in this context because the day-to-day participation of central office administrators in reform very much <i>is</i> the central office and central office policy for schools
Search	Elaborates on which information or ideas come to the attention of central office administrators	Generally does not elaborate search but rather focuses on situations where a particular activity has already been chosen as a focal point for a community
Encoding/Reification: Primary focus	<ul style="list-style-type: none"> • Formal rules • Decisions • Worldviews/ frames for decision making 	<ul style="list-style-type: none"> • Participation • Tools • Worldviews/ frames for decision making

Retrieval	Decision-oriented	<ul style="list-style-type: none"> • Action- or practice-oriented • Sometimes addressed as “transfer”
Interpretation, Influenced by...	<ul style="list-style-type: none"> • Human cognitive limits • Prior knowledge • Power, politics, and legitimacy <p>Results in biases and tensions generally not acknowledged by socio-cultural learning theorists</p>	<ul style="list-style-type: none"> • Long-standing cultural patterns of a community through which they socially construct meaning • Prior knowledge/ ability to participate in particular joint enterprises • Activity setting • Joint work
Joint work	Not a main focus	<ul style="list-style-type: none"> • Primary activity through which learning occurs • Main influence on interpretation
Complexity and ambiguity	Explores how complexity and ambiguity, fundamental dimensions of bureaucratic life, shape learning.	Generally does not address ambiguity.

Search, Encoding, and Retrieval

When organizational members such as school district central office administrators engage in organizational learning they participate in three broad activities related to the management of information: search, encoding, and retrieval. I elaborate on these activities in each of the following sub-sections.

Search

Search, generally highlighted by organizational learning theorists, refers to activities by which organizational members look outside their organization or their immediate environments for information they might use to inform what they do often with the intention of improving their performance or of increasing their chances of survival (e.g., organizational persistence, maintaining individual employment or status within the organization). In the district policy contexts of interest here, search may involve central office administrators identifying information from practice—e.g., information about neighborhood conditions, schools’ educational improvement plans, and schools’ actual experiences with implementation—expressly to inform their own decisions about how to build on such local knowledge to strengthen school performance.

Search, also called exploration (Levitt & March, 1988) and knowledge acquisition (Huber, 1991), includes a variety of processes by which information enters an organization such as a school district central office. Individual organizational members might identify and bring information with them into the organization. For example, an organization might hire new staff who have particular information as part of their knowledge base, such as when a district central office hires into the central office a school principal from a high-achieving school who has first-hand knowledge of potentially exemplary school-level practice. An organization may also designate individuals, organizational subunits, and other

so-called “boundary spanners” to venture outside an organization to gather information (Huber, 1991; Kanter, 1988). Search also includes the unintentional gathering of information such as when a school delivers an unsolicited evaluation of its school reform efforts to the district central office.

Encoding

New information begins to become a part of what an organization does—what its policies are and how its members think about and participate in particular situations—when it is encoded or deliberately not encoded in what some 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 & March, 1993, p. 307). Some refer to this concept as the transferring of information into organizational memory or into an organization’s prior knowledge (Argyris, 1976; Argyris & Schön, 1996; Cohen 1991; Huber, 1991; Levitt & March, 1988; Miner, Bassoff, & Moorman, 2001) or reifying information (Wenger, 1998). Regardless of how theorists conceptualize the end result of encoding, the product of encoding functions as a constraint on future decisions and actions—steering decisions and other actions in particular directions.

The two lines of theory both diverge and converge when it comes to conceptualizing what encoding entails. Organizational learning theorists traditionally have highlighted the encoding of new information into formal (i.e., written) rules or decisions. For example, organizational learning scholars have revealed how private firms do or do not adopt a specific new technology as part of its formal operational structures or change their written organizational policies to accommodate new demands. In a school district central office context, new information about relative performance and student income levels districtwide may become encoded into written central office goals to target assistance at particular schools. In ways consistent with distinctions some policy researchers draw between adopting an agenda and actually implementing that agenda, these formal changes may or may not penetrate deeply enough to affect how individuals within organizations actually operate day-to-day (DiMaggio & Powell, 1983; Meyer & Rowan, 1977). However, because agenda setting is such an important dimension of central office life and because central office administration is riddled with countless decisions about formal rules, this focus on the development of agendas and formal policies seems an essential dimension of learning in central office contexts.

Socio-cultural learning theorists focus on *action*. In their view, encoding information involves the transformation of participation—what individuals actually *do* day-to-day. For some theorists, this process specifically involves an individual as part of a collective moving along a developmental trajectory, and, in the process, transforming his/her identity and expertise from peripheral to full participation in a particular endeavor. Some refer to the process as appropriation. Through this process, the organizational actor does not simply develop rules but “internalizes the ways of thinking endemic to specific cultural practice” (Grossman, Smagorinsky, & Valencia, 1999, p.15. See also, Holland, Lachicotte, Skinner, & Cain, 1998; Lave & Wenger, 1991; Wenger, 1998). This form of encoding too is an essential part of central office contexts. As some district researchers have emphasized, much of what counts as district policy in use may be not formal policies but what central office administrators do day-to-day (e.g., Honig, 2004. For a more general elaboration of this view of policy as individual action and decisions, see McLaughlin, 1991; Weatherley & Lipsky, 1977).

As an example of encoding 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 by the long period of time it took for central office administrators within the human resources department to respond to school 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 administrators worked to encode that information by engaging the people within human resources 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 (Honig, 2006).

According to both lines of theory, new information may be stored in what some theorists call “worldviews”, decision “frames”, or how individuals and collectives conceptualize problems (Brown & Duguid, 1991; see also Barley, 1986). For example, central office administrators might receive information from particular schools that recent incidents of high teacher turnover stem in part from teachers’ sense that the district central office does not know about or value their own individual work. This information might be stored 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—a framing of the problem that might later be retrieved in conceptualizing ways to address the problem. Encoding in both theories also includes the storage of information into commitments, values or normative conceptions of how individuals such as central office administrators should behave. In the teacher turnover example, such information might be saved as 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.

Socio-cultural learning theorists specifically highlight “tools” as a primary form into which new information may be encoded or, in their words, “reified” (Engestrom & Miettinen, 1999; Resnick, 1991; Wenger, 1998). Tools, like organizational learning theorists’ rules, too are embodiments of particular information or the form in which it is stored. However, the term “tools” is intentionally far more action oriented than the term “rules.” Theorists emphasize that tools are rules that are to be used by organizational members and typically have built into them specific supports to engage organizational members in activities that may advance some aspect of organizational life.

For example, a district central office might encode information that elementary school teachers need more training in reading instruction in the form of a central office directive that these teachers complete a certain number of in-service hours in reading as a qualification for their employment. Another district central office might reify the same information into a series of professional development materials (e.g. curriculum, case studies, and videos) and activities (e.g., classroom observations, model lessons) through which they, school principals, and teachers observe and practice engaging in model reading instruction and support for such instruction. While both examples depict moving information into organizational rules, the latter would be more consistent with reification into tools because the new forms of the information suggest particular activities in which individuals might engage—thereby infusing the information with specific opportunities for its use.

Across all forms of encoding, theorists seem to agree that the information has been encoded when it becomes a part of the collective. Such collective changes are not simply the sum total of individual instances of encoding but a new set of preferences, practices, capabilities, and worldviews (Leithwood & Louis, 1998; March & Olsen, 1975; Vaughn, 1996). Some refer to these changes as reform of “collective wisdom” (Argyris & Schön, 1996), “collective mind” (Wenger, 1998) or “organizational rules” (March, 1994). In this view, encoding at the level of the collective does not simply involve using information to influence individual decisions at discrete points in time but using information to change the way problems are conceptualized and sets of decisions are made across collectives over time (see also Moore, 1988; Rochefort & Cobb, 1994).

As an example of a discrete decision, a superintendent might use a study of school-community partnerships to decide that he/she will help a cluster of schools work with community agencies to enhance the learning supports students receive after school; however, in general, the idea that the central office should help with school-community partnerships does not extend to other decision-makers and decisions. By contrast, the study might impact central office decision-makers’ more general sense of how to respond to high poverty and low achievement to include both school and community resources and they might draw on that new understanding in making a variety of decisions over time. In that latter case, the central office administrators may have fundamentally changed their sense of how to respond to a particular set of challenges and then this example would count as an instance of encoding at the level of the collective.

Retrieval

I noted above that socio-cultural learning theory uses the term “tool” to emphasize the importance of the active use of new information as part of the learning process. However, organizational learning theorists also address the use of encoded information over time by including retrieval as a fundamental dimension of organizational learning (Fiol & Lyles, 1985). Retrieval refers to processes by which organizational members continually draw on information from experience, encoded in various forms, to guide their subsequent choices and actions (Levitt & March, 1988). Retrieval then is a sort-of internal variation on each process. That is, retrieval is a form of search in that it involves organizational members mining already encoded information for guides regarding how to respond to new situations. Such responses may influence individual actions at particular times or lead to new forms of encoding. However, during retrieval, already-encoded information operates as the primary influence on search and encoding.

Many organizational learning theorists describe retrieval as a largely cognitive process of drawing on encoded information, sometimes in the social context of others. For socio-cultural learning theorists, retrieval involves organizational members’ ongoing participation in particular activities. Through their ongoing participation, organizational members deepen their ability to engage in particular activities and apply or transfer their developing knowledge and competencies in new settings (Greeno, Moore, & Smith, 1993; Grossman et al., 1999; Pea, 1987; Rogoff et al., 1995). In this view retrieval is not limited to the realm of thoughts or decisions but necessarily extends to actions.

Interpretation Across Search, Encoding, and Retrieval

Search, storage, and retrieval are far from mechanistic processes. For example, organizations such as district central offices face multiple triggers to search for information but basic limitations of individual attention preclude administrators from responding to all of them (March 1994; van de Ven, 1986). Central office administrators may face significant ambiguity regarding whether and how particular search activities will contribute to organizational goals. Likewise, new information may be encoded or reified as rules or tools directly as when a federal requirement for districts to disaggregate student performance data becomes a part of a district central office's activities. But, more often in the literature and arguably in districts and research communities, new information rarely presents itself in a form that suggests whether or how it should be stored (Yanow, 1996). Even when information is encoded those encoded forms generally are not unambiguous regarding whether and how they should be used in new situations (March & Olsen 75; van de Ven, 1986; van de Ven & Polley, 1992). Socio-cultural learning theorists similarly argue that reified information does not come with ready meanings but rather actors socially construct those meanings in light of present situations (Rogoff et al., 1995). Accordingly, interpretation is at the heart of search, storage, and retrieval.

Simply put, interpretation is the process by which organizational members grapple with whether and how to attend to information and, in the process, render information meaningful and actionable. Some scholars call interpretation "negotiation" (Wenger, 1998) or "sensemaking" (Weick, 1995). Such processes are fundamental for organizational learning theorists because in their view individuals in complex systems often encounter more information than they can realistically manage. Likewise, in complex systems, information may be ambiguous regarding its relevance and meanings. In such cases, decision-makers must grapple with how to assign value to particular pieces of information and with what that information suggests about what organizational members should decide and ultimately do. For socio-cultural learning theorists, the processes above cannot be divorced from interpretation because information only has meaning if individuals and collectives render it meaningful by socially constructing it through interpretive processes (Rogoff et al., 1995; Wenger, 1998).

Organizational learning theorists and socio-cultural theorists do not disagree that interpretation is fundamental to learning but they place their emphases on different dimensions of (and influences on) interpretation. Taken together, both lines of theory elaborate a conception of interpretation as involving cognitive, historical, cultural, normative, social, and political dimensions.

To elaborate, many of the organizational learning theorists highlighted here come from rich traditions in the cognitive sciences as applied to decision-making in organizations. Perhaps not surprisingly, then, they tend to emphasize interpretation as a process of human cognition that is profoundly shaped by human cognitive limits. In this view, individuals notice information that is relatively easy to understand and can be divided into discrete action steps or phases that decision-makers believe they can undertake with relative ease and success. Individuals attend to information that confirms their competencies and fits their prior understandings (Kanter, 1988; Levitt & March, 1988; March, 1994). Through interpretation individuals reshape information so that it takes on these simpler, familiar, confidence building forms to increase the likelihood that the information will be understood and that organizational decision-makers will view it as information on which they can take action confidently and successfully (March, 1994).

These cognitive manipulations of information are *history dependent* in that they are shaped by past experiences. Research on how past experiences shape prior knowledge highlights that individuals are likely to favor information that they experienced more recently than other information (March, 1994). In this view, a central office administrator who has just managed a grant program that developed an extensive centralized monitoring system of curriculum delivery is particularly likely to apply that same framework for monitoring the next program to which he/she attends, regardless of how appropriate or useful such a system might be to the next program.

Interpretation is also history-dependent in that it involves fitting information to individual and collective prior knowledge—essentially a body of information that has already been encoded/reified and that is retrieved or retrievable for use in interpretation. Information that is somehow consistent with prior knowledge is interpreted to reinforce prior understandings. However, when the new information departs from or conflicts with prior knowledge then the decision maker might reject the new knowledge, reinterpret the incoming information so that it fits better with her beliefs, or use the incoming information to construct new, basic conceptual understandings. Regardless of the degree to which the resulting schema fit the prior schemas, “newly constructed knowledge is always an evolved version of an individual’s previously held schematic knowledge” (Derry et al., 2000, p. 48).

Organizational learning theorists tend to emphasize how prior knowledge accumulates in decision frames and influences interpretation in the context of decision-making. By contrast, socio-cultural theorists typically address these processes in relation to how individuals transform their participation in particular activities. In the latter view, prior knowledge is embodied in activities in which individuals and groups are more or less able to engage centrally. New information or situations are interpreted in light of what organizational members already are able to do.

Despite their emphases, as noted above, theorists in both traditions acknowledge that prior knowledge may accumulate in various forms. For example, prior knowledge becomes embedded in formal tools or rules that take tangible and often written form (sometimes called explicit knowledge) such as central office policies. Prior knowledge also may be tacit or embedded in day-to-day understandings and routines/practices. Some theorists argue that prior knowledge in the form of tacit knowledge is the primary filter through which organizational members interpret information and that learning at its core “involves the mobilization of tacit knowledge and the fostering of its interaction with implicit knowledge” (Lam, 2002, p. 69; Smagorinsky, Cook, & Johnson, 2003).

Socio-cultural learning theorists underscore cultural dimensions of interpretation – some going so far as to define interpretation as the active social construction of the meaning of new information in light of long standing cultural patterns of a community (Cobb 2003). In this view, information about research or practice is not simply taken from one situation to another but is “constituted in circumstances of its use” (Boaler, 1999, p. 276; Greeno & MMAP, 1998). In other words, new information does not appear to central office administrators as well defined or established in terms of how it matters and should be used (Derry et al., 2000). Rather, information is rendered relevant and useable as central office administrators grapple with or negotiate its relevance to their own work and to new situations. Interpretation then does not mainly involve human cognitive processes but cultural processes of coming to understand new information 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 or might be transferred to new

situations. To help capture this emphasis on interpretation through the lens of local community values, learning theorists sometimes refer to learning as “situated” (Greeno et al., 1993).

An emerging literature on organizational improvisation with links to organizational learning theory also addresses the importance of meaning structures to interpretation. In this view, learning and improvisation are both conceptualized “as a joint conversation event where new configurations of meaning are constructed” (Steyaert, Bouwen, & Looy, 1996, p.67). Improvisation as a form of learning⁴ occurs through organizational members engagement with a “referent” or theme that “both infuses meaning into... an action and provides a constraint within which... activity unfolds” (Miner et al., 2001, p. 316; see also Hatch, 1997). These referents and themes seem to resemble socio-cultural theorists’ tools in the sense that referents like tools are structures that imbue activities with meaning. Also like tools, themes do not dictate the form a given interpretation should take but rather shape the parameters within which a set of responses will make more or less sense.

Some organizational learning theorists argue that interpretation also has normative dimensions in the sense that when individuals interpret information they fit new information to or otherwise call on particular identity conceptions—what some call “logics of appropriateness”—to guide their decisions. In this view, as part of interpretation individuals notice and attend to particular information 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: “Who would I like to be? What kind of information is this? How would the person I would like to be interpret this information/situation?” (adapted from March, 1994). For example, a school district central office may have limited capacity for addressing math achievement of English language learners. Nonetheless, if a superintendent notices that a colleague whom he/she considers “successful” has taken on this issue, then he/she may be more likely to attend to information related to math achievement of English language learners or to interpret student performance data as pointing to the importance of addressing mathematics achievement for these students. In this view, a decision-maker’s main goal in interpreting information is not necessarily to interpret information “accurately” or to produce greater organizational efficiencies. Rather, a decision-maker aims to increase his/her legitimacy and the extent to which he/she is acting appropriately.

Socio-cultural learning theorists too highlight that identity matters as part of the interpretation process. However, they emphasize that interpretation involves individuals coming to adopt the *actions* of people whom they view as successful. In this view, as in organizational learning theory, interpretation involves organizational actors asking, “What would a successful central office administrator *do* in this situation?” Thus these theorists emphasize the importance of not only asking the questions but taking the actions associated with particular forms of participation even if that person does not yet have the level of competency to fill those shoes. In this view, a central office administrator who has had limited experience coaching a school in using student performance data to develop a school improvement plan might advance his/her competency in that area by connecting with a more experienced coach and apprenticing with him/her. As part of the apprenticeship, the less experienced central office administrator would have opportunities to participate in the role of coach to some degree, regardless of his/her ability to provide high-quality coaching. Initially, assistance from the mentor would be significant, with the mentor perhaps occasionally substituting for the less-experienced central office administrator to allow him/her opportunities to observe deeper forms of participation. Over time, as the mentee develops his/her competencies, he/she would receive gradually less assistance. This view of interpretation as

an action associated with adopting particular identity is fundamental to socio-cultural theorists' view of learning as a "developmental trajectory that, for each individual, involves attaining membership, identity, and status within chosen communities of practice" (Derry et al., 2000, p. 33; see also Grossman et al., 1999; Rogoff et al., 1995). In this view, participation in different roles becomes a primary means by which individuals interact with and deepen their participation in the world (Holland et al., 1998).

Socio-cultural learning theorists and some organizational learning theorists⁵ highlight that interpretation is a *dialogue-rich social process*. Through "generative conversations" (Steyaert et al., 1996, p. 70; See also Brown & Duguid, 1991; Weick, 1995) individuals grapple with which schemas, prior knowledge, identities, and other meaning structures should be brought to bear in interpreting the information and deciding whether and how to act on it. In fact, some go so far as to suggest that any information or practices—including those long encoded into organizational rules—are understood only "in and through a relationship between the actors involved" and "contextualized in the local setting" (Steyaert et al., 1996, p. 70).

One of the most significant weaknesses of socio-cultural learning theory when it comes to grounding district central office administration is its lack of attention to politics and power. Organizational learning theory seems particularly relevant to district central office settings in this regard in that some organizational learning theorists highlight that the interpretive processes involved in search, encoding, and retrieval should be understood as *political struggles for power* (Steyaert et al., 1996). In these struggles, individuals and collectives vie with one another to control the meanings or logics brought to bear in interpreting information (Ibarra, 1993; Kanter, 1983). As they negotiate these struggles, individuals might band together in coalitions or dedicate resources (e.g. allocate meeting agenda time) to consider some but not other interpretations. In this view, 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 an inherent, unavoidable, and arguably valuable dimension of interpretive processes. Through political conflicts, central office administrators make certain issues and priorities explicit, marshal evidence and argument in defense of their positions, attract resources to under-gird particular views, and work to convince others of their world views—all important contributors to central office decision-making and action.

The Centrality of Joint Work

Socio-cultural learning theorists elaborate that searching for, encoding, and retrieving information unfolds through organizational members' engagement or participation in a problematic situation—sometimes called joint work or a joint enterprise, activity, or authentic situation (Brown, Collins, & Duguid, 1989; Rogoff, 1994; Rogoff et al., 1995; Wenger, 1998). Joint work in the policy context of interest here could include the overall challenge of transforming a district central office into a school support provider. Or it could involve more specific projects or tasks such as reforming the central office personnel system so it operates in ways more responsive to school reform plans. Not all activities qualify as joint enterprises. Whether or not these examples count as joint enterprises depends on the extent to which they involve a set of activities with associated practices that have shared meaning and value to particular communities. When people engage in such activities they are actively engaging in "the practices of social communities and constructing identities in relation to these communities" (Wenger, 1998, p. 4). The shared meanings and values ascribed to joint enterprises derive in part from the world

views and commitments of the people engaged in them at any point in time. These joint enterprises also have important historical dimensions that give structure and meaning to what is being done (Wenger, 1998). Search, encoding, and retrieval unfold through joint work in the sense that the shared meanings and values associated with joint work serve as important influences on the interpretation processes at the heart of search, encoding, and retrieval—a source of the meaning and value structures on which individuals draw as they grapple with whether and how to search for, encode, and retrieve information.

The concept of joint work serves to emphasize that search, encoding, and retrieval involve not solely or even mainly the acquisition of information. In fact, some socio-cultural theorists specifically point out that their line of analysis bears little resemblance to theories that focus on information or knowledge acquisition (e.g. Rogoff, 1994). In their view, community members *engage* new information through their participation in joint work.

As an example of learning as acquisition, a central office administrator reported in one of my research studies that she had learned from research and experience that certain types of regular visits to schools by central office administrators may be associated with improvements in principals' leadership to support student learning (search as acquisition); this central office administrator wrote such visits into his/her weekly agenda throughout the year (encoding as acquisition); and she followed those agendas and visited schools at least several days each week (retrieval as acquisition). Such an example reflects learning as acquisition in the sense that it depicts a central office administrator who possessed particular information not necessarily one who had used new information to transform her participation in reform processes—for example, how she conceptualized her role vis-à-vis schools and how she actually interacted with schools day-to-day. By contrast, if those school visits were constructed as joint work, the central office administrator might have brought plans for such school visits to other central office administrators as well as school principals and classroom teachers so they could grapple jointly with or socially construct how to integrate the visits into the work of the central office and the schools in ways that promised to strengthen students' learning opportunities. The visits would have become integrated into the role conceptions of the visiting central office administrators (as professionals who work to support principals and teachers in expanding students' learning opportunities) as well as other central office administrators who would come to expect the visitors bring back information from schools that might in turn prompt changes in their own day-to-day work. The central office administrators would have used the visits as opportunities to reflect on the extent to which they were actually providing supports to schools that were expanding students' opportunities to learn.

In sum, organizational learning theory and socio-cultural learning theory together help elaborate a conception of learning in school district central offices as involving particular information management processes: search, encoding, and retrieval. Interpretation and joint work are at the heart of each process.

OUTCOMES OF CENTRAL OFFICE ADMINISTRATION AS LEARNING

Taken together, these theories of learning highlight key areas of activity that may be involved in central office administration as learning. Theory also specifies how researchers and practitioners might conceptualize the outcomes of the learning processes.

First, importantly and fundamentally, the process is very much the product for organizational learning theorists and some socio-cultural learning theorists. That is, these theorists view individuals as learning if they engage in the processes highlighted above—including somehow altering decisions, forms of participation, worldviews, tools or other products of encoding (or deliberately deciding not to change these formal and informal structures) in ways that are informed by experience. In this view, organizational learning theorists argue that organizational learning has occurred when it results in any “systematic change in behavior or knowledge informed by experiences” (Miner et al., 2001, p. 305) whether or not such changes may be associated with more objective outcomes such as improved student learning. Changes in central office policy as well as administrators’ forms of participation, worldviews, and tools become essential outcomes in and of their own right.

Organizational learning theorists emphasize that this process-based view of outcomes is particularly appropriate in light of the significant means-ends ambiguity unavoidable in complex organizations such as school district central offices (March & Olsen, 1975). Feedback on central office administrators’ performance tends to lag far behind their decisions and practices, and even when feedback is available it can be difficult at best to use it to tie their actions to specific positive or negative school-level or other performance outcomes. Under such circumstances, valid measures of central office administrators’ learning include markers that central office administrators are engaged in searching for, encoding, and retrieving information in ways that promise to improve school outcomes. Especially since these activities run so counter to traditional central office administration in some districts, as discussed above, viewing process as product in this case is hardly holding central office administrators to a low or secondary standard.

However, in the contemporary central office settings highlighted above demand that central office administrators have some way of gauging whether or not participating in these activities is deepening their engagement in the kinds of practices that might actually contribute to student learning. In other words, central office administrators need to know when particular forms of search, encoding, and retrieval, forms of interpretation and choices of joint work are productive in terms of school performance outcomes. While these activities in general are associated with “successful” performance across a number of other arenas—from private firms to butcher shops—educational researchers have yet to accumulate enough cases of central office administrators engaging in these activities to provide more guidance about their relationship to school improvement in particular. In the meantime, central office administration research and practice could gauge progress by distinguishing how deeply central office administrators are engaged in these activities. To help make such distinctions, both organizational learning and socio-cultural learning theories offer different ways of thinking about depth of change in what central office administrators do.

For example, Argyris and Schön argued that changes as a result of learning may be viewed as either first-order or second-order (Argyris, 1976; Argyris & Schön, 1996). First-order changes are shifts in day-to-day activities within otherwise unchanged organizational rules or collective understandings. As

an example of a first-order change, after a trial period with a new reader a school district central office administrator may decide that the district can improve its students' reading levels by using a phonics-based reader produced by one publisher rather than another; however, the basic underlying premises about how to address reading achievement (e.g., that the central office should select a phonics-based reader) remain unchanged. Second-order changes are fundamental shifts in organizational rules, values, and basic understandings. In this example, the central office administrator might have decided to stop requiring schools to use readers chosen by the district central office and instead created a set of reading goals and curricular frameworks for schools to use in making curricular decisions. This example points to a second-order change in that it reflects a shift in the nature of the chosen reform approach including basic dynamics of who decides about curricular decisions and relationships between the central office and schools in the process. Whereas some applications of these concepts to education suggest that only second-order change counts as learning, Argyris and Schön's work actually suggests that organizational learning may result in either first or second-order changes, depending on which type of change seems most appropriate to an organizational situation. Nonetheless, most of the cases in their well-read text focus on the importance of second-order change as the type of change that will be important for strengthening performance in most contexts (Argyris & Schön, 1996). To the extent that the new school support roles for central office administrators is a fundamental departure from central-office-administration-as-usual, second-order changes would serve as appropriate outcome markers in this case.

Socio-cultural learning theorists too distinguish what they refer to as "degrees of appropriation"—the extent to which individuals may deepen their conceptual understandings or the centrality of their participation in a particular joint enterprise. However, they identify more than two categories of appropriation. On the low end, these categories differentiate between appropriation that does or does not influence conceptual understanding consistent with first- and second-order change distinctions. On the high end, these categories relate to the extent to which an individual demonstrates mastery in particular practices through his/her actions.⁶ Per Grossman et al. (1999) these categories include:

- Lack of appropriation: Not using the information or a failure to change
- Appropriating a label: Adopting language relevant to the new information/form of participation but the new information does not shape decisions or practices
- Appropriating surface structures: "When a person learns some or most of the features of [new information or practices] yet does not understand how those features contribute to the conceptual whole" (p. 17)
- Appropriating conceptual underpinnings: When an individual "grasps the theoretical basis that informs and motivates the [information or practice]"; individuals who operate at this level are "likely able to make use of [the information] in new contexts and for solving new problems" (p. 17);
- Achieving mastery: Transforming practice in ways consistent with acting on new information effectively.

Importantly, socio-cultural theorists seem to value the spectrum of degrees of appropriation and view each point as potentially a part of an individual's or collectives' trajectory toward mastery, much like organizational learning theorists recognize the potential value of first- and second-order changes as contributing over time to substantially improved organizational performance.

These dimensions of appropriation seem particularly appropriate to a school district central office and other public policymaking bureaucracies that tend to operate at least somewhat on rhetorical or

symbolic levels. In such highly politicized environments, individuals may typically separate how they talk about particular issues from how they act on them along dimensions captured by the degrees of appropriation. However, such changes in policy talk might nonetheless be important first steps toward deeper participation over time (e.g., McLaughlin 1991). Also, as noted above, what it means to achieve mastery or to participate centrally as a central office administrator who supports school improvement arguably has not been well conceptualized or grounded with empirical support. In such contexts the other shades of appropriation can help guide practice that is at least on a trajectory toward some conception of central participation to be better elaborated and demonstrated over time.

CONDITIONS THAT SHAPE LEARNING IN ORGANIZATIONS

The learning theorists emphasize that learning in a variety of contexts is typically aided by particular forms of assistance and supportive conditions which could be influenced by assistance providers. In this section I describe these forms of assistance and supportive conditions. Importantly, the assistance may be provided by individuals outside central offices such as members of an intermediary organization or a school reform support organization (Honig 2004; Stein & Brown, 1997) but it also may be provided by central office administrators themselves to support other central office administrators in engaging in the activities highlighted above. In central offices individuals at higher hierarchical levels may be in a position to provide such assistance (Tharp & Gallimore, 1988). But assistance may also come from peers (Blau, 1963; Brown & Duguid, 1991) or from individual central office administrators themselves through “self-instruction, self-questioning, self-praise, and self-punishment” (Tharp & Gallimore, 1988, p. 87).

Additionally, to the extent that the learning activities highlighted above capture forms of participation central office administrators want to encourage among school principals and school teachers, these forms of assistance may also be activities in which central office administrators might engage as they work to support schools. In this view, central office administration as learning would involve both search, encoding, and retrieval as well as particular forms of assistance to schools. We note that dual function of assistance as both support and an area of work for central office administrators in its own right in Figure 1. Across all these conceptions of how “assistance” relates to district central office contexts, assistance is not a set of resources *provided to* central office administrators but activities and relationships in which they actively engage.

The literature generally does not specify “how much” of these supports may be associated with different types of change or degrees of appropriation or central participation. As I discuss in the next section, marshaling these influences in support of relatively high-end outcomes may depend on the extent to which central office administrators manage particular tradeoffs presented by some of these forms of assistance.

Assistance for Central Office Administration as Learning

Across both learning theories, assistance for learning includes particular types of supports that seem especially relevant to this emerging conception of central office administration as learning. These supports include: brokering/boundary spanning, modeling, providing valued identity structures,

creating and sustaining particular social opportunities, and developing tools and other structures for improvisation.

Brokering/Boundary Spanning

Assistance providers help new information to cross organizational boundaries—activities sometimes called brokering by socio-cultural learning theorists (e.g., Wenger 1998) or boundary spanning by theorists in the organizational learning tradition (e.g., Aldrich & Herker, 1977; Dollinger, 1984; Kanter, 1988; Tushman, 1977; Tushman & Katz, 1980). Brokers enable search in particular not simply by passing information across those boundaries but by translating it into terms that the receiving community may be more likely to link to their prior knowledge (Adams, 1976; Aldrich & Herker, 1977; Cobb & Bowers, 1999; Dollinger, 1984; Tushman, 1977; Tushman & Katz, 1980). Such work may be aided by the extent to which the individual broker is viewed as legitimate by the receiving community (Wenger, 1998) and the extent to which the broker is knowledgeable enough about the language and culture of different communities to move ideas from one place to another.

For example, in one of my own research studies on school district central offices, I found that my focal school district central office assigned individual central office administrators to operate as boundary spanners—to work in between the central office and schools to broker new partnership relationships between the two in ways consistent with the policy demands of interest here. These boundary spanners were all individuals recently hired to central office posts in part for their knowledge of the kind of school/community-level practice the central office wanted to promote. These boundary spanners seemed occasionally buoyed in their school support assignments by this prior knowledge of school-level practices in the sense that it helped them to search for and identify school-level information (about school-level successes and challenges) to bring back to the central office for possible encoding into central office supports (Honig, 2004). However, limited prior knowledge of the central office ultimately hampered their efforts to encourage central office encoding of that information into supportive central office policies.

Modeling

Assistance providers help central office administrators search for, encode, and retrieve new information (as to assist others in the process) by modeling those activities (Brown & Campione, 1994; Stein & Brown, 1997; Tharp & Gallimore, 1988). By observing models engaged in particular forms of practice, central office administrators may develop “a conceptual model of the target task prior to attempting to execute it”—models which theorists argue are essential to execution especially at deeper levels of participation (Collins, Brown, & Holum, 2003). Such models provide central office administrators with “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 engage in relatively independent practice” (Collins et al., 2003, p. 2. see also Lave 1988).

For socio-cultural learning theorists, such individuals seem particularly powerful guides when they employ meta-cognitive strategies of “bring[ing] thinking to the surface and mak[ing] it visible” (Collins et al. 2003, p. 3; See also, Lee, 2001)—that is by engaging others in dialogue about the purposes and nature of the practices so others know not just what to do but why they should do it and why they

should do it in a particular way. Powerful modeling also involves a strengths-based approach in which the modeler helps a learner identify his/her strengths and to build on those strengths to help develop other competencies (Lee, 2001). For organizational learning theorists, especially those working in the tradition of the New Institutionalism in Sociology, such individuals guide the decision and practices of others by example—when they demonstrate what successful and legitimate participation may entail in action (Brown & Duguid, 1991; March, 1994).

For example, the Institute for Learning (IFL) has provided various forms of assistance to central office administrators that seem to fit the theoretical definition of making thinking explicit. In professional development sessions for central office administrators and principals, RAND researchers observed IFL staff labeling strategies they were using in the sessions to support participants in encoding the new information into their understandings. For instance, in one session, the IFL staff person serving as facilitator not only led participants through establishing norms to guide their conversation as a group; she also reflected back to participants that she was trying to help them establish such norms with the hope that being explicit about her strategy for organizing the activity would facilitate the kinds of direct, honest, and sometimes difficult dialogue that reflecting on professional practice required.

Some argue that particularly powerful forms of modeling are reciprocal (Tharp & Gallimore, 1988). That is, in helping central office administrators transform their engagement in a joint enterprise, models also examine and transform their own participation in the process. For example, district central office administrators working with the IFL have reported that the IFL staff work and “learn” along side them in ways consistent with reciprocal modeling on the part of the IFL. Researchers observed that such reciprocal modeling seemed to increase the resources, especially the knowledge resources, that district practitioners brought to bear in grappling with whether and how to encode new information into ongoing practice. Such reciprocity also may infuse the information and the encoding process itself with legitimacy and value important to encoding outcomes (Honig & Ikemoto, 2006).

This conception of mentorship as continually evolving seems particularly appropriate to the central office challenges of interest here given that what counts as a successful or appropriate model of practice likely will continue to evolve over time as central office administrators try on particular roles and relationships with schools and gauge their progress.

Providing Valued Identity Structures that Legitimize Peripheral Participation

These structures include markers that indicate progressive degrees of participation such as the badge system in the Girl Scouts (Rogoff et al., 1995) or the designation of master teachers in school settings. Socio-cultural learning theorists emphasize the importance of identity structures in recognizing that individuals who are not yet participating fully in a joint enterprise nonetheless may be on a trajectory toward more central participation and that as such they are valued members of the community. This approach is fundamentally strengths-based in that it aims to provide central office administrators with opportunities to participate in an activity based on their present competencies and to draw on their competencies to deepen their engagement in the activity. Some theorists highlight that such identity structures help to reinforce the legitimacy of such peripheral participation as well as enable individual members to gauge where they are on the developmental trajectory.

Creating and Sustaining Social Opportunities Networking, Observation, and Dialogue

Social opportunities are essential to learning, and assistance providers can help create such opportunities for central office administrators and sustain them over time. Organizational learning theorists emphasize that through such social activities organizations more readily gain access to new information (search) than organizations without such opportunities and that they expand the bank of prior knowledge that may be brought to bear in interpreting new information. For socio-cultural learning theorists, social opportunities also allow community members to observe others demonstrating particular forms of participation. That is, models and identity structures may operate as resources for learning only if other community members have opportunities to observe those models in practice.

Socio-cultural learning theorists further elaborate, and organizational learning theorists agree, that dialogue is essential to such social opportunities and assistance providers can help facilitate central office administrators' engagement in such dialogue. Through discussion or the telling of stories, individuals "generate coherent accounts of messy situations. In this way, they share their individual and collective knowledge, see situations in a new light, generate potential solutions, and generate a framework for interpretation" (Holland, Lachicotte, Skinner, & Cain, 1998; Lave & Wenger 1991). Through dialogue, individuals also have opportunities to challenge each others' understandings and engage in conversations that can lead to new shared understandings and some might say deeper understandings.

Developing Tools and Structures for Improvisation

As discussed above, tools may be defined as "reifications" or the manifestation of an idea (Wenger, 1998). Resnick has argued that "mental work is rarely done without the assistance of tools" (Resnick, 1991, p.8). She and others elaborate that such assistance serves a number of complementary and simultaneously conflicting purposes. First, tools "specify the parameters of acceptable conduct", communicating messages about what individuals should and should not do (Barley, 1986). As such they "constrain and limit the range of what can be thought" (Resnick, 1991, p. 7). 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; Kanter, 1988; Miner et al., 2001; van de Ven & Polley, 1992; Weick, 1998). These structures can serve as origins or "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, p.546). As such, tools "trigger" negotiations among individuals about which actions to take toward meeting particular goals rather than prescribe that action (Barley, 1986; Brown & Duguid, 1991). Socio-cultural learning theorists agree that rather than dictating appropriate practice, tools create "potential for different kinds of action that may be realized in different ways by different participants (Smagorinsky et al., 2003, p. 1407). They 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, p. 1407).

Scholars have identified different types of tools. Conceptual tools include "principles, frameworks, and ideas" (Grossman et al., 1999, p 13). These tools generally function to frame how people think about particular problems or issues. "Their meaning is not invariant but a product of negotiation with a community" (Brown & Duguid, 1991, p. 33). For example, the Institute for Learning created a tool called "Principles of Learning"—essentially nine statements about what counts as rigorous teaching and

learning. They intend the language and the ideas communicated in the principles themselves to shape how central office administrators think about, talk about, and steer their own activities related to school support (Honig & Ikemoto, 2006).

Practical tools provide specific examples of “practices, strategies, and resources” that have “local and immediate utility” (Grossman et al., 1999, p. 13-14). So while conceptual tools are meant to shape decisions across multiple activity settings, practical tools are generally constructed around particular activity settings. For example, the IFL’s “Learning Walk” tool outlines specific activities in which central office administrators, school principals, and other “instructional leaders” can engage on site in school classrooms to investigate, interrogate, and support high quality teaching (Honig & Ikemoto, 2006).

Any social setting is riddled with what may appear to be conceptual or practical tools. However, whether or not a structure actually functions as a tool and what meaning individuals make of the tool depends on the extent to which that tool is used to help individuals develop deep conceptual understanding of a particular idea or to participate in a particular joint enterprise.

Conditions that Mediate Learning

Beyond the forms of assistance described above, learning processes too are mediated by prior knowledge and perceived performance levels.

Prior Knowledge

Prior knowledge significantly shapes learning. Cohen and Levinthal argued that an organization’s “absorptive capacity”—the “ability... to recognize the value of new external information, assimilate it, and apply it... is largely a function of the firm’s level of prior related knowledge” (Cohen & Levinthal, 1990, p.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 innovating firms—broadly defined as firms continually seeking and using information from their environments to enhance their work—such collective prior knowledge may be distributed across an organizations’ network. Through alliances with others, organizations may expand the prior knowledge resources they bring to bear on challenges (Powell, Koput, & Smith-Doerr, 1996).

Regardless of whether prior knowledge is individual or shared, the extent to which it facilitates central office administrators attention to schools in the ways contemporary policy designs demand may depend on the extent to which central office administrators’ values, prior experiences, and goals are aligned with the new information—what Grossman called “institutional congruence” (Grossman et al., 1999). Kanter, an organizational learning theorist, called this congruence “strategic alignment” (Kanter, 1988, p. 201). Other socio-cultural theorists refer to congruence as the extent to which settings have similar enough features that individuals will recognize whether and how to transfer knowledge from one setting to another.⁷

Perceived Performance Levels

Organizational learning theorists, particularly March and colleagues (Levinthal & March, 1993; Levitt & March, 1988; March, 1991), have elaborated that engagement in search, encoding, and retrieval is shaped by actual or perceived performance levels. Decision-makers in allegedly successful organiza-

tions tend to limit their search activities and to over-retrieve or over-rely on existing information even if new information might advance organizational goals. These decision-makers also are likely to over-sample feedback that confirms their sense of success—to notice information that confirms their competencies and to encode new information in ways that minimally disrupt their current frames. March and others call these tendencies “success traps”. For example, central office administrators in some of Spillane’s studies tended to interpret new information as confirming of and consistent with activities in which they were already engaged, even though, the researchers argued, the new information actually fundamentally challenged their ongoing activities (Spillane, 1998). To extent that these individuals already perceived themselves as successful, their behavior would reflect negative influence of perceived success on their performance.

On the flipside, central office administrators’ perceptions of organizational failure tend to fuel search activities but to limit the extent to which they make use of new information—i.e., encode and retrieve it. These organizations are also more likely to notice information that they believe will help them achieve their performance targets (i.e., to search within a limited range) rather than to aim to exceed their targets. For example, studies of how school district central offices respond to high-stakes accountability initiatives reveal various ways that central office administrators focus their choice of improvement efforts specifically on a limited range of “remedies” they believe may be associated with improved performance (or with improving their appearance as improving districts). Such district central offices also take other steps to limit discretion districtwide in an effort both to focus their efforts on meeting minimum targets as well as to improve the confidence of others (e.g., state and federal officials) that they are “in control” (O’Day, 2002).

TENSIONS AND TRADEOFFS

As noted above, the various literatures on learning generally do not specify how much of different types of assistance or prior knowledge may be associated with different degrees of appropriation. Rather, the research suggests that these factors operate in a dynamic tension between helping and hindering deep engagement. In fact, some scholars have gone so far as to argue that supports for learning are inherently and unavoidably paradoxical in practice (Poole & van de Ven, 1989; van de Ven & Rogers, 1988). The challenge for district central office administrators becomes how to resist reconciling the paradoxes but to pursue both conflicting avenues simultaneously, allowing both to thrive at once. The challenge for researchers becomes how to specify the paradoxes, notice them in practice, and to reveal the conditions under which organizational members are more or less able to manage them.

Brokering/Boundary Spanning: Connecting without Over-Connecting

Boundary spanners must maintain close connections with their home communities (e.g., a district central office or a sub-unit within a central office). Through such connections boundary spanners reinforce their legitimacy with those communities essential to a community’s willingness to encode and retrieve the information they bring in. Such close internal contact also improves boundary spanners’ fluency in the norms and language of their home organization important to their ability to translate the information they gather into forms other organizational members may use. However, if a boundary

spanner becomes overly identified with his/her home community a particular community, he/she will lose legitimacy with external organizations and fluency in the norms and language of those other communities that can be essential to accessing information (Tushman, 1977; Tushman & Katz, 1980; Wenger, 1998).

As I found in my analysis of boundary spanning central office administrators, the hiring of individuals from the school/community-level practice that the central office wanted to support meant that at the outset the boundary spanners were particularly skilled at searching for school/community-level information on which the central office might take action. However, these individuals lacked the knowledge, relationships, and authority essential to encoding and 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 encoding and retrieval but limited information on which to base the encoding (Honig, 2006).

Furthermore, the designation of central office administrators as boundary spanners sometimes provides them with special opportunities to search for new information and incubate new ideas before bringing them to others within the organization to encode. However, sometimes this division of labor limits inter-organizational interactions that could help build the organization's capacity to achieve its goals (e.g., Boonstra & Vink, 1996). In van de Ven's words, sometimes this division of labor results in a whole that is less than the sum total of its parts because the specialized parts "do not add to but subtract from one another" (van de Ven, 1986, p. 598). For example, in my study of central office boundary spanners, I found that the location of central office administrators as boundary spanners in an office outside the main central office building freed the central office administrators from some level of scrutiny from their peers and superiors that helped them invent non-traditional support relationships with schools. However, over time, this geographically remote location, among other conditions, contributed to the boundary spanners' limited avenues for encoding information into central office policies that promised to bolster site implementation.

Prior Knowledge

- *Reliance but not over reliance.* The use of prior knowledge helps individuals and collectives encode new information into their ongoing understandings and to deepen their participation in joint enterprises. However, as the success trap emphasizes, too much reliance on prior knowledge may result in organizational members' failure to notice or act on new information (Levinthal & March, 1993; Levitt & March, 1988).
- *Some diversity and duplication but not too much.* The more diverse or varied a collective's prior knowledge, the more likely someone in the group will search for, attend to, and incorporate new information into their decision making or forms of participation into their repertoire in ways that may become a part of the collective. However, if the prior knowledge is too diverse, organizational members may fail to encode new information in ways that other organizational members can actually access. 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, p. 56).

- *Reconciling competing logics to enable action but not over-reconciling in ways that minimize logics.* When prior knowledge conflicts in terms of how it suggests new information should be interpreted, the information typically will not be used unless organizational actors come to some conclusions about how to reconcile the conflicting logics. However, when organizational members reconcile logics, they also minimize the power of certain prior knowledge over others and thus shorten their repertoire of possible future responses. Steyaert argues that coping with competing logics is a “paradoxical” process where parties involved are discussing, comparing, and evaluating different aspects of the old and the new...” 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, p. 86).

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 information and grapple with how to integrate them into their own decision-making or practice. Some organizational learning theorists refer to these structures as being somewhat ambiguous in terms of what they suggest as a viable course of interpretation or action. But structures and tools also enable search when they are limiting or relatively unambiguous—directing individuals’ attention to certain information rather than others and otherwise helping organizational members manage large volumes of complex and sometimes conflicting information. Likewise, such structures enable encoding when they send a limited number of specific signals about how individuals might interpret information that has been brought in. However, they also enable encoding when they are flexible enough that they maximize the chance that they will help individuals to fit new information into existing rules and practices (either by reinforcing or changing those rules and practices). Accordingly, those who aim to enable learning will need to maintain these structures in ways that provide some but not too much generativity (Feldman, 2000; Wenger, 1998).

DISCUSSION AND IMPLICATIONS

In this review I have laid out shared and distinct contributions of organizational learning theory and socio-cultural learning theory for conceptualizing roles for central office administrators as supporters of schools’ continuous improvement processes. The learning literature featured here begins to elaborate that such roles for central office administrators include searching for that information, encoding it into various forms, and, importantly, actually retrieving or drawing on that encoded information to guide subsequent work with schools. These activities are hardly straightforward but rather require what theory refers to as interpretation—opportunities for central office to grapple with what the given information means and whether and how to use it. Various forms of assistance and other conditions can support these activities including the designation of individuals to serve as boundary spanners and models in the process and prior knowledge and how performance levels are assigned. Such forms of assistance and conditions occasionally present paradoxes—conflicting conditions that are successfully handled when both conditions are maintained and deepened simultaneously.

Directions for Future Research

This review points to a number of future directions, challenges, and questions for researchers. First, the integrated learning framework presented here can ground future investigations into district central office administrators' participation in policy implementation—a focus that seems imperative for advancing knowledge about contemporary policy implementation. The framework highlights central office administrators as the main implementation actors and the key units for study. Such a focus may pose significant challenges for some district and other policy researchers accustomed to treating districts as a context or as a relatively uniform, impersonal background variable in studies primarily concerned with schools.

This framework points researchers to collect data on key dimensions of central office activity including search, encoding, and retrieval. 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 to adequately embed themselves into central office life in ways that allow them to observe central office administrators participating day-to-day in implementation and to tap central office administrators' interpretation processes over time.

In pursuing 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 throughout the discussion 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 interpretation around school information—are typically in short supply in school district central offices, most central offices engaged in such efforts likely will struggle in the process. As I have written elsewhere, central office administration as learning may appear extremely difficult not because it is going poorly but precisely because central office administrators are on the right track.

This framework also has a number of limitations that future researchers might productively address in the context of district central offices. First, central offices arguably must perform a host of tasks far more mundane than the learning activities noted here, such as the basic work of maintaining school buildings and organizing bus schedules. While some of these tasks might ultimately be more productively accomplished as part of learning processes, the time-sensitive nature of some central office work may not allow for decision-making as learning. Confirming this view, in research on private firms, researchers typically view learning processes within specialized innovating subunits of larger firms comprising a whole host of participants engaged in basic organizational management functions. Researchers might consider how learning unfolds in central offices in the context of central office administrators' overall work demands.

Second, as some organizational learning theorists have noted, struggles for power and other political tensions are part and parcel of these information management activities and basic realities of central office life. However, neither line of learning theory seemed to elaborate on what such political dimensions involve or how central office administrators might manage them. Accordingly, as research in this area evolves, researchers should consider how to capture those political dimensions of central office administration as learning.

Third, central office administrators face demands to participate as central reform participants but also to support schools in engaging in reform. Accordingly, as I suggest briefly above, central office administrators likely must engage in the main learning processes featured here but also serve as assistance providers to school sites. Future research might do well to examine how central office administrators participate in these dual roles of participant and assistance provider. Some learning theorists have begun to elaborate a conception of assistance as reciprocal which clarifies that providing assistance is a form of participation (Tharp & Gallimore, 1988). This theoretical work might provide important additional conceptual anchors for this line of inquiry into how central office administrators might manage assisting with participation while participating themselves.

This review has focused on what organizational learning and socio-cultural learning theories suggest central office administration as learning may entail. However, central office administrators operate as part of broader systems whose participation in reform likely shapes central office operations. For example, my own studies have shown that central office administrators' ability to engage in these learning activities hinges on the readiness of schools to participate in learning partnerships and the capacity of intermediary organizations to assist with the process. Future research might push on how central office administration as learning unfolds in the context of schools and other organizations.

Ultimately, these theories are not easy terrain. The main theoretical ideas are conceptually challenging. Reviewing this literature will require researchers to read across and deeply within traditionally distinct bodies of literature including: management and administration, learning theory, learning within subjects such as mathematics and reading, cognitive psychology, and anthropology to name a few. Researchers interested in taking this road might consider doing so in collaborations with scholars who can assist with their participation in disciplines that are new to them. I also caution researchers to continue to work toward a presentation of these challenging concepts in ways that are accessible across disciplines and, ultimately, into practitioner communities.

Questions for Practice

This theoretical framework would serve up more robust guides for practice if it were better bolstered by empirical studies of central office administrators engaged in these processes. In the meantime, the present framework raises a number of questions 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 implementation and as actors engaged in the learning activities outlined here. 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 paper, my own research and professional work with central office administrators 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 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 new changes in use of Title I funds) or Ed.D. programs where central office administrators may participate alongside classroom teachers, school principals, and

others interested in this advanced practitioners degree that does not always address the particularities of central office leadership let alone the relationships with school discussed here. How can school district systems, in partnership with higher education, expand the opportunities central office administrators have to organize for and engage in central office administration as learning?

Second, central office leader might ask and explore: 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 riddled with comments by central office administrators that they rarely have time to confer with colleagues about basic day-to-day demands let alone the significant challenges working closely with schools can create. How can central office leaders create opportunities for their staff to engage in such internal collaboration?

Third, 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. District central office leaders might consider the extent to which they are signaling to staff that central office administration as learning is appropriate and legitimate practice, even if it cannot yet be tied with objective changes in student performance.

Fourth and finally, particularly given how counter-cultural central office administration as learning may be for some central offices, central office leaders might consider seeking the assistance of external support organizations or intermediaries. Such intermediaries may be essential to providing the kinds of coaching and models that learning requires.

ENDNOTES

- ¹ 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.
- ² A version of this review appears in the following report: Honig, M.I. & Ikemoto, G.S. (2006). Making and Re-making the Link between Research and Practice: The Case of the Institute for Learning. A report to the MacArthur Network for Teaching and Learning. Stanford, CA: Stanford University.
- ³ Figure adapted from: Honig & Ikemoto, 2006.
- ⁴ Scholars debate differences between organizational learning and organizational improvisation (e.g., van de Ven / 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 & Polley, 1992; Weick, 1998.
- ⁵ Organizational learning theorists debate whether learning is an individual or collective enterprise. On one end of the spectrum, some argue that organizations learn because individuals within organizations engage in the activities highlighted above (e.g., Simon). On another end, organizational learning theorists emphasize that search, encoding, and retrieval unfold in social settings through which individuals in the social context of others actively make sense of new information in the context of their aggregate individual and shared understandings (e.g., Weick).
- ⁶ Some theorists, especially those who emphasize the centrality of participation, might not use the term mastery but rather focus on centrality of participation.
- ⁷ 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 or the organizational member in question, whether or not that 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. Though 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

- Adams, S. J. (1976). The structure and dynamics of behavior in boundary roles. In M. D. Dunnette (Ed.), *Handbook of industrial and organizational psychology* (pp. 1175-1199). New York, NY: Rand McNally.
- Aldrich, H. & Herker, D. (1977). Boundary spanning roles and organization structure. *Academy of Management Review*, 2(2), 217-230.
- Argyris, C. (1976). Single-loop and double-loop models in research on decision making. *Administrative Science Quarterly*, 21(3), 363-375.
- Argyris, C. & Schön, D. A. (1996). *Organizational learning II: Theory, method, and practice*. Reading, Massachusetts: Addison-Wesley Publishing Company.
- Barley, S. 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, P. M. (1963). *The dynamics of bureaucracy*. New York, NY: John Wiley & Sons.
- Boaler, J. (1999). Participation, knowledge, and beliefs: A community perspective on mathematics. *Educational Studies in Mathematics*, 40, 259-281.
- Boonstra, J. J. & Vink, M. J. (1996). Technological and organizational innovation: A dilemma of fundamental change and participation. *European Journal of Work and Organizational Psychology*, 5(3), 351-375.
- Brown, A. & Campione, J. (1994). Guided discovery in a community of learners. In K. McGilly (Ed.), *Classroom lessons: Integrating cognitive theory and classroom practice* (pp. 229-270). Cambridge, MA: MIT Press/Bradford.
- Brown, J. Collins, A., & Duguid, P. (1989). Situated cognition and the culture of learning. *Educational Researcher*, 18(1), 32-42.
- Brown, J. S. & Duguid, P. (1991). Organizational learning and communities-of-practice: Toward a unified view of working, learning, and innovation. *Organization Science*, 2(1), 40-57.
- Burch, P. & Spillane, J. (2004). *Leading from the middle: Mid-level district staff and instructional improvement*. Chicago, IL: Cross-city Campaign for Urban School Reform.
- Cobb, P. & Bowers, J. S. (1999). Cognitive and situated learning perspectives in theory and practice. *Educational Researcher*, 28(2), 4-15.
- Cobb, P., McClain, K., Lamberg, T. & Dean, C. (2003). Situating teachers' instructional practices in the institutional setting of the school and district. *Educational Researcher*, 32(6), 13-24.
- Cohen, D. K. (1982). Policy and organization: The impact of state and federal educational policy on school governance. *Harvard Educational Review*, 52(4), 474-499.
- Cohen, M. D. (1991). Individual learning and organizational routine: Emerging connections. *Organizational Science*, 2(1), 135-139.
- Cohen, W. M. & Levinthal, D. A. (1990). Absorptive capacity: A new perspective on learning and innovation. *Administrative Science Quarterly*, 35, 128-152.
- Collins, A. M., Brown, J. S. & Holum, A. (2003). Cognitive apprenticeship: Making thinking visible, *The principles of learning: Study tools for educators* (pp. 1-18). Pittsburgh, PA: University of Pittsburgh.
- Darling-Hammond, L. (1998). Policy and change: Getting beyond bureaucracy. In A. Hargraves, A. Lieberman, M. Fullan & D. Hopkins (Eds.), *International handbook of educational change* (pp. 642-667). Dordrecht, The Netherlands: Kluwer Academic Publishers.

- Derry, S., Gance, S. & Schlager, M. (2000). Toward assessment of knowledge-building practices in technology-mediated work group interactions. In S. P. Lajoie (Ed.), *Computers as cognitive tools, Volume two: No more walls* (pp. 29-67). Mahwah, NJ: Lawrence Erlbaum Associates Publishers.
- DiMaggio, P. J. & Powell, W. W. (1983). The iron cage revisited: Institutional isomorphism and collective rationality in organizational fields. *American Sociological Review*, 48(2), 147-160.
- Dollinger, M. J. (1984). Environmental boundary spanning and information processing effects on organizational performance. *Academy of Management Journal*, 27(2), 351-368.
- Elmore, R. F. (1983). Complexity and control: What legislators and administrators can do about implementing public policy. In L. S. Shulman & G. Sykes (Eds.), *Handbook of teaching and policy* (pp. 342-369). New York, NY: Longman.
- Engestrom, Y. & Miettinen, R. (1999). Introduction. In Y. Engestrom, R. Miettinen & R.-L. Punamaki (Eds.), *Perspectives on activity theory* (pp. 1-38). Cambridge, UK: Cambridge University Press.
- Feldman, M. S. (1989). *Order without design: Information production and policymaking*. Stanford, CA: Stanford University Press.
- Feldman, M. S. (2000). Organizational routines as a source of continuous change. *Organization Science*, 11(6), 611-629.
- Finnigan, K. & O'Day, J. (2003). *External support to schools on probation: Getting a leg up?* Philadelphia: Center for Policy Research in Education.
- Fiol, C. M. & Lyles, M. A. (1985). Organizational learning. *Academy of Management Review*, 10(4), 803-813.
- Greeno, J. & MMAP. (1998). The situativity of knowing, learning, and research. *American Psychologist*, 53(1), 5-26.
- Greeno, J., Moore, J. & Smith, D. (1993). Transfer of situated learning. In D. Detterman & R. Sternberg (Eds.), *Transfer on trial: Intelligence, cognition, and instruction* (pp. 99-167). Norwood, NJ: Ablex.
- Grossman, P. L., Smagorinsky, P., & Valencia, S. (1999). Appropriating tools for teaching English: A theoretical framework for research on learning to teach. *American Journal of Education*, 108 (November).
- Hannaway, J. (1989). *Managers managing: The workings of an administrative system*. New York, NY: Oxford University Press.
- Hatch, M. J. (1997). Jazzing up the theory of organizational improvisation. *Advances in Strategic Management*, 14, 181-191.
- Holland, D., Lachicotte, W., Skinner, D., & Cain, C. (1998). *Identity and agency in cultural worlds*. Cambridge, MA: Harvard University Press.
- Honig, M. I. (2003). Building policy from practice: Central office administrators' roles and capacity in collaborative education policy implementation. *Educational Administration Quarterly*, 39(3).
- Honig, M. I. (2004). Where's the "up" in bottom-up reform? *Educational Policy*.
- Honig, M. I. (2006, In Press). Street-level bureaucracy revisited: Frontline central office administrators as boundary spanners in complex education policy implementation. *Educational Evaluation and Policy Analysis*.
- Honig, M. I. & Ikemoto, G. S. (2006). *Making and re-making the link between research and practice: The case of the Institute for Learning. A report to the MacArthur Network for Teaching and Learning*. Stanford, CA: The MacArthur Network for Teaching and Learning.
- Honig, M. I., Kahne, J. & McLaughlin, M. W. (2001). School-community connections: Strengthening opportunity to learn and opportunity to teach. In V. Richardson (Ed.), *Handbook of research on teaching* (4th ed., pp. 998-1028). Washington, D.C.: American Educational Research Association.

- Hubbard, L., Meehan, H., & Stein, M. K. (2006). *Reform as learning: When school reform collides with school culture and community politics*. New York, NY: Routledge.
- Huber, G. P. (1991). Organizational learning: The contributing processes and the literatures. *Organization Science*, 2(1), 88-115.
- Ibarra, H. (1993). Network centrality, power, and innovation involvement: Determinants of technical and administrative roles. *Academy of Management Journal*, 36(3), 471-501.
- Kanter, R. M. (1983). *The change masters*. New York, NY: Simon and Schuster.
- Kanter, R. M. (1988). When a thousand flowers bloom: Structural, collective, and social conditions for innovation in organization. *Research in Organizational Behavior*, 10, 169-211.
- Katz, M. B., Fine, M. & Simon, E. (1997). Poking around: Outsiders view Chicago school reform. *Teachers College Record*, 99(1), 117-157.
- Lam, A. (2002). Alternative societal models of learning and innovation in the knowledge economy. *International Social Science Journal*, 54(1), 67-82.
- Lave, J. (1988). *Cognition in practice: Mind, culture, and mathematics in everyday life*. Oxford, England: Cambridge University Press.
- Lave, J. (1993). Situating learning in communities of practice. In L. Resnick, J. Levine & T. Teasley (Eds.), *Perspectives on social shared cognition* (pp. 17-36). Washington, DC: American Psychological Association.
- Lave, J. & Wenger, E. (1991). *Situated learning: Legitimate peripheral participation*. New York, NY: Cambridge University Press.
- Lee, V. E. & Smith, J. B. (1995). Effects of high school restructuring and size on early gains in achievement and engagement. *Sociology of Education*, 68(4), 241-270.
- Leithwood, K. & Louis, K. S. (Eds.). (1998). *Organizational learning in schools*. Lisse: Swets & Zeitlinger.
- Levinthal, D. A. & March, J. G. (1993). The myopia of learning. *Strategic Management Journal*, 14, 95-112.
- Levitt, B. & March, J. G. (1988). Organizational learning. *American Review of Sociology*, 14, 319-340.
- Malen, B., Ogawa, R. & Kranz, K. (1990). What do we know about school based management? A case study of the literature -- A call for research. In W. Clune & J. Witte (Eds.), *Choice and control in American education, Volume 2: Decentralization and school restructuring*. Philadelphia: Falmer Press.
- March, J. G. (1987). Variable risk preferences and adaptive aspirations. *Journal of Economic Behavior and Organization*, 9, 5-24.
- March, J. G. (1991). Exploration and exploitation in organizational learning. *Organization Science*, 2, 71-87.
- March, J. G. (1994). *A primer on decision making*. New York, NY: The Free Press.
- March, J. G. & Olsen, J. P. (1975). The uncertainty of the past: Organizational learning under ambiguity. *European Journal of Political Research*, 3, 147-171.
- March, J. G. & Simon, H. A. (1958). *Organizations*. New York: Wiley.
- McLaughlin, M. W. (1991). Learning from experience: Lessons from policy implementation. In A. R. Odden (Ed.), *Education policy implementation* (pp. 185-196). Albany, NY: State University of New York Press.
- McLaughlin, M. W. (1991). The Rand Change Agent Study: Ten years later. In A. R. Odden (Ed.), *Education Policy Implementation* (pp. 143-155). Albany, NY: State University of New York Press.
- McLaughlin, M. W. (2000). *Community counts: How youth organizations matter for youth development*. Washington, DC: Public Education Network.

- McLaughlin, M. W. (2006). Implementation research in education: Lessons learned, lingering questions, and new opportunities. In M. I. Honig (Ed.), *New directions in education policy implementation: Confronting complexity* (pp. 209-228). Albany, NY: State University of New York Press.
- Miner, A. S., Bassoff, P. & Moorman, C. (2001). Organizational improvisation and learning: A field study. *Administrative Science Quarterly*, 46, 304-337.
- Moore, M. H. (1988). What sorts of ideas become policy ideas? In R. Reich (Ed.), *The power of policy ideas* (pp. 55-83). Cambridge, MA: Harvard University Press.
- O'Day, J. A. (2002). Complexity, accountability, and school improvement, *Harvard Educational Review* (Vol. 72, pp. 1-31).
- Pea, R. (1987). Socializing the knowledge transfer problem. *International Journal of Educational Research*, 11(6), 639-663.
- Poole, M. S. & van de Venn, A., H. (1989). Using paradox to build management and organization theories. *The Academy of Management Review*, 14(4), 562-578.
- Powell, W. W., Koput, K. W. & Smith-Doerr, L. (1996). Interorganizational collaboration and the locus of innovation: Networks of learning in biotechnology. *Administrative Science Quarterly*, 41, 116-145.
- Raywid, M. A. & Schmerler, G. (2003). *Not so easy going: The policy environments of small urban schools and schools-within-schools*. Charleston, WV: ERIC Clearinghouse on Rural Education and Small Schools.
- Resnick, L. B. (1991). Shared cognition: Thinking as social practice. In L. B. Resnick, J. M. Levine & S. D. Teasley (Eds.), *Perspectives on socially shared cognition*. Washington, DC: American Psychological Association.
- Rochefort, D. A. & Cobb, R. W. (Eds.). (1994). *The politics of problem definition: Shaping the policy agenda*. Lawrence, KS.
- Rogoff, B. (1994). Developing understanding of the idea of communities of learners. *Mind, Culture, and Activity*, 1(4), 209-229.
- Rogoff, B., Baker-Sennett, J., Lacas, P. & Goldsmith, D. (1995). Development through participation in sociocultural activity. In J. Goodnow, P. Miller & F. Kessel (Eds.), *Cultural practices as contexts for development* (pp. 45-65). San Francisco: Jossey-Bass.
- Smagorinsky, P., Cook, L. S. & Johnson, T. S. (2003). The twisting path of concept development in learning to teach. *Teachers College Record*, 105(8), 1399-1436.
- Smithmier, A. M. (1996, October 25027). *Meeting children's needs through systems change: Will an alternative policy instrument work for integrated services?* Paper presented at the University Council for Educational Administration, Louisville, KY.
- Spillane, J. 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.
- Stein, M. K. & Brown, C. A. (1997). Teacher learning in a social context: Integrating collaborative and institutional processes with the study of teacher change. In E. Fennema & B.S. Nelson (Eds.) *Mathematics teachers in transition* (pp. 155-191). Mahwah, NJ: Lawrence Erlbaum Associates.
- Steyaert, C., Bouwen, R. & Looy, B. V. (1996). Conversational construction of new meaning configurations in organizational innovation: A generative approach. *European Journal of Work and Organizational Psychology*, 5(1), 67-89.
- Tharp, R. G. & Gallimore, R. (1988). *Rousing minds to life: Teaching, learning, and schooling in social context*. New York, NY: Cambridge University Press.
- Tushman, M. L. (1977). Special boundary roles in the innovation process. *Administrative Science Quarterly*, 22, 587-605.

- Tushman, M. L. & Katz, R. (1980). External communication and project performance: An investigation into the role of gatekeepers. *Management Science*, 26(11), 1071-1085.
- van de Ven, A. H. (1986). Central problems in the management of innovation. *Management Science*, 32(5), 590-607.
- van de Ven, A. H. & Rogers, E. M. (1988). Innovations and organizations: Critical perspectives. *Communication Research*, 15(5), 632-651.
- van de Ven, A. H. & Polley, D. (1992). Learning while innovating. *Organization Science*, 3(1), 92-116.
- Vaughn, D. (1996). *The Challenger launch decision: Risky technology, culture, and deviance at NASA*. Chicago: University of Chicago Press.
- Walker, E. M. (2002). The politics of school-based management: Understanding the process of devolving authority in urban school districts, *Education Policy Analysis Archives* (Vol. 10).
- Weick, K. E. (1995). *Sensemaking in organizations*. Thousand Oaks, CA: Sage Publications.
- Weick, K. E. (1998). Improvisation as a mindset for organizational analysis. *Organization Science*, 9(5), 543-555.
- Weiss, J. & Gruber, J. E. (1984). Using knowledge for control in fragmented policy areas. *Journal of Policy Analysis and Management*, 3, 225-247.
- Wenger, E. (1998). *Communities of practice: Learning, meaning, and identity*. Cambridge, UK: Cambridge University Press.
- Wildavsky, A. (1996). *Speaking truth to power: The art and craft of policy analysis*. New Brunswick, NJ: Transaction Publishers.
- Yanow, D. (1996). *How does a policy mean? Interpreting policy and organizational actions*. Washington, DC: Georgetown University Press.

CTP Occasional Papers

The Center's Occasional Paper Series addresses topics that are timely and intimately connected to the Center's agenda. Papers in the series—some by Center members, others by researchers elsewhere—include conceptual work, research syntheses, discussions of policy issues, and reports of empirical studies undertaken under other auspices. Occasional Papers are externally reviewed and revised prior to publication by the Center. Along with CTP Research Reports, Working Papers, and Policy Briefs, these papers are available for download from the Center's website: www.ctpweb.org

Center Affiliates

American Association of Colleges of Teacher Education
American Federation of Teachers
Council for Chief State School Officers
National Alliance of Business
National Association of Secondary School Principals
National Board for Professional Teaching Standards
National Council for Accreditation of Teacher Education
National Council of Teachers of English
National Education Association
National School Boards Association
National Staff Development Council
National Urban League

American Association of School Administrators
Association for Supervision and Curriculum Development
International Reading Association
National Association of Elementary School Principals
National Association of State Boards of Education
National Conference of State Legislatures
National Council for the Social Studies
National Council of Teachers of Mathematics
National Governors' Association
National Science Teachers Association
National Urban Coalition
Teachers Union Reform Network

Center Team

Principal Investigators and Co-Principal Investigators

UNIVERSITY OF WASHINGTON

Michael Knapp, Center Director
James Banks
Margaret Plecki
Sheila Valencia

STANFORD UNIVERSITY

Linda Darling-Hammond
Pamela Grossman
Milbrey McLaughlin
Joan Talbert
Sam Wineburg

UNIVERSITY OF MICHIGAN

Deborah Loewenberg Ball
David Cohen
Edward Silver

UNIVERSITY OF PENNSYLVANIA

Thomas Corcoran
Richard Ingersoll

Researchers at Other Institutions

Barnett Berry, University of North Carolina
Robert Floden, Michigan State University
David Monk, Pennsylvania State University
Jon Snyder, Bank Street College
Judy Swanson, Research for Quality Schools
Suzanne Wilson, Michigan State University

Contact Information

Michael S. Knapp, Center Director

Miller Hall M201, College of Education
University of Washington, Box 353600
Seattle, WA 98195-3600
email: mknapp@u.washington.edu

Michele C. Ferguson, Center Manager

Miller Hall 203C, College of Education
University of Washington, Box 353600
Seattle, WA 98195-3600
Phone: (206) 221-4114
FAX: (206) 616-8158
email: ctpmail@u.washington.edu

Sally Brown, Communications Director

Miller Hall 203D, College of Education
University of Washington, Box 353600
Seattle, WA 98195-3600
Phone: (206) 543-5319
FAX: (206) 616-8158
email: salbrown@u.washington.edu

Web Address

<http://www.ctpweb.org>

