

Better Schools Through Better Knowledge? New Understanding, New Uncertainty

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As I pointed out in the first edition of this handbook, theories of knowledge utilization and educational improvement have been closely linked since Havelock's (1969) classic literature review. This connection is also apparent in practice. On the one hand, school improvement depends on the implementation of new ideas – in the form of both programs and policies – about school organization and instruction; on the other, the refinement of theories about knowledge use depends on having schools that serve as natural loci of experimentation and change. Over the past several decades, explicit attention to dissemination and knowledge utilization have dropped from the agenda of most scholars interested in school reform and have been replaced with related but new concerns, ranging from the spread of comprehensive models to organizational learning. The purpose of this chapter is to review theories that may help to connect research on knowledge utilization with research on educational improvement. The analysis presented here assumes that the reader is familiar with the broad outlines of both school improvement and school effectiveness research (Hopkins, 2001; Sammons, 1999; Schmoker, 1999; Teddlie & Reynolds, 2000), but less familiar with research traditions related to knowledge utilization.

In the first section of this chapter, I briefly review the “state of the art” in knowledge utilization theory, and discuss how it is connected to both school effectiveness and improvement research streams. I will briefly discuss why the dominant and the challenging paradigms for knowledge utilization are not adequate to explain observed phenomena relating to knowledge flow and use in education. In the second section, I examine emerging perspectives that have the potential for altering the way in which we analyze and interpret the observed phenomena discussed in the first section. Most of the examples used in this chapter are based on research carried out in the United States, but as I note throughout, they appear to be applicable in European Union and OECD countries.

In reviewing new ideas that contribute to our understanding of knowledge utilization, it is critical that we maintain the thoroughly interdisciplinary base of this field.

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While various writers may approach the problem of putting knowledge to work for the betterment of individuals – and/or societies – with different lenses, major reviews of the field, such as Rogers (1983) or Glaser, Abelson & Garrison (1983), demonstrate that high quality research and ideas come from disciplines ranging from agriculture to political science. The most recent review focuses on the use of behavioral and social science and draws on a wide range of experts from the media, public interest groups, and others whose focus is on dissemination (Welch-Ross & Fasig, 2007). This chapter cannot, of course, range as broadly as these synthetic reviews, and since my objective is primarily to stimulate thinking about theory, I will confine myself to a few viewpoints from political, historical, organizational, and cognitive learning theory. In each case, I will briefly illustrate how the knowledge utilization perspective is reflected in current school improvement or school reform issues.

I then turn to some elements of an intersection between knowledge utilization theories and school improvement theories that may drive us forward to a synthetic model of dissemination and utilization (D&U) that represents a paradigm shift rather than a paradigm revolution (Kuhn, 1970). Some suggestions about practical implications will also be made.

State of the Art

In 1997, when the first edition of this handbook went to press, it was the beginning of an era that posed serious challenges to the way in which educational researchers thought about change. The era of research-dissemination-diffusion-utilization (RDDU), which assumed a linear relationship between the production of new knowledge and its appearance in practice, was sharply challenged by more constructivist ideas about the relationship between knowledge production and knowledge use. Although this body of research was never as simplistic as latter-day critics contend, many studies led to the conclusion that there was no simple, direct line between knowledge production and utilization, the assumption of unidirectionality in influence dominated both policy and practice (Havelock, 1969).

Renewed D&U Theory: Bringing the “User” Back in

Huberman’s review of the “state of the art” in the mid-1990s began with the accepted assumption that there is a “gap” between research knowledge and practitioner knowledge that can be bridged with calculated interventions. (See Huberman, 1994, whose work was carried out in the United States and Switzerland) Early efforts to do so have long been viewed as hyper-rational due to their assumptions that (1) the flow of knowledge should be largely one-way, from the research community to the practice community; and (2) that more sophisticated forms of knowledge packaging and communication strategies would reduce, if not eliminate, the “gap” between what was known and what people did. Huberman noted the many challenges to a rational

model of knowledge use but chose to review the subtleties of the existing paradigm, arguing that five factors explained why some knowledge becomes common practice in schools, while other new ideas are rejected. These include:

- *the context of research*, including characteristics of the knowledge base and the motivation of the researcher to disseminate to practitioners;
- *the user's context*, including factors ranging from perceived needs to the perception of the value of the research information;
- "*linkage mechanisms*" between researchers and practitioners during the production and utilization phases;
- *the impacts of context and linkages on resources*, including attention, time, and acceptability of the research; and
- *the amount of effort* expended creating an appropriate environment for use, which includes both the amount and quality of dissemination effort, the "usability" of the knowledge, and the quality of planning and execution in the school or district.

Huberman focused on the role of reciprocally influential relationships in the process of knowledge utilization (Huberman, 1999), but his perspective is consistent with the main lines of dissemination research during the 1980s and 1990s, which emphasizes the dispersion of knowledge to multiple sites of practice. This perspective was reflected in programs and initiatives in a number of contexts, particularly those that emerged from the school effectiveness research tradition. For example, beginning in the late 1970s in the United States, there were a number of efforts by regional educational laboratories and individual entrepreneurs to develop research-to-practice models that translated the results of the effective schools and effective teacher research into training and support programs for local schools. Similar experiments involving collaboration between schools, trainers, and researchers were conducted in other countries (e.g., the middle schools reform efforts in the Netherlands). Thus, Huberman's review makes a bridge to alternative perspectives by emphasizing the importance of mutual influence. Huberman notes that researchers and practitioners may have a reciprocal influence on each other and suggests that the need for sustained interactivity to promote research/knowledge utilization is consistent with some elements of the contemporary constructivist approach to teaching. The latter asserts that practitioner knowledge is constructed, largely by individuals, both through reflective practice (Schön, 1983) and through more disciplined inquiry, such as action research (Carr & Kemmis, 1986; Cochran-Smith & Lytle, 1999b).¹

Even with the modest adjustments posited by the need for mutual interaction, policymakers in most countries continue to believe that, with proper sticks and carrots, schools can be encouraged (or required) to become better consumers of

¹Huberman also notes that the constructivist teaching models emphasize the need for knowledge from "outside sources," whether generated by research or through teacher inquiry, to be filtered through an interpretive individual lens.

“good research results” and programs or policies that they believe are research-based. In the United States and other countries, efforts to develop “comprehensive” school reforms that combine a research base and technical assistance for change have consumed considerable resources and energy on the part of governments, private agencies, universities, and schools. The literacy and numeracy initiatives in England stand out as clear examples of efforts to create systems change through knowledge use (Brown, Askew, Millett, & Rhodes, 2003). Still, evidence continues to mount that the “packaging” of ideas into user-friendly modules continues to reveal that there is never enough knowledge in the package to eliminate problems in use (Hatch & White, 2002) and that “co-construction” of knowledge, combined with shifting policies and resources outside the school, creates further complications and erosion of effort (Datnow, 2002). This seems to be characteristic of not only schools, but other public agencies (Landry, Lamar, & Amara, 2003).

*Postmodernist Challenges to Traditional Thinking*²

In 1997, the greatest challenge on the horizon seemed to be from “postmodernist theory” that provided a sharp critique of the renewed conceptual framework presented in Huberman’s review (Watkins, 1994). Watkins begins with the observation that teachers construct knowledge as they go about their work, particularly when they engage in professional discussions around their own practice. Like many constructivists, he then goes on to equate daily efforts to solve classroom problems with research – research that is highly contextualized because it is grounded in experience. The school’s process may appear nonlinear and random to outsiders, but constructivists accept that all knowledge is “local” (Geertz, 1983), contested, and partial and political (influenced by the interests of those who develop or use it).

The extreme assumption – that research knowledge is not useful to teachers – has been largely abandoned. However, given the weak results of formal R,D,D and U efforts, many researchers on both sides of the Atlantic agree that it is simply good practice to have educational practitioners involved in debating, selecting, and co-constructing practice implications (Ainscow, 2005; Cochran-Smith & Lytle, 1999a), or a modified form of postmodernism. One clear example is in policy initiatives in Europe, Canada, England, and New Zealand and Australia that attempt to foster learning communities among principals and teachers under the assumption that the right combination of reflective discussions, research-based knowledge, and motivation will lead to school improvements (ETF, N.D; Jackson, Cordingley, & Hannon, 2006; Stoll & Louis, 2007).

²Andy Hargreaves notes that one may whole-heartedly agree that we live in a postmodern era, defined by a radical shift in the nature of economies, employment, and social relations, and disagree with many of the propositions put forward by self-style postmodern thinkers (personal communication).

The notion that local invention in response to local conditions is also part of the persistent policy thrust in several countries toward deconcentration and decentralization. The “charter schools movement” in the United States, for example, is promoted as an antidote to centrally managed effectiveness programs that don’t work. Proponents of charter schools, which are typically new schools founded by groups of teachers and parents, assume that improving educational performance requires invention at the lowest level, not the diffusion of centrally developed and approved ideas. This assumption has driven public-policy options in many countries, ranging from Sweden to New Zealand, based on the belief that the role of central governments is to set standards, and the role of local agencies is to figure out how to meet them.

Organizational Learning

Another wrinkle added to the knowledge utilization puzzle in the 1990s emerged from the influence of Peter Senge’s work on organizational learning (Senge, 1994). The idea of organizational learning drew on a deeper knowledge base in the management literature, which pointed out, for example, that there were real differences between change that was induced by nondeliberate and random adaptation and change as a result of collective learning (Fiol & Lyles, 1985), and that learning implied both a set of conceptual frameworks through which information was processed and required the ability to learn from multiple sources (Levitt & March, 1988). Senge’s contribution was to look at how organizational conditions shaped deliberate consideration of new ideas. In addition, there was immediate interest, based on his and others’ work, in applying the idea that organizations can learn – from experiences and knowledge produced outside their boundaries to public agencies, including schools (Busenberg, 2001; Mahler, 1997; Senge, McCabe, Lucas, & Kleiner, 2000).

The importance of organizational learning as a challenge to the traditional D&U model is threefold.

Outside vs. inside knowledge. Like the postmodernist perspective, the organizational learning perspective presents a challenge to the notion of knowledge as something created outside of the school and then “implemented.” Knowledge comes from multiple sources, includes experience as well as research. Thus, research (expert knowledge) becomes one competing resource and needs to be factored in with other sources such as (Huber, 1991, p. 88):

- drawing on knowledge available at the organization’s birth (what other similar organizations have done),
- learning from experience,
- learning by observing other organizations,
- grafting on to itself the components that possess knowledge needed but not possessed by the organization, and

- noticing or searching for information about the organization's environment and performance.

Only the last two of these categories have the potential for including formal research-based knowledge.

Ambiguous quality standards. Unlike the first two perspectives, no source of knowledge is inherently privileged over other sources, whether change occurs as a result of considering new information is dependent on the particular circumstances in which the organization finds itself (Morris & Moore, 2000; van de Ven & Polley, 1992). For example, organizations that are experiencing a strong threat may be more inclined to “learn” rather than to “adapt” – if they change at all. In addition, organizations that are in an early phase of a major change process may be more likely to engage in intuitive experimentation, leading later to more purposive search and analysis that might be more clearly indicative of collective learning.

The centrality of process. The organizational learning framework, unlike the renewed D&U model or postmodernism, raises important questions around the culture of the organization along multiple dimensions, including the presence of multiple processes for dealing with new information. Experience matters, but organizations can't learn if they don't have a “learning culture” that includes features such as a willingness to experiment or improvise, cooperative rather than competitive teams or subunits, and processes for reflection and turning consensus into action (Edmondson, 2002; Huber, 1991; Miner, Bassoff, & Moorman, 2001; Pisano, Bohmer, & Edmondson, 2001).

A Critique of Postmodernism

The debates between “objectivist modernists” and “constructivist postmodernists” are based in competing assumptions about science and the nature of knowledge, in which both groups fail to reflect on the conditions of inquiry or practice that are related to the knowledge use in schools. There are also some similarities between the two: both focus on the nature of knowledge and assume, for the most part, that formal knowledge is currently produced by researchers, and knowledge utilization, whether formal or informal, takes place in the work of practice.³ In other words, as Huberman posits, there is “a gap.” In fact, both also acknowledge that the picture is more complex but have not built a theoretical base that incorporates the complexity that they acknowledge.

Postmodernism appears, on the surface, to be more flawed than the revisionist versions of traditional theory. Most basic scientists have long ago given up the straw man of radical empiricism, while it is hard to imagine most practitioners accepting the contention that their classroom practice is guided only by their

³See Dunn and Holzner (1988) for a postmodernist perspective on dissemination that is explicit about this assumption.

own interpreted experience. Furthermore, some observational empirical evidence suggests that, although there *is* a gap between what researchers think they know and how users and practitioners of various sorts behave, there is also considerable activity around knowledge utilization that does not obviously involve dark efforts to impose ideas on a passive audience.

The organizational learning perspective is appealing for a variety of reasons. It focuses clearly on the “research consumer” as a collective body, and thus fits neatly with our assumption that “the school is the unit of change” (Cuban, 1990; Fullan, 1985; Spillane & Louis, 2002). In addition, it is flexible, and allows us to think about what constitutes knowledge and knowing using our now well-embedded constructivist lenses. All in all, it feels more contemporary. It is not, however, without limitations. First, it provides us with weak guidelines for assessing what constitutes “good” knowledge for improvement. In a school setting this is a particular drawback, because judgments are always being made about the quality of what is “known” in education, whether the topic concerns the best way of teaching mathematics or the best way of assessing student learning. Thus, the organizational learning perspective has an abstract quality that bears in only a limited way on the complex, high pressure world of practicing educators. A second drawback is the limited research base: We don’t know how different kinds of knowledge actually fit into the change decisions that are made by schools, nor what the implications are of the variations in knowledge for the improvement of outcomes.

An Increasing Emphasis on “Scientific Knowledge” for Policy Decisions

One thing is clear: None of the controversies surrounding theories of knowledge use have damaged “science” at all. Around the world, governments are placing more rather than less emphasis on the importance of rigorous research and “evidence-based” innovation in education, and scholars are also calling for more high quality designs, both quantitative and qualitative (Feuer, Towne, & Shavelson, 2002; Maxwell, 2004; Wolter, Keiner, Palomba, & Lindblad, 2004). In many disciplines other than education, scholars are eagerly sought out for the potential commercial value of their ideas (Blumenthal, Causino, Campbell, & Louis, 1996). The value of a scholar’s “sticky knowledge” – Hippel’s (1994) term for the insights from research that is not published, but can be communicated – is also apparent in education, where some researchers are in high demand among the practitioner community. This knowledge is not always purveyed by social scientists and educational developers, but the fact that some of our knowledge is not viewed as useable does not obviate observations that research finds its way into educational practice.

If we see many examples of educators looking for or using externally generated knowledge as if it had real meaning, then postmodernism’s argument that all knowledge is local must be flawed. Similarly, if we see that most knowledge from the outside is viewed as suspect – or at least imperfect – until other additions have

been made to it, then modernist/positivist views are also problematic. Although the revisions to traditional theory suggested by Huberman attempt to address the problematic and contingent nature of knowledge, and to suggest ways in which dissemination activities may take account of this, his discussion does not address the other issues raised by postmodernists, namely that all knowledge is local, contested, and political. Organizational learning theory has not, to date, given us much evidence about how practitioners or policymakers grapple with the wide variety of “evidence-based” innovations that are promoted by hucksters as well as scholars. And none of the perspectives help us much as we try to understand the deepening politicization of knowledge in education, in which governments privilege some research while ignoring other “rigorous” approaches, and where parents and community members (at least in the United States) want to weigh in so that their opinions about what constitutes a high quality idea will also be heard.

New Perspectives

The new perspectives on dissemination and knowledge utilization that will be described briefly below can be viewed like layers on an onion of the problem of knowledge and practice. While it is clear that philosophers – and most Western individuals – accept Descartes’ dictum of “I think, therefore I am,” which encapsulates the individual and psychological perspective on knowledge use, there has been a long recognition that thinking and subsequent knowing is constrained by context. Scholars have recently begun to examine these layers at a number of different levels: political, social networks, organizational fields, and cognitive responses. Each of these will be briefly examined below, and the relationship of theoretical ideas to the problem of school improvement will be suggested.

Political Agenda-Setting

Characterizing applied educational research as an underutilized treasure trove or as a vast swamp of mediocre studies of limited utility is a matter of opinion rather than objective assessment. There is, however, little question that policymakers hope for quick answers that they rarely get, and researchers want to produce definitive studies that will change the direction of education. If this is the case, why don’t we see more use of rigorous research? The answer lies, in large measure, in the nature of the policy process, whether it occurs at a national, state/provincial, or local level.

The notion that knowledge use is constrained by political contexts is not new. In the late 1980s, when evaluation research was well established on the policy scene, observers began to notice that publicly funded research was often used primarily because it “fit” a set of partisan purposes that were formed prior to the availability of the results. Legislative or parliamentary staff members did not read research to find out how their elected bosses *should* vote; instead they often combed research to

find results that would fit the official's or party's preferred stance. Thus, for example, even the most rigorous multimillion-dollar educational evaluations relating to supplementary educational services for less advantaged children in the United States were ignored or embraced depending on personal perspectives.

Weiss and Bucuvalas (1980) were among the first to propose that knowledge produced through more-or-less rigorous inquiry needs to pass two types of tests before it is used: a *truth test*, which helps the individual or group looking at the information to decide whether it is a reasonable approximation of "reality," and a *utility test*, by which the same groups determine whether or not it can be applied given a set of constraints, which could range from financial to potential negative consequences not considered in the research. Thus, for example, educational researchers wonder why policymakers continue to advocate for large schools and large districts when cumulative research evidence suggests strongly that size is negatively related to students' achievement (Lee & Smith, 1997; Fowler & Walberg, 1991). Yet, local school boards and their administrators can present compelling evidence to support bigger institutions that range from obvious (cost savings) to symbolic (large schools are more likely to have comprehensive programs, which increases public support for education). The research may be true, but does not yet pass the utility test.

In addition to Weiss's cogent observations, the robust line of research on the policy-making process has been driven by the observation that much of the action in policymaking occurs before any votes are taken, during the period when new ideas are introduced and become policy issues for the legislature body and the public. The most frequently cited models of policy development emphasize, like Weiss's, the chaotic and pluralistic aspects of the process in most Western countries.

Until the 1970s, research on agenda-setting tended to look for (and find) elite influence (Putnam, 1976). An alternative, while acknowledging elite bias and resistance to change in the formal system of influence, makes a key additional assumption: that "pre-political, or at least pre-decisional, processes are often of the most critical importance in determining which issues and alternatives are to be considered. . . and which choices will be made" (Cobb & Elder, 1971). This may include "nondecisions," one process by which ideas are eliminated from formal consideration. While elites may determine which issues come up, it is at this juncture that nonelite groups joust to get their knowledge and ideas into the discussion. The pre-decision process is often biased and politicized (Wolter et al., 2004, p. 521), but in other cases there are multiple points of entry, and "outsiders" who have ideas can market them freely (Edmondson, 2005; van Velzen & Louis, 2009).

The Role of Knowledge in Agenda-Setting

Explaining the complexity of the social problems to be addressed by policy is usually left to social scientists and practitioners. However, in education, researchers are ill equipped to participate in the policy-making process because they don't understand it. While educational researchers occasionally become active policy analysts, they are more likely to play an entrepreneurial role, "selling" their own findings or acting as a behind-the-scenes advisor. Researchers complain that their firm results

are often ignored, while policymakers argue that the research is not useful. At the same time, professional associations representing educators are regarded as weak sources of knowledge for policy (Louis, Febey, Gordon, & Thomas, 2008). Whoever is complaining, the outcomes are the same: limited attention paid to the value of rigorous research or practice-based knowledge (Rosenbaum, 1996; Ryan, 1999).

The point is not that policy deliberately ignores research and rigorous examination of effective practice (although it sometimes does), but that the policy-making process always takes into account that “what we know,” at least in the social sectors, is swamped by what we don’t know. Focusing on these uncertainties often stimulates debates that further undermine the credibility of knowledge, sometimes resulting in policy statements that research was not important in determining policy when it is apparent that there is a strong research base (Brown et al., 2003).

Alternative Modes of Agenda-Setting

A recent example in the United States illustrates the problem of incorporating research and practice perspectives into agenda-setting. The federal Reading Excellence Act was based on the goal of ensuring that every child in the United States would read by the 3rd grade *and* on the assumption that we know how to teach reading. However, competing views among various actors – individuals, professional associations, and well-placed policy advisors – undermined these reasonable assumptions (Edmondson, 2005). Schisms concerned the best way to teach reading, whether reading should be taught in pre-school or earlier, and other issues. Rather than rallying the expected coalition of stakeholders, the legislation precipitated lingering divisions between agencies and researchers committed to understanding and promoting reading. If promoting reading in the early grades can be politically volatile and create vituperative debate, we cannot expect that managing change in more complex parts of the system will be less so.

Policy initiatives can also become resistant to empirical or rational analysis. For example, Technical and Further Education (TAFE) policies in Australia were influenced primarily by corporate opinions and a neoliberal rhetoric linking further education to economic expansion and work, in spite of limited empirical evidence supporting the payoff of such a shift (Ryan, 1999; Symes, Boud, McIntyre, Solomon, & Tennant, 2000). This policy process apparently lacked the pluralistic and chaotic discourse that characterized the development of the Reading Excellence Act in the United States, but did so at the cost of discouraging the inclusion of alternative ideas that might have led to a more comprehensive education policy. There is little evidence that the policy change made much of a difference in the routines and practices of universities, except on the margins (Symes et al., 2000).

What can we conclude? First, the use of knowledge in the agenda-setting process is contested and poorly understood. Second, using rigorous practice or research-based knowledge to sway opinions once the agenda is set has little impact (sad news to all of the social scientists who prepare for legislative or parliamentary testimony). Finally, in education, research on agenda-setting is very limited; we know more about how legislative agendas are set in the small, progressive state of Minnesota

(Mazzoni, 1993) than we do about larger and perhaps more typical states and much less about other countries.

The contrasting agenda-setting histories of the US reading initiative and Australia's TAFE policies reflect the problems of school improvement today. On the one hand, we observe devolution or decentralization policies that place the responsibility for knowledge utilization and change more clearly in the hands of schools. The assumption that localized processes of knowledge utilization can contribute to educational improvement is a distinct paradigm shift that has occurred on an international basis, propounded by an increasing consensus among teacher associations, politicians, and parents in countries as diverse in educational tradition as Sweden, New Zealand, the Netherlands, England, and the United States. On the other hand, political actors continue to make decisions that involve centralized, hegemonic decisions that are intended to shock the system into change – for example, efforts to introduce new standards-based reforms in previously decentralized systems.

Social Networks

Many scholars focus on the characteristics of knowledge *and* context as a predictor of use. According to many writers, educational research is likely to influence policy development when it (1) is compatible with existing belief structures, (2) diffuses rapidly throughout the organizational field so that it becomes legitimized, (3) *has prima facie* utility in local sites, and (4) is “processed” or discussed within the potential user group in ways that make it fit with local preferences (Wejnart, 2002).

Weak Ties and Diffusion

The “strength of weak ties” is a concept that explains the unexpected finding that new ideas transfer most rapidly between groups that share only a few members (Granovetter, 1973). The underlying explanation is that *very strong ties* foster “groupthink”: little disagreement about preferred policy solutions occurs among groups that share common ideologies, and therefore genuinely challenging information is unlikely to be exchanged. The *absence of ties* between groups means that innovative policy ideas will not be shared at all because of limited opportunity to meet. *Weak ties*, in contrast, permit both the development of diverse ideas in independent groups and also the occasional ad hoc communication that is associated with more the rapid spread of new ideas. Weaker ties between units within the same social system can be important in generating a broader range of solutions to identified problems, or help in identifying new problems (Hansen, 1999). The implicit understanding of the importance of weak ties underlies much of the enthusiasm in several countries for developing networks among administrators and teachers in different settings (Stoll & Louis, 2007).

Recent research on policy formation and agenda-setting incorporates network studies of networks that examine weak and strong ties. In particular, research on policy networks has turned from an emphasis on bargaining to one that also includes

information transfer (John, 2001) and the diffusion of innovations in the public sector (Louis, Rosenblum, Bingham-Catri, & Jones, 2003; Wejnart, 2002). This shift expands the framework to account for the emergence of competitive “issue networks” and also moves beyond examining privileged or “elite” communication relationships to more inclusive and loosely regulated forms of information exchange. A network approach argues that most connections are fluid and bound together by the trading of valuable ideas and joint work and not just the exchange of favors. The fact that these are international trends, often involving the borrowing of language and ideas between countries, suggests a strong currency for a flow of political perspective about educational reform among elites. Ideas about effective schools and effective teaching have also been widely diffused through international research networks, and later, within countries, have been influential in affecting policy discourse.

The implications for conceptualizing complex educational changes are stunning. If policymakers at all levels in the educational system are held in a large but diffuse network in which crudely defined ideas circulate, but in which some ideas come up against unpredictable exclusionary boundaries, the problem of managing change becomes enormously complex. In large systems, managing complex change requires managing the flow of knowledge – something that has become increasingly difficult in the information age. Rather than managing change, we are driven to a worldview in which embracing the apparent chaos and disorder of an evolutionary process provides the only logic for making the world better (Wheatley, 1999; Wheatley & Crinean, 2004). It is the nature of the idea and whether it “sticks” that creates structures – not the command and control apparatus.

Strong Ties: The Influence of Elite Networks on Knowledge Use and Change

The weak ties concept is compelling, but may be less applicable when complex knowledge needs to be transferred. The weak ties approach suggests that countries or states will look for solutions to educational problems quasi-independently. One government’s choices will not dictate an approach to the other. “Successes” are, however, communicated in a variety of venues ranging from invitational expert conferences to OECD meetings, and governments compete to be the first to adopt solutions that look good (Berry & Berry, 1999). The problem with this pattern is that the information communicated can be weak and poorly researched, and that spread may be based more on the immediate needs of officials to “look good” than on careful analysis. Furthermore, the more complex the information, the more likely it is to be distorted during transfer.

To compensate, officials develop stronger ties with information providers, turning to trusted groups for information on complex issues. In general, when faced with complex problems, most policymakers look for acknowledged expertise that has proven helpful in the past (Salisbury, Johnson, Heinz, Laumann, & Nelson, 1989). Experts may become members of the policy elite as part of their role in regularly providing information, a trend that accelerates when legislators are faced with ever

more complex research results and policy options. In countries with a professionalized civil service, inner circle policy advisors, often with ties to academia or think tanks, may come to be seen as displacing more neutral and experienced advisors.

Sustained interactions are a key to the effective transfer of complex knowledge. This is the strong ties–weak ties dilemma: Trust creates networks that not only facilitate the flow of complex knowledge, but may also serve to crowd out divergent voices and ideas. Sustained interaction facilitates consistency in “mental models” or the worldviews of parties (Huberman, 1999), and emerging research suggests that people simply do not remember factual information that challenges their mental model (Mishra & Brewer, 2003). Perhaps fortunately, networks connecting researchers and policymakers rarely generate stable or formalized strong ties. Reliance on experts does not make decision makers powerless recipients, because they pick and choose who to listen to (Lupia & McCubbins, 1994; Mishra & Brewer, 2003).

Organizational Frames: Institutional and Cognitive

In addition to the infusion of ideas related to organizational learning into educational lexicon, other recent developments in organizational studies seem to have profound implications for knowledge use and school reform. Each also contributes to the debate between the modernists and postmodernists. The first builds on the work of institutional sociologists of the 1950s and early 1960s, but takes a more radical stance in terms of the degree to which external influences condition internal stabilities in organizations, and thus affect the knowledge that will or will not be used. This school of thought, which emerged in the early 1980s, is referred to as the “new institutionalism” (Powell & DiMaggio, 1991). A second line of work, which is more recent, examines sensemaking in organizations. This perspective is consistent with the organizational learning ideas discussed above, but pays more attention to the “how” of organizational learning.

The New Institutionalism

The new institutionalism in organizational theory begins with the assumption that the patterned regularity of organizational behavior, which is particularly noticeable within sectors or industries, is a major social phenomenon that requires explanation. The assumption that repetitive social relations are facts that cannot be reduced to individual explanations is as old as the field of sociology itself. What is new about the current perspectives, however, is the emphasis placed on explaining lack of variation in organizational patterns – for example, why do all modernized countries have a higher education system that is increasingly similar in terms of types of institutions, length of study, and the names of courses of study? Why are school

classrooms remarkably similar whether one is in San Francisco, Rockford, Illinois, or London?

Organizational Fields

The answer, according to institutional theory, is that the emergence of an organizational field, or a collection of organizations in the same line of business, creates both collective opportunities to influence the environment and group norms that may generate resistance to change.

... in the long run, organization's actors making rational decisions construct around themselves an environment that constrains their ability to change in later years. *Early adopters of organizational innovations are commonly driven by a desire to improve performance. But ... as an innovation spreads (within the field) a threshold is reached beyond which adoption provides legitimacy rather than improves performance ...* Thus organizations may try to change constantly; but after a certain point in the structuration of an organizational field, the aggregate effective of individual change is to lessen the extent of diversity within the field. (DiMaggio & Powell, 1991, p. 65) (italics added)

The spread of the community college system throughout the United States after its initial “invention” in California is an example of this – a diffusion that has now been completed virtually worldwide in developed countries. Particularly striking is its institutionalization as a system that contains both “academic” and “vocational” programs and the similarity of programs between units that avowedly respond to local labor market needs (Brint & Karabel, 1989).

Norms and Epistemic Communities

The similar nature of individual organizations within an institutionalized field is maintained not by rational choices, but by the dominance of the norms and symbols that come to exemplify “the best of what we do.” Through their participation in symbolic rituals, organizational action reinforces the order of the institution and its relationship to society (Detert, Louis, & Schroeder, 2001; McLaren, 1999). To give just a small example, the use of bells in US high schools to signify the end of classes had little practical significance. Yet, in the 1960s, efforts to eliminate bells were resisted: Bells stood for the orderliness of schooling, as contrasted with the chaos of adolescence. Resistance was not a consequence of individual concerns, but of environmental pressures from the organizational field, and other constituencies who reinforce the norms and symbols. These may range from the general public (who expected bells) to the government and accrediting associations/inspectorates.

In spite of the large and small rigidities introduced into an institutionalized organizational field, change and knowledge utilization do, of course, occur. However, reforms often spread in a mimetic fashion among governments and become quickly institutionalized (DiMaggio & Powell, 1991). A clear example is the recurring waves of curriculum standards reforms in developed countries – a response to public concerns about the rigor and breadth of this highly institutionalized aspect of the education system. Because math is an area in which major comparative tests

have been conducted, the similarity in curricula between provinces/states (and countries) is increasing rapidly, while other curriculum areas (art, social studies, etc.) are highly variable between schools (e.g., are not institutionalized). Why should this be the case? In making these changes, policymakers and educators rely on information from others in their field: rates of knowledge dissemination and utilization are high, and research about math curricula and its effects are widely circulated. In the case of math reforms, the institutional interests of the organizational field in preserving public confidence in their programs often stimulated very modest changes in classroom behavior (Spillane, 2000).

The “middle school movement,” intended to reform schools for younger adolescents (usually 11–14-year-olds) in the United States, is another example of dissemination based on a mixture of scholarly research, information about practices in other schools, and “local knowledge.” The initial period of reform was more localized and chaotic, with many efforts to invent new solutions to the problem of creating more academic engagement among early adolescents. More recently, key structural elements, such as teacher teams, interdisciplinary curriculum, and cooperative pedagogical styles, have become widely shared and legitimated, *although research supporting their value is still rather slim*. What the institutional perspective points to is the increasing similarity in features of schools that are deemed necessary in order to qualify as “a real middle school.”

Institutionalism and Postmodernism

To summarize, the institutional perspective picks up the postmodernist themes of hegemony of particular ideas and forms of knowledge, but argues that these are largely created *within* the organizational field (often in response to external pressure) and are *self-sustaining*. Rather than emphasizing the “localness” of knowledge construction and use, they point to the mimetic nature of organizations within an institutionalized field as a determinant of what knowledge will be used. Educational reform within the broad organizational field is not dependent on the availability of specific externally developed models complete with training and support, although these may support change in individual schools: The intersection between pressures for change from outside, local development activities, and the rapid spread of workable ideas between adopting units determines knowledge use.

Making Sense and Giving Sense

The determinism of new institutionalism is challenged by an offshoot of the organizational learning perspective, which argues that the superficial resemblance of schools may be misleading. Effective schools research suggests that the organizational factors that matter for student achievement are not easily visible to an outsider. If the new institutionalism examines the environment for dissemination and knowledge utilization activities that affect whether information will spread within

an organizational field, new ideas about sensemaking move into the interior of the school, looking at features that affect the adaptability of individual units.

There are a variety of theoretical perspectives on sensemaking and change in the educational literature, but one finding is clear: When teachers or administrators are confronted with a new set of practices (such as those emerging from research), their interpretations of it will determine whether they engage in change, resistance, or simply ignore it (Gold, 2002; Louis & Dentler, 1988). Some studies focus on individual responses to disruptions or demands for change, which examine cognitive processes used by individual teachers to understand new information that is inconsistent with what they already know (Broadway, 1999; Zembylas, 2003), while others look at the role of context and culture as conditions mediating individual change (Angelides & Ainscow, 2000; Blase & Blase, 1997; Gioia & Thomas, 1996; Harris, 1994).

What Is Sensemaking?

Sensemaking is not an event, but is ongoing, focused on extracted cues, driven by plausibility, and tied to identity construction (Weick, 1993). *Individuals* pay attention when something in their surroundings does not fit with their usual routines, and use their experience to find patterns that help to explain new situations. Similarly, *collective* sensemaking occasionally occurs as part of a deliberate activity (like strategic planning), but more often emerges from informal communication that leads to common actions or agreed-upon activities (Coburn, 2001; Donnellon, Gray, & Bougon, 1986). In education, the nature of professional communities and dialogue has emerged as a powerful factor, determining collective understanding of new ideas introduced from outside (Coburn, 2001; Honig & Hatch, 2004), as well as organizational learning, or the creation of coherent and shared explanations for “how we do things around here.”

Sensemaking and Knowledge Use

Sensemaking occurs when teachers work together and learn from each other, which leads them to interpret changes in their setting and practice in a consistent and collective manner (Coburn, 2001; Craig, 1995; Louis, Febey, & Schroeder, 2005). The role of school leaders in helping to interpret new information or demands from the school’s environment and their implications for collective work is increasingly important (Coburn, 2005). Recent work has focused on the role of administrator’s story-telling as part of the collective interpretation (Dunford & Jones, 2000), while other research has emphasized the role of the school leader in helping to determine what information is considered worth talking about in the first place (Wahlstrom & Louis, 1993). The paradox of distributing knowledge more broadly is that it may require a significant “push” from the top of the organization (the principal or other local leader) in order for more initiative to be taken up as a more fundamental element of sensemaking. It is this paradox that has led some people to talk about

“sensegiving” as typically the job of a formal leader at the beginning of a change process (Fiss & Zajac, 2006).

Sensemaking requires not only cognitive engagement with the implications of a new research-based idea, but also opportunities to learn and practice (Coburn, 2001; Marks, Louis, & Printy, 2002). In peer groups with a high rate of interaction among members, values and attitudes are redefined through frequent contact. For example, time to meet and talk allows teachers and administrators to construct interpretations of new ideas and information, and to draw implications for their own work. Thus, organizational learning is a critical outcome of sensemaking because it prevents current beliefs and experiences from interfering with teachers’ and administrators’ ability to implement and interpret the new expectations that come along with expectations that the shape and practice of leadership in schools will change (Kezar & Eckel, 2002; Spillane, Diamond, & Burch, 2002). Making sense of any new initiative or idea, whether research-based requires alignment with existing conditions in the school, and the manner in which a new initiative or idea is framed also affects the role of policy actors outside the school (Firestone, Meyrowetz, & Fairman, 1998; Spillane, 1998). In particular, educational professionals need to see a connection to their main task, which is supporting student learning.

Sensemaking is a form of social processing but not necessarily deep processing. Studies of sensemaking often explore micro-interactions and cultural narratives. However, casual conversations and narratives can reflect superficial behavior expectations rather than addressing core assumptions about how the school should function (Craig, 1995). In order to create a more fundamental change, both time and deeper challenges to embedded assumptions are needed (Huy, 1999; Kezar & Eckel, 2002). This focus on “sustained interactivity” meshes well with Huberman’s analysis, reviewed earlier, as well as with most descriptions of the conditions that foster organizational learning.

Paradigm Shift or Paradigm Revolution?

The purpose of the above review of recent research in a number of disciplines is to point to two issues: First, there is a proliferation of research and theory bearing on the intersection of knowledge dissemination and utilization and school improvement (although many authors quoted in this chapter do not explicitly consider this issue), and second, much of this research already incorporates elements of a post-modernist position, although none of the empirical studies discussed is consciously postmodernist. The convergence taking place around the key elements of emerging views of knowledge will be considered first, and then the implications for school improvement practice:

- *All knowledge is local.* The above discussions assume that local knowledge is a key feature of the landscape of change, but most would agree that there is important knowledge that is not local. Knowledge created elsewhere must, according to

all theories, be compatible with existing belief structures, diffuse rapidly throughout the organization field so that it becomes legitimized, have utility in local sites, and be “processed” in ways that make it fit with local preferences. The “new institutionalism” adds another wrinkle to this: knowledge that is widely diffused is itself institutionalized so that it can be easily legitimated and shared within the “field” of organizations, sites, or other members of the culture. Although a great deal of important knowledge may come from outside the organization, the above theories also suggest that this information is always combined with local knowledge.

- *All knowledge is contested and partial.* This is supported by most of the new theoretical advances. Sensemaking, for example, assumes that the contesting of knowledge is central to the learning process. The “new institutionalism” (at a very different level) argues that it is the incontestability of many features of an organizational field that makes it difficult to change: only where there are chaotic events that cause either insiders or outsiders to question the existing knowledge base will change/knowledge utilization occur. The contested nature of knowledge is a key element of political theory and the primary element that leads most contemporary writers to conclude that there are many ways of using knowledge, depending on the degree to which it is “solid” – for example, meets truth and utility tests – and enters the agenda-setting arena at the right time and from the right source. In the organizational learning model, it is the debate and discussion around contested or partial knowledge that leads to a new *modus operandi*, a perspective that is consistent with the sensemaking perspective.
- *All knowledge is political.* Insofar as the newer theories address power, there is a tendency to follow Macaulay’s assumption that “knowledge is power” and that the creation of knowledge creates powerful settings (including constraints). None of the perspectives reviewed here adopt, however, the critical postmodernist view that power-plus-knowledge inevitably becomes an instrument of oppression. Nevertheless, political contexts are critical to understanding knowledge use, as is demonstrated by the analysis of knowledge utilization among policymakers, the “new institutionalists” observations that knowledge use is constrained as the organizational field becomes defined by both internal norms/patterns and external expectations/regulation, and the sensemaking focus on the role of designated leaders as “sensegivers.”

While all of the perspectives reviewed are consistent with some of the basic tenets of postmodernist views of knowledge, they also assume that knowledge has some realist qualities, and that it can be used by individuals who have not created it. The use process is complex and difficult to predict: there will be no production function D&U models emerging from this set of scholars. But messy cannot be equated with impossible. In fact, we may draw some lessons from Bordieu and Wacquant (1992) in this regard:

Awareness of the limits of objectivist objectivation made me discover that there exists, within the social world, and particularly within the academic world, a whole nexus of institutions whose effect is to render acceptable the gap between the objective truth of the world

and the lived truth of what we are and what we do in it. . . . It is this *double truth*, objective and subjective, which constitutes the whole truth of the social world. (Bordieu & Wacquant, 1992, pp. 254–255)

Some Implications for Practice

There are many implications of the layered approach to D&U theory proposed in this chapter. In particular, I argue that there is a self-conscious need to reintegrate our understanding of the nature of three arenas of knowledge: research results related to educational goal achievement (school effectiveness, broadly conceived), educational change processes (school improvement, broadly conceived), and the knowledge use strategies that can be pursued both inside and outside schools to improve student learning and development. None of these are inconsistent with Huberman's reformulation of traditional dissemination theory, but suggest an expanded context for thinking about D&U. In particular, we need to draw upon the research about political, historical, and organizational contexts affecting knowledge use to enrich the micro-level perspectives that are emphasized by Huberman and the sensemaking research. While it is beyond the scope of this chapter to suggest a model for D&U and school development that fully incorporates these theories, a few examples can demonstrate the practical connections:

- *Research knowledge is only one source of knowing, and its use must be negotiated during a dissemination process.* This fluid relationship – and even co-dependence – between research and practice must be acknowledged, and researchers must be prepared to be open to involvement in the development process at the user level. Much of the best practice in education is not generated by scholars in laboratories, but by teachers and school leaders in actual settings. Research enters the field at a later point, synthesizing, developing, and assessing practice-generated ideas. In case you think that this is evidence of the weakness of the field of education, the same is also true in science and engineering, where connections between universities and firms are increasingly close (Owen-Smith, 2003). On the other hand, the spread of new ideas in education, as in science and engineering, is frequently aided by research, which may codify and extend practice-based knowledge as well as making independent contributions to it. In many cases, researchers may not be as well equipped to engage in field-based development over long periods of time (they have students and new research projects to carry out), but the others may fulfill this function if they have a deep understanding of the emerging nature of the negotiated knowledge.
- *Involving potential users in research will not necessarily make research more useable – except at a particular site or among those who have been directly involved.* There has been a trend in many countries to involve practitioners in setting some research agendas (e.g., serving on peer review panels), and even as co-participants in carrying out research. This is thought to make research more grounded and, hence, useable. While it may be good for researchers to become

more connected to practice settings and vice versa, the power of site or place when it comes to change is infinite. Thus, extensive involvement of practitioners as researchers should occur for its own direct benefits, and not because it improves the possibility of dissemination and utilization.

- *The main barriers to knowledge use in the public sector accrue as a result of rigidities induced in institutionalized organizational fields, organizational designs that do not foster learning, and political agendas that are not consistent with the information.* Changing these interorganizational rigidities in the short run may be extremely difficult. The motto under these circumstances is not to engage in Sisyphean efforts, but to “try again another day” because contextual circumstances change for reasons that have nothing to do with research or educational policy.
- *The barriers to knowledge utilization are often to be found in organizational design. This suggests that redesigning the organization should be part of any effort to engage in “sustained interactivity” around research utilization.* The emphasis on developing school self-management that is emerging in many countries should be shaped around those capacities that augment not only the ability to manage budgets and personnel policies, but also attends to the creating of schools that can learn from knowledge that is generated inside and outside the school. This objective will require policies, as well as direct training and support to schools that have previously not engaged in these efforts.
- *Some forms of useful knowledge will spread with little dissemination effort – due to organizational field compatibility or because the field develops an infrastructure to assess and legitimate the type of knowledge.* We do not always need elaborate infrastructures or sustained interactivity to ensure the incorporation of new ideas in practice – nor can we ensure that the knowledge that spreads most rapidly is “good knowledge.”
- *Utilization and impact can only be assessed over the long haul.* Short-run efforts to foster major utilization are likely to appear shallow and hegemonic to practitioners, and fail to disrupt the interorganizational rigidities of the field. Policymakers and disappointed researchers are likely to view these efforts as failures and to pronounce schools as impossible to change. Thus, research-based efforts to create school reform must be based on an extended time line.
- *Creating sustained interactivity is not a solution to the D&U problem, but if it becomes a norm, it may well increase the scholarly impact because it enlarges the organizational field.* We should not limit the idea of sustained interactivity to the relationship between a “knowledge producer/researcher” and “knowledge consumers/practitioners” but focus also on formal and informal networks for transmitting knowledge between units. These networks, to be successful, must involve practice templates that combine research knowledge and practice knowledge.

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