



Method, philosophy and empirics in KM and IC

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Abstract

Purpose – How does one speak of knowledge as an asset when it is non-rivalrous and ephemeral? The purpose of this paper is to frame “knowledge management” (KM) as significantly more than asset management; instead of binding it to rational decision making, it is grounded in managers’ creative responses to the typical deficiencies in their knowledge and to uncertainty.

Design/methodology/approach – Drawing on the method of distinctions a knowledge and intellectual capital (IC) management discourse is constructed that relates, first, to data, meaning, and practice, and second, to knowledge assets and knowledge absences.

Findings – The rationalist treatment of knowledge assets relates data and meaning to purposive practice. Under conditions of uncertainty this is balanced here with a radical constructivist approach that sees meaning as arising from managerial creativity and exploratory organizational practice.

Research limitations/implications – The practical or managerial implications of this theorizing are legion. The main point is not a theory that supplants managerial creativity; on the contrary, creativity drives both our theory and the organizations that managers manage.

Practical implications – Managing uncertainty forces practice and experience into the foreground. KM and ICM must cover situations in which analysis fails when knowledge is absent just as it covers the management of knowledge assets when they are present.

Originality/value – KM (or ICM) is reframed as an empirically grounded critical theory, a direct critique of rational decision-making and, by implication, of mainstream managerial theorizing.

Keywords Knowledge management, Intellectual capital

Paper type Conceptual paper

Introduction

The knowledge management (KM) and intellectual capital (IC) fields are clearly of many parts, and are frequently marked, as the wags have it, by much heat but little light. We still find little empirical support for their promoters’ enthusiasms. Yet we see information technologists confidently explaining how the Internet changes everything, and human resource specialists telling us that managing knowledge work and intellectual capital is our future. Economists talk of knowledge-based competitive advantage whilst jostling with sense-making cognitive philosophers. In the background bicycle riders plead they cannot explain what they are doing. All the while CEOs pronounce knowledge their company’s crucial asset while failing to measure IC or explain how success or failure might arise from such stardust. Nonetheless KM projects are now widespread throughout the public and private sectors, much trumpeted across a broad range of endeavours. So broad, in fact, it is



difficult to tell whether there is much agreement about the objectives, methods and measures that properly belong within the scope of KM. Against this academic whining many managers will argue it does not matter what we call these projects so long as they happen. Their objective is better use of the organization's knowledge and IC, and that while philosophers might puzzle about what this is – precisely – participating managers have little difficulty differentiating useful knowledge from the useless. The organization's knowledge needs to be revealed, gathered up, organized, capitalized and made fully available. Wasteful re-discovery of what we already know is eliminated. Others in the organization can then use the common pool of knowledge or the sum of the employees' intellectual capital to achieve the overall objectives more economically.

This seems straightforward, yet KM projects have an alarmingly high failure rate. Many organizational projects fail, of course, but KM failures often resonate more widely than most. First, they have novelty appeal. KM is the new buzz and its projects are often sold as more strategically significant than yet another product-market revision. They generally portend new business models in the business process re-engineering (BPR) sense. Second, KM projects are often seriously expensive, both in direct costs for their software and hardware and in changes in the way organizations function. People get invested in the projects, and against them, power patterns change, there are winners and losers. Third, KM projects often open up new market images. A retail bank switching to customer relationship management (CRM) is going to change its appearance quite radically as far as its customers are concerned. For all of these reasons KM failures can be very damaging. We know all this, yet there seems little understanding of why KM projects fail or evidence of learning from such failure.

These consequences are an unfortunate by-product of our not being too clear about what KM is actually about, of not having a sufficiently firm grasp of the issues and methods involved. Another way of putting this is that we do not have, for example, a clear idea of the significant differences between information technology (IT) and KM. Many argue collecting data or moving it around is what KM should be about, perhaps focused especially on the data employees carry "in their heads". Others talk of using IT to share information across the organization to align people's decision-making. But if IT and KM are so similar then what we have learned about how to design and implement IT and MIS projects should map directly into what we are now calling KM. Others argue MIS differs from IT in its attention to the people and social systems into which these computing systems are projected, and that should make MIS and KM rather similar (Gray and Meister, 2003). And so on, without much insight. Angles about the interaction of computing and people remain vague and fuzzy, and not susceptible to the careful work of structured programming and logical testing (Awad and Ghaziri, 2003). Of course, the information technology people feel really clear about what knowledge is; facts stored in, or moved to and from, data bases, or facts which can be extracted from peoples' heads and then put in databases.

Others critique such simplicity, pointing out that data cannot be meaningful by itself; it always needs a frame. Having received some data, how does the message's recipient know what it means? Is it a message or just data? If it is meaningful, where does the message's meaning come from? Other KM writers point to "tacit" knowledge, what people appear to know and can demonstrate as practice, but cannot provide us as storable or communicable data. The idea is that skilled practice evidences a different kind of knowing. We might conclude that data, meaning, and skilled practice are

different kinds of knowledge, and an organization might possess all three, and all need to be managed. At which point IT does not seem to have the necessary reach to do this.

The typical organization has a great need to manage its data; materials stocks, customers' orders, shareholders' financials, production processes, payroll obligations, and so forth. Decisions about the allocation of resources and managerial intervention rely on such data. There is a need to manage meanings too. For instance, how are managers to judge which customers to pay attention to and which to decline? How to know which personnel to promote? Even if we are not sure what tacit knowledge is, there are practices and organizational routines that matter. Managers know very well to propagate some while suppressing others. But how to distinguish between them? As soon as we go beyond data, and the considerable capabilities of IT, what can we usefully say about the management of these other types of knowledge?

Method

There are methodological issues here and they are not adequately dealt with in our literature. We can begin the analysis by asking how to make distinctions between these types of knowledge, suggesting that until we get clear about them we cannot get a sense of what managers confront as they bring them together into something like coherent goal-directed activity. Note there is nothing commonsensical about thinking about organizational knowledge; we inevitably assume away the difficulties or find ourselves with a Russian doll in which there are ever more knowledge puzzles inside every set of answers.

The most fundamental question for knowledge theorists is "What could one mean by not-knowledge?" This is clearly philosophical and reminds one of the sound of one hand clapping, that knowledge is the most self-referencing of terms. There is a temptation to abandon every-day talk and launch directly into philosophizing. But this is seldom helpful to those reading the KM literature to try and find out how to better manage the firm's intangible assets. We can pose similar questions in a more accessible format; for example, "how can an organization, or its managers, know what it should not try to do?" We see two kinds of answer. One is where the field of opportunity is well understood. For instance, "should we drive on the left or the right here?" We simply pick one from two. Quite different is when the field of choice is unclear; for example, "should we invest in this new technology whose implications no-one can yet see?" Or "should we put our production engineers to work on this unanticipated quality problem?"

Inasmuch as these questions are useful we suggest it is possible to distinguish various types of not-knowing, and then guess at how these might relate to a manager's possible activity. But it is not obvious what is going on here. Perhaps there are parallels between these responses to different kinds of not-knowing and the more familiar distinctions noted above between data, meaning, and practice. Data is incomprehensible without a meaning system, so the term "information" implies data infused with meaning, or vice versa. We can have data and not-know an appropriate meaning, leaving us unable to "connect the dots". Communicating meaning is clearly different to moving data, the latter being within an established and agreed system of reference. Data is information with the questions about meaning pushed into the background, unproblematic. To discuss meaning is to foreground these questions. Predictable practice presumes the implementation of decision making based on good

information. When we consider KM from the IT point of view, focusing on collecting and delivering data, we do not imply the creation of this data. While discovery is a possible strategy, our focus is on moving existing data from where it is to where it is needed but is not yet present. Likewise with meaning, it is about dealing with the absence of meaning at some point or time when meaning is required. KM's additional concern with practice is typically about the transfer of a "best practice" from where it is evident to where it seems to be needed.

An initial sense of KM theory

These ideas lead towards Table I, in which we specifically contrast the notions of K-assets (knowledge we have) and K-absences (knowledge we lack). This illustrates our fundamental methodology for KM, which is to seek those particular distinctions that make it possible to create a KM discourse and thence, a KM theory. While this method is familiar to philosophy it is equally evident in sociology, for instance in the work of Simmel (1955) and Luhmann (2002).

These distinctions are not mere "semantics", matters of academic language. They are about every-day managerial differences between, first, data, meaning and practice; and second, whether or not uncertainty is considered. When we analyze knowledge as an asset we presume to know that asset with certainty, we assume away any uncertainty and push it out of our analysis. But when we deal with K-absences, it is the uncertainty that is pivotal; because of this we cannot complete the analysis, it does not "compute". When we cannot proceed in the realm of thought we respond with creative practice, be that to capture new information, or construct new meaning or practice. The emphasis in our theory of KM shifts away from its grounding in analysis to a new grounding in practice, specifically the managerial and organizational responses to uncertainty (Spender, 2005). In every-day language KM theory may be less about thinking about and analyzing knowledge, as if that could ever be fully understood, than about our practices when we find ourselves in uncertain circumstances. Here managers become actors rather than analysts or scientists. Short of data, they go get it. Short of meaning, they create it. Short of practice, they extemporize and try something different.

The consequences of such creative activities are visible everywhere in organizations. First there is the entrepreneur whose response to the evident uncertainty of the relationship between supply and demand is to seek the profit that comes from embracing it (Knight, 1921). We might say the entrepreneur's intellectual capital is less of a definite K-asset, a knowing how to do something, than the special awareness and ability to respond to not-knowing that lies at the core of Kirzner's theory of entrepreneurship (Kirzner, 1997). Likewise we know that the employment contract is a practice for a situation that is incomplete and uncertain (Williamson, 1975). The employer takes a chance the hired employee will deliver against some

K-type	Managing what we have	Responding to what we lack
Data	Rational decision-making	Data collection and systematic discovery
Meaning	Communicating meaning	Constructing meaning and heuristics
Practice	Executing decisions	Explorative practice

Table I.
Contrasting K-assets and K-absences

as-yet-to-be-formulated instruction or challenge. Likewise the search for the edge that drives competitive advantage, the core of the resource-based view (RBV), is only meaningful under conditions of uncertainty (Barney, 2001).

At this point we can say that by drawing on the method of distinctions we can construct a KM discourse by differentiating firstly, data, meaning and practice; and secondly, knowledge presence and knowledge absence. But how can we give these distinctions substance, make them firm enough and visible enough to be useful to managers and KM theorists alike? This takes us closer to the philosophizing that must underpin real progress in understanding the management of organizational knowledge and intellectual capital (Tsoukas, 2005; Tsoukas and Mylonopoulos, 2004; Tsoukas and Vladimirou, 2001). Much of this is familiar, especially to those whose grasp of the methodological issues goes beyond the narrowness of courses in statistics to embrace questions about what it means to theorize (Diesing, 1972; Dubin, 1978; Lakatos and Feyerabend, 1999). But the core suggestion here is that practice can be differentiated from analysis, that it is a separable domain of knowledge. But we cannot carry this assertion off with nothing but appeals to Polanyi's writings (Polanyi, 1959, 1962). As the KM and IC literatures illustrate, there is precious little agreement about tacit knowledge. In particular, for those who think of "tacit" as a synonym for "yet-to-be-codified", it is not clear that all those eager to exploit the explicit/tacit distinction look for a type of knowledge that lies outside rational thought (Boisot, 1998). With such questions in mind we begin a more rigorous analysis of the philosophical underpinnings.

Philosophizing about KM and IC

Philosophizing is thinking carefully about the fundamental nature of the world, the grounds for our knowledge, and the evaluation of our conduct; so management is philosophizing too. But where to begin? Philosophy's first lesson is that there is no neutral common-sense position. Thinking always stands on assumptions about the world, who we are, and the process of thinking, and these fall into ancient categories: God, Nature, the Self, and Human Society. Beginning thinking means preferring one of these and then reaching out towards the others. Today's Western thought generally prefers one of the last three over the first; management theories are normally "agnostic" about whether God exists, and so on. Schooled into some version of realism most of us begin by presuming a Nature "out there" that is the object of science's attention. Positivism is a narrow form of realism, presuming there is no knowledge except about Nature (Kolakowski, 1972). The realist notion of the Self is typically as a passive observer of Nature, muddled by our frailties and emotions but seeking after Truth, that is, the true justifiable picture of Nature that impresses itself on our minds.

Problems with realism go back to the Sceptics of Ancient Greece who demonstrated that we have no certain knowledge of reality. Sense-data are but perceptions, not reality itself, and we cannot stand outside these enough to know for certain to what they refer. We might be dreaming the whole thing. Scientific evidence about reality is forever open to criticism that we are mistaken, for our proofs are mere tautologies that leverage our assumptions and perceptions, and we know these can be faulty. Popper's falsificationism justifies scientific knowledge on the basis of coherent but tentative professional agreements between scientists about the way Nature is, without any certain knowledge (Popper, 1968, 1969).

Philosophy works by contrasting its positions; you stand on one wobbly ice-floe to whack at someone on another. No one ever wins completely, extinguishing that particular discourse for all time. Even the most arcane philosophies make periodic comebacks. Today's counter to realism arises from the imaginative Self, preferring the awareness of our thinking over our awareness of reality, contrasting "subjectivism" or "idealism" to realism's "objectivism". Its starting assumption is that we can only find meaning in our sense-data by using ideas or "frames of meaning" we have already imagined. These mediate and are logically prior to any sense-based knowledge of reality. Sometimes dubbed "anything goes" (Lakatos and Feyerabend, 1999), subjectivists can think whatever they like and it is true for them simply because they think it. Realists recoil from this position's relativism in abject epistemic horror. We might hypothesize about why someone thinks as they do, and whether what they think is coherent and internally consistent. But we can over-stress coherence. Gödel reminded us that all complex logical systems contain undecidable propositions and are thus internally inconsistent and always warranted by assumptions that lie outside the system being examined (Hofstadter, 1979).

Oceans of ink have been consumed by this contrast – much in the disciplinary wars between realist/objectivist (quantitative) and idealist/interpretivist (qualitative) research methodologies. To dealing with this contrast many present Society and Nature as fundamentally different, arguing the social sciences differ from the physical sciences. Two strategies seem possible:

- (1) to establish the permanent predominance of either realism or idealism; or
- (2) to seek a middle way that reflects both without falling prey to either's fatal flaws.

The former is demonstrably unsuccessful and has proved extremely destructive, especially to the social sciences of which management studies are probably a part (Delanty, 1997). There is much current interest in the latter, especially in "constructivist" approaches. These balance preferences toward Self, Nature, and Human Society, arguing what we take as reality is indeed constructed by our imaginative Selves, but it is constrained by Nature or Society. We are not free to create justifiable knowledge in whatever image we wish. Note Society often appears enshrined in language. Wittgenstein, preferring Society over both Nature and Self, argued all knowledge is contained in language and the limits of language are thus also those of truth (Wittgenstein, 1972; see also Jørgensen, this issue).

Constructivism

The different kinds of constructivism correspond to what we choose to prefer as constraints to the imagination or "warrants" for the meanings we use. Absent constraints we have only anarchic relativism. One variety of constructivism is "constructionism"; while constructivism focuses on the internal mental processes, constructionism weights the processes external to individuals, such as language.

"Social constructivism" has achieved considerable popularity (Gergen, 1985; 1994). It argues all human knowledge is warranted by our social processes. Inasmuch as culture is part of these, we can have "cultural constructivism". Institutional theory too can be regarded as a variety of social constructivism. To analyzing social learning we must look at the processes that construct society, so balancing the members'

imaginings against the constraining social processes that are presumed independent of them. Another variant, “critical constructivism” looks at these social processes as barriers to the freer play of the Self’s imagination.

“Personal or philosophical constructivism” is largely shaped by Piaget’s ideas on the unfolding of our mental abilities, genetically determined (by Nature). His key concepts are assimilation and adaptation (Piaget, 1972). Truth is not a picture of reality; rather it is what we create the better to negotiate the world of our experience. We assimilate the meaning of our experiences (learn) using the ideas we already have available (absorptive capacity) – except when we fail and adapt to some un-assimilable experience (evolve). Kelly’s “personal construct” theory is an operationalization of personal constructivism, again focused on negotiating the world of experience (Kelly, 1955).

Vygotsky’s constructivism is predominantly social, denying the completely genetic shaping of human consciousness, preferring instead the impress of the developing individual’s social interactions (Vygotsky, 1978). But the impact of the Social is balanced by the genetically given constructive processes of the individual Self. As a result adaptation occurs in the individual’s Zone of Proximal Development, as her/his prior knowledge evolves within the field of possibility dictated by the social.

All constructivism stands on preferring the imaginative Self, rather than on realist notions of the Self as passive but impressionable observer. It calls on ideas that go back to Descartes and Adam Smith (Skinner, 2001), that Man’s defining characteristics are not only those of homo sapiens – our senses and logical thought – but include our imagination, so denying realism’s dismissal of our creativity.

In addition to our knowing being constrained “internally” by our genetics, a theme worked up by Kant and carried through philosophy to today’s discussions about our neurological functioning (Penrose, 1989), or “externally” by our social and cultural processes, “radical constructivism” (RC) admits external constraints from Nature (von Glasersfeld, 2002). While we can imagine and construct whatever ideas we like, those ideas inhabit the realm of our imagination. Our practice inhabits the world of the real and Nature is not passive towards that. She will often “kick back” and remind us our ideas seem inappropriate as frames for knowing practice (Pickering, 1995). While there are some parallels to pragmatism here, there are also crucial differences, especially in the assumptions about the Self (Carlile, 2003; 2004). Pragmatism looks to utility (cash value) as the warrant for truth while retaining the realist’s images of a knowable “out there”. The pragmatic notion of Truth is a use-based representation of the real. James argued that the pragmatic method lies in valuing the practical consequences of different Truth-proposals (James, 1946), a notion extended into “operationalism” (Bridgman, 1927). In contrast with pragmatism, which presumes the knowing Self, constructivisms problematize it, be it the individual of personal constructivism, the society of social constructivism, or the acting agent in RC.

Piaget and Vygotsky focus on the emergence of individual consciousness and the construction of the Self. Instead of appearing fully formed, the constructivist’s Self emerges from its context of practice and experience. The RC reality is simply experience; beyond which there is nothing to be said or done. The warrant for knowing shifts from the realist’s “out there” or from the subjectivist’s “in here”, to the instantly present and ephemeral interaction with what lies beyond the boundaries of the evolving Self. Knowing is an ordering of that experience made accessible to guide

future experience, rather than any representation of what constrains it. Knowing goes beyond mental images to embrace practical skills.

RC has parallels with falsificationism while preferring experience over thought. When experiments falsify, they deny hypotheses, abstract images. When Nature kicks back at the radical constructivist it denies the usefulness of that ordering of experience without revealing anything of its true nature. Consequently RC is rather backward-looking, not concerned with prediction or projecting itself into the future. Realism, even critical realism (Bhaskar, 2002), presumes the constancy of the real, and sees knowing it as a way of predicting the future. RC rejects knowing Nature and, consequently, its constancy. RC remains open to surprise at unanticipated changes in context and the resulting irrelevance of all previous experience.

So RC is more about our processes of attending to and ordering our experience than about establishing rules for rigorously picturing or representing the Nature experienced. As such it is especially appropriate to the study of management in an incompletely known universe, where learning is more by doing than by hypothesizing and applying the scientific method. Instead of trying to develop theories of a fixed knowable world for rational decision making, an RC approach focuses on helping managers attend better to their experience and develop improved learning practices. There is a certain inconstancy, transience and uneasiness that comes with the RC approach, and RC discussions seem to oscillate between the more secure subjective and objective positions (Rasch, 2000). In this sense it is a profoundly post-modern epistemology. By rejecting Descartes's definition of the certainly known subjectivity of "cogito ergo sum" as well as the realist's belief in correspondence between knowledge and the unchanging reality of the Universe, RC's inconstancy forces our immediate experience into the foreground. It becomes our only reality.

The modernist project presupposed the world to be a coherent and knowable place, and its aim was to know it fully. The realist position is a reflection of modernism. The subjectivist position is too, in the sense that Descartes definition of what could be known – ourselves – does not preclude complete knowledge. The post-modern condition is one of appreciating the impossibility of the modernist project. Paradoxically "bounded rationality" is Simon's (1947) take on post-modernism. We can come to a post-modernist position by a variety of routes. But we must note first that it is not a definable position in a sense that can be compared with modernism; it is more of an attitude to the world and our experience of it. Thus RC is a post-modernist epistemology that denies the significance of what others most seek to know in its entirety, the World or the Self.

Simon (1947) was far from specific about the causes or sources of our bounded rationality, oscillating between our obvious inability to gather complete information on the entire universe, and our evidently limited ability to compute data we have already gathered. There are at least two other ways of showing the limits of what can be known, both growing out of the notion of the indeterminacy of the world. There is a delicate philosophical transition here between the notions of what is knowable and what is measurable. One we know as Heisenberg's Uncertainty Principle; it reminds us there are physical boundaries to what we can know of the world; that is, at some point the process of observation begins to interfere with the events being observed. The events themselves eventually disappear much as the moon disappears behind a cloud. Another, which we formalize in game theory, is evident in Shubik's work (Shubik,

1954, 1982). Here we only get rigorous solutions under the most unrealistic circumstances. In particular, we can get no solution when the other player's responses to our action cannot be known before that action is taken. As Weick puts it: "how can I know what I think until I see what I say?" (Weick, 2001). Here we stand on a conceptual Great Divide between a realist world in which everything pre-exists our actions and is therefore available to be discovered through rigorous research, and an RC world in which the future that concerns us is the one we shall create through our actions. In so doing we actualize only one of the many possible worlds, but thereby put Man's impress upon our world.

For researchers approaching the firm as an economic entity RC converges to some extent with "radical subjectivism" and the work of economists whose point of departure is the Self's uncertainty about the future – "Austrians" such as Hayek, von Mises, Shackle (1972) and Lachmann (1994). Penrose's widely quoted distinction between resources and services stands on similar subjectivism (Penrose, 1959). For these economists markets are not constraints that already exist like some positivist reality. On the contrary, the market is perpetually being made over by those whose choices construct their economic future. Each choice is an act of entrepreneurial imagination about an as-yet uncreated future. Note also that absent the realist's stable over-arching reality, equilibrium becomes an irrelevant concept.

Radical subjectivism stands epistemologically opposed to "positive" economics, just as subjectivism stands in opposition to realism (Shackle, 1972). But, by admitting constructive practice, it offers RC-like lessons for management researchers. We move on from a position that characterizes managers as sense-data and logical decision-making automata. Instead, constructivism admits their humanity and their imaginative responses to the fundamental uncertainties of a yet-to-be-constructed future, notions that may lead us to new notions of profit, enterprise, and the dynamic economy – and of management itself.

Empirics, or the RC focus on practice

In the first section we argued for the method of distinctions. This is not peculiar to KM or IC, of course. It is to do with determining the basic ideas on which knowledge management, as an emerging discipline, might actually stand. At the same time we see where KM might differ from other disciplines such as organization theory and micro-economics. While KM addresses uncertainty, the latter two disciplines brush it aside. For instance Nelson and Winter (1982) report the economists' widespread concern with their inability to deal with uncertainty. Note that by uncertainty here we mean that type central to the work of Knight, Shackle, Lachman and the others from this tradition. This type of uncertainty is increasingly labeled "Knightian" to distinguish it from merely probabilistic data, though we might also call it "unmeasurable risk" (Akerlof, 1970; Hey, 1989).

Admitting uncertainty into a broad understanding of KM forces practice and experience into the foreground. Basically we argue KM must cover situations in which analysis fails, as it must when information is incomplete. Otherwise it is simply a repackaging of the rationality-based analyses already present in sociology, organization theory, micro-economics and so forth. Under conditions of uncertainty managers are forced into creative practice, creating the specific knowledge that resolves the previous incompleteness (Spender, 1989). Such creativity might arise in the

domain of thought, as an intended guide to practice or directly in the domain of practice. The challenge is then to theorize creative practice; how can we make sense of or talk about action? The practice bit seems simple enough; stuff happens. But what about creativity? Can we distinguish it from irrationality? Can we observe creativity without knowing everything already? If I create something that is new for me, but already known to another, is this real creativity? We see these debates circling endlessly in the innovation literature, yet another version of the ongoing conflict between realist and subjectivist positions, and we already know there is no resolution to be had.

As we look at our natural creativity directly, the tendency has been to search for a theory of it, whether as a theory of entrepreneurship or of leadership. Bound by our realist methodological paradigm, we search for causes of individual or collective creativity; but without great success (Sawyer *et al.*, 2003). But we do know something about how to inhibit creativity (Amabile, 1998). The useful advice here is to shift from searching for causes that might enable us to predict the occurrence of creativity, probably a contradiction in terms, to focus more on analyzing the constraints that act on a taken-for-granted creativity, presumed in the same way as rationality is so often presumed in our theorizing. We shift from presuming homo sapiens to presuming homo ludens, moving from Man as a reasoning animal to Man as fidget, child-like, perpetually creatively exploring the constraints to her/his situation (Huizinga, 1955).

We know there are constraints to what can be done physically, such as the Second Law of Thermodynamics which tells us every heat energy system runs down and eventually stops; there are no “perpetual motion machines”. Physiologically we know we cannot go very long without sleep, nor can we fly, and so on. In the sections above we noted that there are limits to what can be known that arise from the limits of what we can measure – the Heisenberg concept, or a consequence of Planck’s constant. At this point we can transition from the domain of meaning to that of practice and suggest there are similar limits to what can be known that derive from the constraints over what we can do. In the RC sense, there are limits to what we can experience and thus know. To leave the Earth’s gravitational field and discover Space, we must achieve “escape velocity”; likewise there are limits, calculated using Euler’s constant, to the height of columns before they buckle. The limits to what can be done in the social universe are more proximate to the managers’ imagination, and here we run up against social rather than physical constraints. Ideas about how society is structured and identified are also ideas about the limits to social action (Parsons, 1968). Institutional or cultural constraints over what people are prepared to do limit what managers can usefully imagine. Likewise legal limits may constrain managers, an issue being explored extensively in the corporate governance field.

The question here is about who is the person that s/he should feel constrained by these social limits. We would not expect a hardened criminal, for example, to pay much attention to the law. The constraints chosen interact with and manifest the person’s sense of self and identity, the essence of “tacit” knowledge as attention, selection, and attitude to the world (Gourlay, 2004). We allude to a practice correlate to the Vygotskian or psychological sense of identity explored in the section above; the interaction with social others acts as constraints over the manager’s creativity and the imagination as an acquired and evolved set of practices. The manager’s consciousness is not merely in the head, it is also in what s/he does and does not do. In this sense,

actions speak louder than words and character is manifest in practice rather than in pleading. Likewise an organization's identity is not simply in the domain of meaning and image, it is also in the domain of practice, the particular set of organizational routines chosen and manifest as its strategy (Nelson and Winter, 1982). Thus the social and psychological constraints to managerial imaginations are about the various senses of identity among the people and collectivities with whom they deal.

A theory of practice

How does this play in practice? Why would managers care? What are the empirics here? Clearly a theory of practice is implied and at bottom this means to comprehend how practice might be ordered rather than arbitrary (Bourdieu, 1977; Turner, 1994). The most familiar theory of practice is that it is the enactment of rational choice justified and evaluated in terms of a logically prior goal or objective function. This works fine until we argue, as above, for those forms of knowledge that lie beyond explicit cognition, which cannot be brought into the decision-making reasoning. If tacit knowledge is not explicable, what kind of theory could explain how such practice is ordered? One line of argument is that human practice is always constrained by its context. Thus a comprehensive theory of a coherent reality becomes a theory of action within it; and this is the realists' theory of practice. Another more subjectivist line is to say our actions are always consequent to our thoughts, which implies all actors should be capable of explaining why they acted as they did. Provided thinking is logical it can be explained and the constraints to practice would be those over the imagination. This is fine, but it misses the tacit dimension, the physical and social limits to our actions, and the post-modern point.

We can cut to the chase, suggesting three categories of organizational practice to which managers might pay attention and use to explore the contextual boundaries and constraints. First, managers often see practices that are indeed goal-oriented. These comprise the bulk of what goes on in organizations; they are the whole reason for "Gesellschaft-lich" structures, the familiar apparatus of organizational systems, controls, accountabilities, training, instructions, and so forth. Second, there are the practices considered above that are the process of constructing consciousness and identity. Third, there are practices that will be forever inexplicable. All, of course, occur within the physical and social constraints considered above. In the first category the idea of creative exploration is well covered in our literature. We recognize the importance of not completely suppressing employees' creativity, of empowering them to be more themselves and less cogs in a bureaucratic machine. Managers must create "space" within these and the other constraints so that employees' creativity can play out and flourish (Amin and Cohendet, 2004). But all takes place within the pre-configured frame of organizational purposes. Managers can quite reasonably look at the variety of an organization's practices and ask whether they contribute to its goals. They have always been aware of the third inexplicable category of practices and have tried to shut them down as resource-consuming and wasteful, one of the basic concepts behind Scientific Management (Spender and Kijne, 1996). While this seems reasonable it misses the second category of identity-related practices and this is more open. Such explorative practice is not constrained by the organization's goals for it constructs the world in which these goals are to be applied.

The radical constructivist argument is that we can only theorize the world we have already created (von Glasersfeld, 2002). The theory of practice suggested here extends this RC view to embrace the genesis of the consciousness and identity of the person or group doing that creating. So we extend von Glasersfeld's notion of creating the world towards a process of structuration in which our creativity creates, in the self-same process, both the world of our context and the experiencing self. This is simpler than it sounds. People recreate or re-invent themselves constantly as they engage in their living and working. So managers need to be aware that many of the organizational processes they observe are not goal-oriented at all, but are manifestations of the ongoing processes of identity creation, maintenance, and protection. The organization is a field of physical and social constraints, but it is not experienced on one's own. On the contrary, the organizational context is populated by others engaged in similar activities and significant interactions occur as they exert their power against ours. In this sense to have identity in a social milieu is to claim power, and these claims are contested.

Conclusions

Our hope is that the discussion clarifies how we might interpret and act in the light of the emerging KM and IC literature. Its underlying confusion is the consequence of there being little agreement about its basic notions. We suggest, first, more careful attention to the method of distinctions, to surfacing and clarifying those that underpin KM and IC discourses. For example, some see explicit and tacit knowledge on a spectrum ranging from codified to uncoded. Others see the tacit or personal dimension as referring to the way we select and evaluate what to attend to in the world. These are different ideas that stand on quite different distinctions and carry totally different implications for our theorizing.

We can progress by understanding that our notions of knowledge can never be more than reflections of the epistemologies we adopt (Tsoukas and Mylonopoulos, 2004). The realist and subjectivist epistemologies are already familiar in the literature. Unfortunately they offer little insight to one of the most important thrusts in the KM/IC literature, the acceptance of practice as a distinct form of knowledge. We suggest the RC position throws light onto those forms of knowledge that fall beyond the reach of the realist and subjectivist approaches.

Based on our three epistemologies' distinctions we argue for clear differences between data, meaning, and practice. These are mirrored in conventional organizational theorizing and micro-economics. But we take a major step forward in recognizing that the real problematic of knowledge management is not, after all, the management of the organization's knowledge assets, be they:

- data-assets – data we have about our world;
- meaning-assets – knowing how to make sense of our experience of our world; or even
- “best practices” – knowing how to make things happen in the world.

All these “assets” are actually special cases of the more general managerial predicament of not-knowing and of having to deal with our not-knowing. Thus KM's real interest in data is to deal with its absence, to make it available to those making decisions, which realists presume to be a manager's basic role. So data-oriented KM is

focused on moving data from where we know it to be to where we need it to be. Likewise the KM interest in meanings is that managers are confronted with data they cannot comprehend or bring into the decision-making process. Much of the KM literature is about meaning management, providing meanings where none exist, suppressing meanings that are unwanted, considering the processes by which managers construct and communicate new meanings where these are required (Brown *et al.*, 2005). The same applies to developing and transferring the innovative “best practices” necessary to deal with new situations.

This reference to the management of K-assets as a “special case” is a rhetorical means of highlighting managerial creativity. Ultimately this must be seen as the nucleus of the knowledge-based theory of organizations and firms. Where no creativity is required, KM is about the collection, movement and delivery of existing K-assets. Under such circumstances KM has little to offer that cannot already be found within the established disciplines comprising the managerial sciences and business school curriculum. But as we reach out to dealing with uncertainty through the application of human creativity we give KM a completely new range and radicalism, we finally progress with the bounded rationality agenda that Simon bequeathed to us. The knowledge-based approach becomes a critique of the rationality-based approach. In the latter we treat human rationality as the given, but in the former we regard creativity as central.

The practical or managerial implications of this theorizing are legion. In the introduction we touched on the way organizational knowledge is now regarded as key to the organization’s strategic possibilities. When we define an organization as a balance sheet, or as a mechanical device, we imprison ourselves in an impoverished schema. To speak of the organization’s knowledge, knowing and creativity is to reach into a much richer image. We can readily see how the organization’s structure embodies knowledge about how to transform the factors of production into the goods and services provided, and so on. To speak about intellectual capital is to embrace richer notions of individual and collective capabilities (Spender and Marr, 2005). While all this can be illuminating for managers, the most important insight KM offers is in the realm of organizational practice. Good managers are sensitive to the subtle interplay between peoples’ practices and their self-identities. We suggest that the theory of KM sketched in this paper brings this idea into evident relationship with the organization’s purposive and goal-oriented practices. The point is not a theory that supplants the managers’ creativity. On the contrary, that creativity drives both our theory and the organizations they manage. Our hope is that some clarification might help managers better direct their creativity, for that, as Penrose (1959) reminded us, is the most strategic and limited of all the organization’s resources.

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Commentary: on Spender's "Method, philosophy and empirics in KM and IC"

As J.C. Spender makes clear in his paper, a knowledge-based view of the firm holds promise that is wider than is often realized. The main promise is that it places questions of epistemology – What is knowledge? How can it be obtained? How can knowledge claims be justified? – at the centre of attention of scholars and practitioners alike. Why is it such a good thing? Because an epistemological view of the firm makes us more sensitive to seeing the different forms of knowledge organizational members use, with what effects, and how knowledge is used in action; and it enables us to inquire about the knowledge claims organizations put forward for adoption, as well as the practices they use to back up their knowledge claims. Moreover, an epistemological perspective on the firm shows the recursive connections between researchers' modes of knowing and practitioners' uses of organizational knowledge (Tsoukas, 2005).

Spender convincingly makes the point that a knowledge-based view of the firm highlights the importance of managerial creativity, or, I would suggest, of organizational creativity more widely. If organizational members are seen as knowledge users, we may view them not only as users of currently existing knowledge, but also as generators of new knowledge. It makes us more sensitive, thus, to the way organizational members search for relevant knowledge, how they update and sustain it, and how they respond to the situational demands of the tasks they carry out. The emergence of novelty for someone who takes an epistemological view of organizations is not surprising at all: organizational novelty is always around the corner if scholars care to look for it and if organizations are so structured as to make it visible and amplify it.

And given that knowledge, as Spender points out, is not merely the mere handling of already given pieces of information, but the judgments of significance individuals make while carrying out their tasks, we are sensitized to noticing the routine judgments practitioners make, and how they make them. In turn, such a preoccupation brings into focus, on the one hand, the situational idiosyncrasies individuals face and, on the other hand, the collective domains of action within which individuals exercise their judgments (Tsoukas and Mylonopoulos, 2004).

It is in that sense, I suggest, that we should interpret Spender's focus on meaning: KM makes us see that knowledge users are not mere information processors and that the use of knowledge

is not a mere application of individual cognitive skills, but the contextually sensitive use of concepts and categories that have been collectively established and into which individuals inescapably draw in carrying out their tasks.

A knowledge-based view of the firm – viewing firms as knowledge systems – makes us realize that the locus of individual understanding is not so much in the head as in situated practice, and Spender rightly highlights this point. The individual understands and acts in the world through drawing on collectively defined values, beliefs and cognitive categories, in particular material and social circumstances. The world for practitioners is, to use Heidegger’s phrase, “ready-to-hand”. As practitioners, individuals begin to develop expertise by assimilating the tools, intellectual and physical, and gradually becoming unaware of how they use them. As they learn to use a tool, their knowledge becomes tacit.

Ultimately, a knowledge system is relatively opaque to itself, since the style in which an organization acts is grounded on particular self-understandings developed over time. That opacity, however, is only relevant to a particular background: practitioners can discuss how they do things – indeed an important insight of KM is precisely the need for practitioners to do that – for the purpose of turning an unreflective practice into a reflective one. They do so not by converting the tacit into explicit, but by recursively drawing each other’s attention to how they routinely pay attention to things. Practitioners may command a clearer view of the tasks at hand if they remind themselves of how they do things and paying attention to distinctions that previously had escaped their attention.

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