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Organizational Learning and Knowledge Management: Whence and Whither?

Abstract *Draws together theorizing in learning, organization and management studies in order to consider the nature of the problems by which the practice of knowledge management is animated. Though in places propositional, the points being made remain deliberately suggestive insofar as they invoke a wide-ranging past to consider what might be probable futures. The conclusion invokes a return to the past, in suggesting that the potential for knowledge management lies with its returning to a time when theorizing was grounded in what we now choose to ignore, namely managers' experiences and practices as they use their imagination in wealth-creating activity.* **Key Words:** *meaning; organizational learning; practice; tacit knowledge; uncertainty*

Knowledge is the thing as researchers follow Drucker's lead and insist it alone is the source of sustainable competitive advantage and economic growth (Drucker, 1988). But knowledge remains a curiously elusive topic, peeking out from several different literatures. In times past we had organizational climate and culture as ways to talk about the unique knowledge which characterized or was embedded in an organization (Ashkanasy et al., 2000; Schneider, 1990). These earlier analyses provided only indicators of knowledge, for it was the organization that was managed. Decades later, we see a significant shift in the debate. Now the organization's knowledge is to be managed, as something distinct from the organization itself (Dierkes et al., 2003; Easterby-Smith and Lyles, 2003; Spender, 1992, 1994; Spender and Marr, 2005).

This requires us to adopt several assumptions. First, we presume the organization's knowledge, that not-so-easily-identified asset that organizations seem to have or possess, can be managed, stored, traded and applied in the same way as its more tangible financial and physical assets. Yet it is unlike those assets in that it is intangible, a part or aspect of the organization's intellectual capital, intimately tied up with its human constituents, what people individually and collectively know and do. Hence the literature of organizational learning and

knowledge management begins to overlap that of human capital theory (Becker, 1993) and of social capital theory (Field, 2003). Second, this knowledge is generated by manageable processes of organizational learning, with the outcome being managed, in turn, by the processes of knowledge management. Hence organizational learning and knowledge management may seem complementary (Antal et al., 2001). In practice, the two literatures run curiously parallel and, worshiping at different altars, honor different high priests; March or Argyris and double loops, on the one hand, versus Polanyi and tacit knowledge, on the other. While the focus of organizational learning is mostly on managing the production or growth of the organization's knowledge, knowledge management is more puzzling. At times it seems to embrace learning, whereas at other times it suggests the more extensive agendas of the 'knowledge-based view' or the knowledge-based view of competitive advantage (Vera and Crossan, 2003).

Easterby-Smith and Lyles (2003) helpfully map the two literatures by arguing that 'organizational learning', the 'learning organization', 'organizational knowledge' and 'knowledge management' are each quite different. Organizational learning refers to 'the study of the learning processes of and within organizations'. This definition implies organizations, as discrete socio-economic entities, can learn in ways that are 'independent of the individuals within' (Easterby-Smith and Lyles, 2003: 9), an insight they credit to Cyert and March (1963). While this attribution seems to overlook the classic Durkheimian notions of collective knowledge (Halbwachs, 1992; Middleton and Edwards, 1990) it allows the idea of a 'learning organization' to emerge (Senge, 1990); this being a coherent entity that, having the ability to learn like a biological organism, can adapt purposively and so survive in a changing environment. So third, there is general agreement that organizational learning refers to internal adaptation processes triggered by some kind of disjunction or unease in the relationship between the organization and what lies external and challenging to it in its environment (Antal et al., 2001). 'Organizational knowledge' applies to what these learning processes have generated and this part of the literature typically deals with the nature and location of the organization's knowledge (Spender, 1993; Tsoukas and Mylonopoulos, 2004). Much of this literature is epistemological, a debate about whether organizational knowledge is like or unlike scientific knowledge. Most of the work in knowledge management, by contrast, presumes the presence of some knowledge and focuses on realizing its economic potential when, perhaps, it is not at the right location and ready-to-hand. Generally speaking, the knowledge management agenda deal with the practicalities of first, identifying the organization's knowledge assets, then second, collecting and storing them, optimizing them in the manner suggested by scientific management, and finally delivering the result to the locations where it can be integrated and turned into value (Teece, 2003). Unavoidably, the bulk of the knowledge management literature overlaps an older literature on IT (information technology) systems design (Alavi and Tiwana, 2003), though it risks missing the distinction between IT and management information systems (MIS), i.e. the difference between engineering an efficient IT system and maximizing the economic value it delivers. A different part of this debate deals with ownership and property rights, how, for example, the organization can retain this knowledge when those who carry it with them leave. To summarize, organizational learning

seems to be about managing the creation of the organization's knowledge, while knowledge management is about optimizing the economic value delivered.

In spite of the progress evident in the expanding literature of knowledge management, I believe it remains a puzzle, perhaps even a paradox with its hint of meta-knowledge and hidden questions about the knowledge status of its statements about knowledge. Indeed knowledge management may be no more than an oxymoron; if people had the knowledge they needed management would be unnecessary, as Simon (1997) told us. As a result of these internal infelicities and inconsistencies some think knowledge management slack-brained nonsense, others think it no more than a managerial fad. A smallish group of authors that includes myself, considers it important and radical, potentially capable of opening up a new theoretical and empirical agenda for organizational theorists, one that could embrace uncertainty and 'bounded rationality'. Obviously we cannot identify this potential without some sense of knowledge management's present and past, of why it has appeared now as an academic subject. Many writers start with the paradigm shift to the Information Age, or to knowledge-intensive production, or they leverage off Tobin's Q. There have been recent suggestions among managers that today's organizations are becoming too large and complex, effectively unmanageable because the knowledge necessary to manage them is beyond the reach of a single mind, too extensive, changing too quickly, too fragmented, etc. Whatever the drivers, businesses—and universities too—are increasingly concerned with better management of their knowledge, and with the processes of its production. Sometimes identifying and codifying the organization's knowledge is the issue, sometimes it is managing its generation, sometimes moving or sharing it, and sometimes establishing and retaining ownership. But what kinds of theories or notions actually underpin these analyses?

The commercial knowledge management trade, global and running into billions of dollars, has no trouble with this. Modern organizations are massive producers and consumers of information, and that is mostly what they mean by knowledge. A cornucopia of knowledge-management tools collect, parse, reconstruct, store, access and deliver information in ever more interesting and useful ways. Corporations everywhere are paying new attention to how their information is generated and handled. Likewise battlefield information systems are transforming warfare just as domestic policing is being re-conceptualized with CCTVs and cell-phone surveillance. Tools to support collaborative work are ever more necessary and cost-effective. In a just-in-time or zero-inventory environment managing a complex chain of suppliers around the world is highly information intensive and this, in turn, demands vastly improved 'enterprise resource planning' (ERP) systems. There is significant money to be made addressing these challenges.

If these are the right issues, the relevant theory would seem to come in two parts. First, there is the traditional IT problematic, how to design effective and efficient electronic systems, what we might call the business's information infrastructure—and theory has advanced rapidly here. Second, there is the content. Organizations have to characterize and collect the data to be piped through their systems, to separate the useful from the useless. Some rely on their human resource people to do this, others rely on consultants. IT department professionals are often charged with implementing knowledge management projects

and tend to be strong on the first part but lighter on the second. To complement them there are knowledge engineers who specialize in content rather than system design (Schreiber et al., 2000). They use operating data, questionnaires, stopwatch observation methods, video cameras, etc. to capture the business's practices, then use traditional systems analysis to do business process re-engineering, or use predicate logic and programming tools to construct concept maps and build models, or language analysis tools to parse the organization's communications. Thereby, they revisit the artificial intelligence and expert systems agendas of 25 years ago (Graubard, 1988), driven increasingly by the executive urge to de-skill today's vastly expanded white collar and professional work force. Many of the earlier knowledge management and artificial intelligence systems foundered for two reasons: the discovery of (1) the extent and practical import of the tacit dimensions of the organization's processes and (2) the difficulty of keeping the systems updated as the world changed and the organization learned. We learned that a business's knowledge systems were neither self-organizing nor autopoietic (Von Krogh et al., 1998). There may well have been recent progress in these matters and some would argue the future of knowledge management lies in 'agent-based modeling' and similar directions (Axelrod, 1997). But it seems clear that advancing knowledge management requires something other than doing more of what has been done in the past. In particular, it seems to require a new roadmap built on more robust notions of knowledge than those currently deployed in the literature.

Knowledge turns out to be a very demanding concept. The challenge presented is to distinguish it from mere opinion or the speculations of a fevered mind. The naive presume knowledge is a 'cognition' or mental representation of reality, and bad or false knowledge is that which is inconsistent with 'the facts' of reality. The underlying assumption is that we can check the quality of this knowledge directly against the 'facts', against the reality represented. Unfortunately, having no direct insight into reality and because what we take to be 'the facts' are themselves no more than another representation, this check turns out to be unavailable. At best we are comparing representations. We do not now have access to Truth as fully established unquestioned knowledge of reality, and cannot ever have. Many who are less philosophically naive propose 'justified true belief' as their definition, presuming this to be like or even identical to what the natural sciences are searching for (Machamer and Silberstein, 2002). The notion here is that scientific theories are representational notions that have survived many tests, empirical and analytic, using the methods that characterize the relevant scientific community. By definition, tests are only possible on testable predictions. So having also yielded predictions both testable and useful, ideas achieve a tentative status as scientific knowledge. Thus if companies, or the individuals within them, have justified true beliefs about, say, customers and their intentions, that would seem pretty useful, and there may well be others in the firm who need to have that knowledge if the situation's potential is to be realized. It may also be important to keep this knowledge from competitors. Here the issues around handling knowledge seem to take precedence over arguing about what it is, and it may matter less how we organization theorists define knowledge than attending to helping managers make best use of it.

Without any direct contact with reality to refer to how can we make sense of or evaluate our representation-based knowledge claims? It appears the useful knowledge we want is what contrasts with ignorance, with bad, incorrect or false knowledge. There is a problem here if we expect to define knowledge along these lines, for these alternative types of knowledge are themselves knowledge, even if it is of a less desirable type or quality. We must come to terms with being trapped within a bubble comprised of our various bodies of knowledge, some good and some not-so-good, for we are unable to step outside the bubble enough to identify something like a 'reality' that is not a representation. Perhaps the best we can do is to consider the different types of knowledge available to us, and compare and contrast or even relate them. We might consider how to correct our incorrect knowledge, or improve the quality of our poor quality knowledge. Thus absent an unequivocal comparison with reality, Truth itself, our challenge is to come up with an alternative basis for comparison.

The organizational learning literature has generally adopted the notion of learning as behavior change, in this sense, contrasting behaviors at different points in time. Learning is framed as more effective behavior at time t_2 . The knowledge management literature, more concerned with identifying, collecting, distributing and establishing ownership of the organization's knowledge, is less concerned with change over time and has turned instead to other typologies. This is why so much of knowledge management's literature has spun out of Polanyi's explicit/tacit distinction (Polanyi, 1962). There has also been considerable attention paid to the distinction between the knowledge held subjectively by individuals and that held intersubjectively by groups, teams, organizations and other social collectives (Spender, 1993, 1996). Similar typologies have emerged in the work of Blackler (1995) and Engeström (1991, 2000). With such typologies in hand, knowledge management writers can ponder the different challenges of, for example, collecting and distributing tacit knowledge versus those of collecting and distributing explicit knowledge. This is clearly a different agenda from theorizing how to manage the learning that leads to increasing either.

Many knowledge management authors turn to Ackoff for a working typology to underpin their analyses. Ackoff is credited with developing the data, information, knowledge and wisdom (DIKW) typology although he actually included 'understanding' along with the other four (Ackoff, 1989). The technical problem is his categories are nested rather than mutually exclusive. Thus we progress from data, which he argued is 'raw fact', to 'information', which is data with meaning, to 'knowledge', which is information contextualized and 'wisdom', which is knowledge harnessed to the improvement of the human condition. Whether Ackoff's typology is epistemologically sustainable is beside the point for, because of its nesting, it fails to provide a system of categories for theorizing knowledge management's problematics. Nor is the typology useful to organizational learning as a measure of learning through time, even though, of course, we need to be concerned with notions like maturity, perhaps indicated as a movement from data to wisdom, and with our ability to bring what has been learned to the world, with its ethical and moral issues, etc. The typology's merit is that it implies knowledge is probably best evaluated in terms of its usefulness, recalling the pragmatism of James and Dewey (Menand, 2001). This pragmatic approach would stand against

the purely epistemological approaches often evident in, say, the work of Tsoukas (1996, 2005) or Spender (1998, 2003).

The point here is that we might spend a lot of time arguing, somewhat fruitlessly, about better definitions of knowledge and knowing when these do not matter much so long as we are able to translate our thinking into some relevant managerial actions. Thus finding knowledge in one place and wishing it to be in another—one of knowledge management's central problematics—is going to be easier if we have gained some insight into the problems that we then confront. If communication theory is about moving data, moving knowledge, if by that we mean tacit knowledge, may turn out to present additional challenges. Even to know that there are additional challenges will be useful. Similarly, if we are concerned with the retention of expert people's knowledge as they leave the organization, another knowledge management problematic, it may be helpful to realize, on the basis of Polanyi's notion that 'we know more than we can say', that we cannot meet the challenge by simply getting them to write down everything they know. The implication is that the typology we need should be based on the action opportunities open to us as we confront knowledge management's problematics.

Along these lines, I feel we should see knowledge management as divided into three camps, based on the actions implied by how we define knowledge. We can, for example, note our ability to use IT systems to move data around. But a quite different challenge is to reshape other people's interpretations or the meanings they might attach to the data being moved. Meanings are 'lenses' we put over the data we receive to bring that data into the world of our actions as 'information'. Useful information, therefore, is that which is relevant to that world and comprises both data and meaning. Such action is in-the-world and thus conceptually distant from cognition which is in-the-mind, and even though we see skillful practice as an important and useful form of knowledge it evidently embraces issues beyond mere interpretation. 'Correct' cognitions do not ensure skilled practice, though 'incorrect' cognitions might interfere with it. But here correctness is more to do with the effectiveness we experience as we translate the cognition into practice, and with the extent to which we use the cognition to share information with others as a preamble to effective collaboration. My emerging typology, therefore, is: knowledge-as-data, knowledge-as-meaning, or knowledge-as-practice (Spender, 2007a) and this stands specifically against Ackoff's DIKW model. Those who see knowledge as information cut across categories and meld data with meaning, obscuring the mysteries of how the categories become combined through practice. Practice, of course, is always located within a specific context which determines the data and meaning to be combined. The special knowledge management discipline-shaping appeal of tacit knowledge is that it attends to knowledge-as-practice as a further form of knowledge that falls outside the cognitive domain of information. Practice is richer and more complex than the mere execution of cognition, and cannot be theorized within a framework of rationality and goal-seeking.

The value of attending to practice, to the skills about which actors cannot speak, is that it provides a way for us to deal with those aspects of managerial work that fall beyond the bounds of an analysis that spins around formal logic

and rationality alone. Like the rest of our managerial theorizing, the knowledge management literature inclines to excessive rationality as scholarly authors write with today's academic journals in mind. But the radical promise of the knowledge management discipline is that it provides a way of talking about practice that is not driven by cognition alone—the tacit dimension that Polanyi alerted us to (Reber, 1993). Thus the distinctions between data, meaning and practice actually help us articulate better the specific challenges knowledge management is supposed to address, avoiding reducing every analysis to a causal model of, for example, how we might manage our existing data better to support our goal-oriented decision-making, or how we can share meanings and practices to ensure all in the organization are moving toward the same goals. So my Proposition 1 might be that as long as our theorizing stands on perfect rationality alone, the different aspects of knowledge management will end up as mere subsets of existing disciplines, such as IT or formal decision-making or OT or micro-economics, and there can be no distinct field which is knowledge management's alone. Alternatively, we might say that knowledge management begins precisely and only with the uncertainties and knowledge-failures that arrest rational decision-making and force us outside rationality's box. So Proposition 2 is that knowledge management is really about managing knowledge-absences rather than knowledge-assets. It then becomes the necessary complement to make our existing rationality-based theorizing useful and practical. This follows directly from Simon's 'bounded rationality' or, further back, from Knight's *Risk, Uncertainty, and Profit* (Knight, 1965; Loasby, 2007), or even further back, from the thinking of skeptical Enlightenment philosophers such as Locke and Hume.

Proposition 3 is that if knowledge management is to be about dealing with uncertainty, in Simon's terms, we necessarily call forth a Model of Man that differs crucially from the model of Rational Man central to most of the management literature and business school discourse. To address the notion of tacit knowledge and skilled practice we cannot rely on a human actor comprising senses and reason alone. Dealing with uncertainty requires us to consider the actor's imagination too. Knowledge management is ultimately about managing both imagination and reason as actors confront and resolve uncertainty, i.e. the knowledge-absences they find in their contexts of action. By managing the imagination I do not mean its mere encouragement or motivation. The psychological literature is less than helpful here and we get better insights from the learning theorists. Indeed, it is remarkable how seldom learning theory is even referred to in the knowledge management literature where we find both an accretion model of learning, more data added, and a behavior change model which does not consider cognition or information at all (Cohen and Sproull, 1996). Indeed both Argyris's and March's work, hugely influential in our field, would be considered naïve by today's educational and developmental theorists. If our knowledge theorizing is to become relevant to managers, we must understand more of the processes of imagining, learning, and forgetting.

My Proposition 4 is that managing the impact of one's imagination is about understanding and shaping the constraints on it as it impacts and engages the world. This is the core of my argument, and where I believe, and hope, the future of knowledge management lies. It is complicated by requiring us to drive

a conceptual wedge between the imagination as a raw native human capability, like reason, assumed *ex ante* and agency, which is not an ability so much as a consequence of the imagination's engagement with the world (Emirbayer and Mische, 1998). Agency is often illustrated as our ability to make a difference in the world, by which we mean intervene in the system of causality in which we are embedded. Our agency becomes evident as our imagination collides with the world's constraints. My conclusion is that knowledge management is potentially very different from current managerial theory, profoundly postmodern and bridges epistemologies, as Cook and Brown (1999) suggested. Such theory is lived, mindfully as Weick might say, emotionally, ethically and morally (Weick and Roberts, 1993). It is inhabited. Thereby, we confront the curious irony that most of our theorizing positions managers outside the systems they are charged to manage. This is surely a fatal flaw if our objective is theorizing that is useful to managers dwelling deeply inside their organizations, whose responsibilities are not defined by outsiders such as markets or society, but by the organization itself. My hope is for a theory of how managers, while indwelling in the organization, might channel the agency of employees, customers, regulators, etc. towards the organization's *Gesellschaftlich* goals.

To expand a little on this, what follows reflects my belief that we can use epistemology as a tool to cut into the discipline of knowledge management and expose its anatomy. Of course, the naive realist believes there is nothing to be found for the meaning of all good data is self-evident. One might count airline passengers, or widgets, and be concerned the resulting data are not getting to the decision-maker in a timely manner, or even work on cheaper ways of collecting and communicating the data. Likewise one might model the business system and probe its interconnections. This is fine, and a lot of people call this knowledge management. But I do not think anything useful is being added by dragging in the term knowledge. Though it may seem more interesting than terms like data, meaning or even information, it comes at the price of obscuring both problem and solution. For example, we know a great deal about data-processing and IT, much more than we know about knowledge, so what is to be gained by obfuscating this by importing the term knowledge? There may be a useful but counter-intuitive heuristic here along the lines that our knowledge actually grows as we succeed in removing the term knowledge from our discourse. Using the term cannot add any clarity if we do not know what it means. However, it is precisely this not-knowing or knowledge-absence that helps us twist our theorizing into new directions.

Our attachment to rational decision-making, i.e. decision-making within a coherent system of meaning, is most evident when we define practice as purposive, rational and goal-oriented, and here we can critique Argyris' (1982) highly influential systems-theorizing. Distancing ourselves from this model we may consider the knowledge management field's most characterizing distinction is not that between data and meaning, which it shares with many other fields such as cognition and communications theory, but that between explicit and tacit knowledge. Nonaka and Takeuchi's appeal (Nonaka, 1994; Nonaka and Takeuchi, 1995; Takeuchi and Nonaka, 1986) to this distinction more or less brought knowledge management into current managerial discourse, even though it took a

central place in Nelson and Winter's earlier analysis (1982). Like many authors, Nonaka and Takeuchi argued that tacit knowledge is un-codified knowledge, embedded in individual or collective practices and held in non-language form (Boisot, 1998). This seems an incorrect interpretation of Polanyi's thinking and risks suffocating the kind of knowledge management I have in mind. Gourlay (2004), especially, has suggested the distinction is fundamental and that tacit knowledge cannot be processed into explicit knowledge (Tsoukas and Mylonopoulos, 2004; Tsoukas and Vladimirou, 2001). The group of writers who think knowledge management important from a radical theoretical point of view rather than as a marketing label for old intellectual products, also think it spins around forms of practice that cannot be evaluated or explained in the Argyris framework, i.e. in terms of its goal (Spender and Scherer, 2007). Ultimately, the various futures of knowledge management will be distinguished according to the theory of practice they adopt—that will become the field's touchstone, and absent a conceptual break with the concept of action as inevitably purposive there can be no substantial theory of knowledge management. Those who want to defend Nonaka and Takeuchi here will argue the interplay between collective a-rational forms of practice and the logical processes of organization is precisely what their SECI model presents. It is almost as if they have re-framed Thompson's notions of boundary spanning and core rationality into a dynamic model (Thompson, 1967). But I do not find this compelling. We need to break with rationality more substantially if knowledge management is to move forward beyond Nonaka and Takeuchi's seminal formulation. Knowledge management spins around a critique of rationality, and thereby distinguishes itself from rational decision-making which, after all is about collecting and processing information. It also distinguishes itself from goal-oriented learning.

Learning theorists have much to tell us if we are seriously interested in moving towards a broad theory of organizational learning and away from static notions of knowledge management as data objects to be collected and moved, or cognitive schema to be shared or resisted, or best practices transferred and enacted. If the organization's knowledge is to be as dynamic as the organization itself, we must theorize the supporting processes of learning and forgetting. Mere wordplay, substituting 'knowing' for 'knowledge' gets us nowhere. Many knowledge management authors already argue that moving knowledge is more a matter of recreating knowledge in a different context than of transferring these putative knowledge objects. Yet we must recognize how seldom learning theory's founders—say Thorndike, Piaget, Vygotsky or Lewin—or its current leaders, such as Bandura or Gagné, are referred to, even in compendia like Easterby-Smith and Lyles (Bandura, 2000; Gagné, 1984). In that large handbook on organizational learning I get more mentions than all these seminal learning theorists put together, clearly an oversight.

So how is learning theory constructed? The story goes from 1920s behaviorism to the Gestalt theorists, whose mantra was 'bring mind back in', and thence to the 60s cognitive revolution that Weick (1969) helped us understand. Thus Fiol and Lyles's (1985) influential article was able to contrast behavioral learning with cognitive learning. Note there is no discussion of practice in this kind of theorizing, it is all about schema and frames, and the urge to rationality. Even the

declarative–procedural distinction contrives to treat practice as purposive (Singley and Anderson, 1989; Ten Berge and Van Hezewijk, 1999). From there, learning theory developed in two directions: cognitivism and constructivism. For the sake of brevity, we can say cognitivism sees the brain as a computer—so raising the Dreyfus brothers' polemic *What Computers Cannot Do* (Dreyfus, 1979). Within cognitivism there is much discussion about long-term and short-term memory, a concept drawn from Aristotle and Locke, and working memory as the brain's computational center. There is interest in response times and those micro-seconds that elapse while the unconscious part of our brain categorizes situations and loads our working memory with some appropriate program. This is interesting, especially when the brain is broken in some way, but I cannot see that it has much promise as a workable theory of learning or with the future of knowledge management. This is partly a matter of aesthetics—I find it difficult to see how mind can be expected to penetrate to the core of itself, by which I do not mean the brain as a biological apparatus, but mind as we experience and practice it.

Constructivism can be presented as an inquiry into why we cognize as we do. It goes past cognitivist notions of brain architecture or psychological notions of attitudes and interests, to consider the context in which we cognize and recognize. It focuses on our practices and on the interactions between us and our context, and the impact these practices have on how we know. The core assumption is that we are not passively molded by our context; on the contrary, we are active participants in the construction of our knowledge, which is always of our context. We might say Vygotskian constructivism presumes the child's consciousness is plastic and directly shaped by its interaction with its social context, parents, and siblings, but also by the child (Bruner, 1990; Vygotsky, 1978; Wertsch, 1985). These interactions imply forms of practice that cannot be explained in terms of pre-cognized goals. To make rational choices we must presuppose consciousness. By contrast, developmental psychology explores its construction and emergence. So constructivism offers a break towards a new kind of knowledge management theory that does not presuppose the consciousness that rationality requires. It implies some radically distinct forms of practice. Likewise Bales' (1950) distinction between task and group maintenance seems to lie along the same lines.

Constructivism has Marxist roots in the argument that the life we lead shapes our consciousness, as do the technologies we use. It turns upside down the idea that the life we lead is a consequence of our rational decisions. *Homo faber*, or Man the Tool-User, shapes his world but is also shaped by his tools, especially as these are often given rather than chosen. Piagetian constructivism presumes that the child's consciousness is shaped by unfolding genetic dispositions, i.e. the child's intellectual capabilities (Ginsburg and Opper, 1969). The differences between Vygotsky's outside to inside and Piaget's inside to outside are often overdrawn for their constructivisms actually have much in common. Constructivism is actually about the mutually shaping effects of these interactions and suggests theories of learning which contrast with many notions current in the knowledge management literature. Instead of an unchanging computer-like isolate acquiring knowledge from others, the actor must construct her/his own, which becomes situated in its own time and context and, in the process, also re-constructs the knowing entity (Lave and Wenger, 1992; Suchman, 1987).

The constructivist break moves us on from thinking of the organization as an apparatus for exploiting its specialized knowledge—for which knowledge collection and movement is crucial—towards a theory of the organization as an apparatus for managing the creation of knowledge. March's (1991) exploration–exploitation distinction captures something of this and it helps us see that we should be looking at theories of agency and agentic practice rather than theories of passive learning for indications of knowledge management's future. In terms of a workable theory of knowledge management, as I define it, the best established is clearly Penrose's (1995) theory of the growth of the firm. Her theory is grounded in the notion of a management team deploying their agency to create the idiosyncratic knowledge that both creates and bridges the gap between the resources acquired and the services they provide. We should also note Veblen's earlier *Theory of the Business Enterprise* (1965). Likewise, his theory spins around management's creating the knowledge lying behind the firm's goodwill and its deployment to manipulate the market for monopoly profit. I am suggesting that, ironically, the future of knowledge management is actually one that gets back, specifically, to earlier theories about creating organizational knowledge rather than the resource-based view story of managing already-possessed knowledge or that acquired through accident or the exercise of power (Barney et al., 2001). With its explicit attention to practice constructivism offers us a handle on consciousness-shaping practice as the basic component of a theory of knowledge creation.

Knowledge management theory, if it moves in the direction of human agency, becomes deeply subversive. But it also brings us closer to managers and their practices, and addresses the rigor and relevance gap we recognize is threatening the entire business school enterprise (Hambrick, 1994; Mintzberg, 2004; Spender, 2007b). How are we to theorize human agency? Agency theory itself is instructive for it presupposes a specific kind of uncertainty, a knowledge asymmetry between principal and agent (Jensen and Meckling, 1976). This certainly helps reveal that finding the relevant uncertainties is also a way of finding the points where the human imagination can be deployed to resolve them. Along these lines, we might reframe the IT knowledge-as-data discussion as moving data from point B, where it is, to point A where its absence has created problems. We have a data-absence. Likewise sense-making becomes necessary because we experience a lack of knowledge-as-meaning, a meaning-absence, and we do not see how to 'connect the dots'. New practices or organizational routines are needed when those to hand are not working, we have a practice-absence. All presuppose a desire, a form of attention to the situation that is grounded in situated practice.

The problem here is that the uncertainties that are evident to us are contingent on the epistemologies we adopt to consider the world. A realist epistemology allows us to understand only what it means to lack data about reality, what we might call ignorance. It invites neither imagination nor explorative practice. Indeed in Popper's (1969) influential analysis there is no theory of responding to ignorance. We are simply told that the process of scientific discovery begins with hypothesizing, and this clearly calls forth our imagination. But realism, even Popper's version, once correspondence theory is rejected, offers us no theory of imaginative hypothesizing. Thus human agency is pushed outside the analysis

of the growth of science, the epistemological conundrum which drew Polanyi, as a practicing scientist himself, into thinking somewhat along the same lines as Penrose. While she saw the management team's imagination as the source of new knowledge and thus firm growth, Polanyi looked more towards the specific scientific community as an evolving 'community of practice' (Chaiklin and Lave, 1993). Within the compass of realism creativity is only about our re-making reality—penicillin, footprints on the Moon, the Internet or global warming, in which case the constraints on our agency are aspects of reality.

By contrast, as we theorize sense-making we adopt a subjectivist epistemology and see that what we take as reality's constraints are no more than those we have constructed for ourselves and assumed into place. This brings our agency into the center of the analysis and forces the assumption that our senses and constructions separate us from, rather than connect us with, reality. We are forced to imagine what is real and thereby discover a conflict with realism which simply assumes reality. We realize the incommensurability between these two epistemologies cannot be resolved. But subjectivism itself is wobbly. Conceptually tenable, it threatens us with anarchic relativism, the assertion that knowledge is whatever we imagine, and there seems to be no related theory of knowledge as a method of valuing knowledge claims. As the long struggle of European philosophizing shows, the challenge is to theorize the constraints to agency and thus to our imaginings. Subjectivism suggests psychology as the method of enquiry into how we think and choose in terms of our interests, desires and fears, proposing these as the most significant constraints. If we presume imagination as an innate human ability, by assumption so to speak, then we must treat our agency as the outcome of a collision between our imagination and the constraints it finds in the world. Clearly, reality seems to constrain how we can remake it, the Second Law of Thermodynamics applies, black holes exist, and so forth. While our imagination is the source of our agency, our agency is in the world, in the present. Likewise subjectivism suggests a psychological reality that constrains our imagination in the different and incommensurate internal universe, private rather than public. Thus a theory of managing agency emerges, one in which we can think of managing or manipulating the discovered constraints on the imagination.

I am edging towards associating realism with our attempts to understand the physical world, subjectivism with understanding the private world, and Deweyan pragmatism with understanding the social world (Scheffler, 1974). Many, if not most, western writers seek realist theories for all three worlds, so with these contrasting epistemologies I am taking a rather peculiar view, one shared somewhat with Luhmann (1995). Constructivism moves against these types of realism, and thereby provides some basis for theorizing the management of agency. It takes off from the work of Heraclitus and Aristotle, as revisited by Vico and Marx, and pays special attention to the agency of the sensing, reasoning and imagining individual. It is concerned with why we imagine and reason as we do. It moves well beyond the model of man as a purely rational entity. Our native abilities to imagine, reason, and experience are taken for granted, but constructivism's focus is on how these become manifest in the world and in our lives. It does this by focusing on our consciousness and sense of identity. Unlike positivism or pragmatism, constructivism denies our ability to learn anything directly of the world. In the

language of the autopoietic theorists, it is informationally closed (Maturana and Varela, 1980). In part, this is because it shares subjectivism's denial of the value of knowing or saying anything about a presupposed reality. Instead, it shares pragmatism's notion that we can only know our experience, and it departs from subjectivism in the importance it places on our practice in the world, as opposed to our purely mental activity. It proposes our experience sets the limits of our world. We can only know what we have imagined and experienced. Practice as the interplay of imagination and experience lies at its core. Constructivism's fundamental problematic is the knowing self, and its ongoing construction. It is not that of knowing an assumed reality, which is realism's problematic, or an assumed society, which is pragmatism's problematic. Whereas realism, subjectivism and pragmatism take the cognizing individual for granted, leading to knowledge that can be separated from the practice of living in the world, constructivism denies this. The result is an agentic epistemology—of an agent having agency in the three different realms of the real, the imaginative and the social.

The underlying agenda for knowledge management is to develop a methodology for probing and managing the constraints on the agency of others, and we can frame the full range of human agency in these contrasting epistemologies. Each suggests a dimension of the uncertainties of living in a world of constraints that might be resolved by the managed application of the human imagination. The method, which we may not wish to call a theory, hinges on discovering the constraints on our ability to make new realities. The analysis is intended to help us think about theorizing knowledge management. The result is clearly not a positivistic causal type of theory, it is a more dynamic, multifaceted, and postmodern heuristic for dealing with how we might explain ourselves and our experience of living our lives to ourselves.

My last proposition is about how we might explain our agency while also being in the world it impacts, the world we both construct and inhabit. This forces us to the most fundamental realization—that just as we are trapped within the knowledge bubble that develops from our own constructed consciousness, we can never be outside the world of practice in which our knowledge is situated. Most managerial theory presumes an intellectual vantage point, an Archimedian fulcrum, outside the constrained time and space of the system to be managed—as if management's responsibility within the system as lived is not the most fundamental of issues. We presume wealth maximization, say, as a universal principle instead of recognizing it as an aspect of being within a historically and contextualized socio-economic situation. But wealth maximization is simply a rhetorical tool we use to characterize the abstract representation of world we have actually constructed. When we use this kind of rhetorical device to leverage managers to a vantage point outside the lived context of their responsibility we utterly transform them, in particular because we push the source of the system's dynamism beyond our analysis.

Part of the radical potential of knowledge management is to bring this dynamic into our theorizing by presenting us with the experience of being inside an uncertainty-riven but self-referencing world of practice that offers us no external vantage point. It is the ultimate inhabited constructivist world of agents and interactions, whose creation and direction is management's fundamental charge.

So long as this created world is empty of distinctions and language it is beyond analysis. It is only by introducing some assumptions as distinctions that we can begin the conversation about our experience of indwelling and inhabiting this world. The Kantian distinctions of space and time serve only to develop a realist discourse, and this simply does not cover all the agentic dimensions of managerial responsibility. So in this discussion I have turned to the distinctions on which epistemology itself stands—our assumptions about consciousness, reality, insight, and experience. We have the epistemologies of realism, subjectivism, pragmatism and constructivism and thereby imply a kind of knowledge management theorizing that covers four dimensions of managed creativity, four ways of looking at managerial responsibility as the practice of creating and shaping a world spun from the imagination of others. From this vantage point knowledge management is a nascent theory of managing others' responses to knowledge absences, and at some distance from knowledge management's avowed focus on managing knowledge assets.

It comes as something of a shock to me to realize I have said nothing new here, nothing that I do not think is more or less already present in Barnard's (1951) theory of executive practice. His argument is that the executive's task is to synthesize the resources framed in three incommensurable subsystems—physical, psychological and social—into a fourth organic system of situated organizational practice. It is all in there, and it reminds me once again that there has been no more penetrating analysis of management or organization. We should also realize Barnard could not have developed this profound work without his practice-based insights into the nature of managers' responsibility to shape the agency of others while being prepared to bear the moral burdens of that practice. So I conclude by suggesting the future of both knowledge management and organizational learning is actually a return to a past when our theorizing was more robustly grounded in what we now choose to ignore, managers' experiences and morally burdened practices as they apply their imagination to creating organizations. These are the massively important engines of our society and economy, indeed there are no more important human artifacts, for our ability to organize absolutely delimits our ability to shape the human condition. Only in Barnard's work do we currently find an analysis that lets us position managers as indwelling co-creators, fully engaging their moral responsibilities towards the individual agents whose imaginations are thereby harnessed to the organization's purpose.

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