

Introduction: Knowledge Construction and Creation in Organizations*

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While adopting a knowledge-based perspective on organizations has been valuable, since, among other things, it enables us to see links between organizational learning and a firm's competitive advantage through the development of idiosyncratic capabilities, it has nonetheless tended to treat organizational knowledge as 'given', exploring how it is related to other 'given' variables. The focus of this special issue is to unpack the notion of organizational knowledge by exploring the processes and practices through which knowledge is constructed and created in organizations. A constructivist perspective assumes that 'knowledge' presupposes work and seeks to explore how what comes to be considered as organizational knowledge is established and validated (or fails to do so). By seeing organizational knowledge as work we can further probe into how knowledge is shaped by organizational strategies and incentives and, more radically, how power and politics influence the struggle between competing bodies of knowledge in organizations.

Organizational knowledge, learning and capabilities

The papers in this special issue are derived from the 'Third European Conference on Organizational Knowledge, Learning, and Capabilities' (OKLC 2002), which was hosted by the Athens Laboratory of Business Administration (ALBA), in Athens, Greece, in April 2002. This conference was the third in a series of conferences on organizational knowledge and knowledge management that had been previously hosted by the University of Warwick (2000) and the University

of Leicester (2001). The topic of OKLC 2002 formally extended the thematic scope of the conference to include papers not only on organizational knowledge and knowledge management, but also on organizational learning and organizational capabilities.

The widening of the conference topic reflected the increasing emphasis that has been given in the last ten years or so on seeing organizations as *knowledge systems*: from a knowledge-based perspective, business organizations are viewed as bundles of knowledge assets, the effective management of which affords firms competitive advantage (Choo and Bontis, 2002). The organizational capability to maintain, learn and create knowledge, as well as the conditions under which such capabilities are developed, was a core theme of OKLC 2002, which, to a large degree, is manifested in the four papers included here.

Although knowledge has always been an organizational asset, it is only relatively recently that this has been widely recognized. There are several reasons why this has happened, including the increasing digitization of social and economic

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life, the widespread use of information and communication technologies, a more literate workforce, the increasing dependence of advanced economies on services, the expansion of a professional and technical class, and several other factors, all of which have made economic activities and transactions depend on specialized, or ‘theoretical’ knowledge (Mansell and Wehn, 1998; OECD, 2001; Stehr, 1994; World Development Report, 1999).

As Bell insightfully foresaw nearly thirty years ago,

‘what is distinctive about the post-industrial society is the change in the character of knowledge itself. What has become decisive for the organization of decisions and the direction of change is the centrality of *theoretical* knowledge – the primacy of theory over empiricism and the codification of knowledge into abstract systems of symbols that, as in any axiomatic system, can be used to illuminate many different and varied areas of experience’ (1999, p. 20).

While Bell was one of the first to draw our attention to the increasing importance of theoretical knowledge for the functioning of late capitalist economies, more recent research has shown that even the most ‘theoretical’ forms of knowledge essentially depend for their *application* on types of cognition and social skills that are inherently non-codifiable (Brown and Duguid, 1991; Dreyfus and Dreyfus, 1986; Orr, 1996; Tsoukas, 1996, 2003). We now appreciate that theoretical knowledge, practical application and social context are all inextricably linked.

If business organizations are seen as collections of knowledge assets, then the integration, updating, maintenance and management of those assets is clearly of great importance. Hence the current emphasis on attempts to understand the processes of knowledge creation, transmission, storage and retrieval, as well as to improve our understanding of how organizational memory and learning function (Vince, Sutcliffe and Olivera, 2002). Since knowledge matters, the manner in which organizations ‘remember’ what they know and learn from their experience (as well as from others’ experiences) is important, both theoretically and practically. Moreover, since knowledge assets are so central to the functioning of firms, the ways in which firms develop and sustain certain knowledge-based

capabilities in order to gain competitive advantage is a suitable focus of research (Choo and Bontis, 2002; Eisenhardt and Santos, 2002).

Adopting a knowledge-based perspective on organizations enables us to see links between two traditionally separate domains: the skills that sustain organizational learning *and* a firm’s competitive advantage through the development of idiosyncratic capabilities. A firm that has developed the *capability* to integrate, communicate and create knowledge on an ongoing basis is a *learning* firm, whose *knowledge assets*, by virtue of being inextricably embedded into its historically developed context, are idiosyncratically complex and dynamic and, thus, unique (Barney, 1991; Eisenhardt and Santos, 2002; Grant, 1996, 2002; Spender, 1996). In short, organizational knowledge, learning and capabilities form a triangle: the ongoing development of organizational knowledge is, or can be, a dynamic capability that leads to continuous organizational learning and further development of knowledge assets.

Knowledge as work: a constructivist view of organizational knowledge

While studying the links between organizational knowledge, learning and capabilities has been the focus of several studies (Chandler, Hagstrom and Solvell, 1998; Choo and Bontis, 2002; Dosi, Teece and Chytry, 1998; Eisenhardt and Santos, 2002; Moingeon and Edmondson, 1996), accounting for how organizational knowledge is established in the first place remains relatively unexplored. It is one thing to take knowledge for granted and then show how it is related to learning and dynamic capabilities (an important task, no doubt), and quite another to explore questions regarding the social practices in organizations through which what is regarded as ‘knowledge’ attains this status, with what effects. In other words, while it is important to study how knowledge assets develop over time (Tripsas and Gavetti, 2000) and how they impact corporate performance (Cockburn, Henderson and Stern, 2000), it is also important to do more foundational work by exploring how knowledge is *constructed* in the first place. Both research foci were in evidence in OKLC 2002, although we have chosen to focus on the latter – looking at

knowledge from 'within' – in this special issue, since this is an important area that has been relatively under-explored (Coopey and Burgoyne, 2000; Vince, Sutcliffe and Olivera, 2002, p. S2).

Unpacking organizational knowledge becomes important the moment we cease to take 'knowledge' for granted, assuming it has already a particular form and content. Indeed, one of the common fallacies concerning organizational knowledge is what we may call the apple-tree fallacy: the knowledge individuals make use of in their work is considered to be a collection of free-standing items waiting out there to be plucked from the tree of organizational knowledge (Gates, 1999; Stewart, 1997). The problem with this view, largely influenced by the emergence of, and the discourse on, the 'digital economy', is that it tends to ignore, among other things, the *constructed* nature of knowledge: whatever knowledge is, the form as well as the content it takes depends on what questions are asked, how they are answered and how the answers are made to fit together. As we have learned from Foucault (1970, 1972) and Hacking (1983, 1999), what we call 'knowledge' is, at any point in time, the outcome of particular social practices that have come to be established, and through which the world is represented.

For example, a banker's knowledge of your spending patterns in the last year presupposes first the very existence of a banker and the associated social institutions; second, a particular perspective through which a banker reads bank statements and infers certain conclusions (the same information about your financial transactions would likely be read differently by, say, a jealous spouse); third, the transactions recorded in a bank statement represent a portion only of the transactions you engaged in last year – only a part of you is in the bank statements (Poster, 1996; Tsoukas, 1997).

When a bank claims to 'know' you, what they mean is that they know what is of *relevance* to *them*: their 'knowledge' consists of a limited set of recorded transactions *plus* their interpretation from a particular institutional angle. Without that particular angle the bank would not even have collected the required information in the first place. Thus, knowledge presupposes *perspective*: tell me where you stand to tell you what you see (Tsoukas, 1997). It also presupposes *work*: financial transactions need systems, people and

practices to define, format and record transactions, while the latter's interpretation needs to be worked out. Knowledge does not come free, it is not out there, and it is constructed in time and space.

This is as true of the macro-historical processes through which entire *epistemes* are formed (Foucault, 1970), as of the micro-practices through which more mundane bodies of knowledge are established (Garfinkel, 1984). The scale, the time-horizon and the complexity of the knowledge construction process are clearly different but, at its core, knowledge construction is a recursive process occurring at different levels of analysis and different time scales. Just as the corpus of modern medicine is an outcome of historically shaped social practices (Porter, 1998), so the corporate knowledge of customer preferences, or of employee competences, is an outcome of practices that have sought to answer particular questions in particular ways (Jacques, 1996).

If knowledge is seen as work, its content and form crucially depend on the technologies available, the social relationships around which work is organized and the purposes for which knowledge is used. If the telescope had not been invented, our knowledge of stars would have been different, in the same way that, had the Gallup opinion poll not come about, our knowledge of public opinion would also have taken a very different form. Similarly, without the Victorian organization of scientific knowledge, the nineteenth-century British Empire would not have been what it was – the control of Empire hinged on the control of knowledge. The fantasy of a positive and comprehensive knowledge sustained, and was sustained by, the fantasy of controlling the world (Richards, 1993).

Technologies matter and technologies are never neutral: they embody values and make certain things possible, but not others. The social relationships that underpin work inevitably incorporate power relationships and, in that sense, approaching knowledge as work makes power an important issue in knowledge construction. It enables us to understand better not only particular bodies of knowledge but also why certain kinds of knowledge are more privileged over others. What is it, for example, that makes a quasi-scientific consulting report more credible than, say, the narrative knowledge of shop-floor workers? (Yanow, 2004). Or what is it that makes the knowledge of planners and environmental

scientists more authoritative (hence more likely to lead to institutional action) than the knowledge of residents and farmers? (Wynne, 1996). Power relationships at work impact on the representational practices actors use, and condition the forms of knowledge that become possible (Marshall and Rollinson, 2004; Yanow, 2004). Organizational politics shapes the validity criteria in terms of which competing knowledge claims are judged and has a decisive influence on the extent to which specialized bodies of knowledge across an organization are brought together to constitute *organizational* knowledge (Edelman, Bresnen, Newell, Scarbrough and Edelman, 2004; Marshall and Rollinson, 2004; Newell, Tansley and Huang, 2004). Moreover, the creation of new knowledge in organizations, rather than being just the result of unfettered individual creativity, or even the outcome of interactions in small groups, it is crucially influenced by organization-wide policies (Un and Cuervo-Cazurra, 2004). A constructivist perspective on organizational knowledge focuses on those processes, practices and policies within organizations through which competing bodies of knowledge become established and new bodies of knowledge are created and legitimated.

The papers in this issue

To varying degrees, the five papers included in this special issue adopt a *constructivist* view of organizational knowledge (broadly understood as concerned with the social processes and practices through which organizational knowledge is constructed and created), although their particular foci and emphases are, of course, different. As several of their authors indicate, research on organizational knowledge must explore further the irreducibly social character of knowledge and, accordingly, its embedding into power relationships in organizations. By focussing on the conditions and the processes through which knowledge is constructed and created, we obtain a better understanding, on the one hand of the specific managerial choices by virtue of which diverse knowledge sets are integrated and new knowledge is created, while, on the other hand, we come to appreciate the, ultimately, potential fragility of organizational knowledge claims, insofar as they inescapably depend on particular

values, interests and perspectives. Like all constructions, knowledge construction in organizations is a process that is simultaneously constrained and enabled by the social relationships and practices of those involved in it.

The question of power in knowledge construction features strongly in Dvora Yanow's paper 'Translating local knowledge at organizational peripheries'. Drawing on three cases of workers who work at the organizational periphery – people who are placed at the lower levels of the organizational hierarchy and cross organizational boundaries by interacting with customers and users – Yanow seeks to understand why their knowledge tends to be underprivileged and often ignored. Why, she asks, are managers so little interested in the work of those they manage, especially when that work entails local knowledge that has strategic implications for the organization?

Workers at the organizational periphery, she argues, possess local knowledge – knowledge that is deeply contextual, practical, derived from lived experience. Local knowledge is organizationally relevant but it is possessed by people who are located at a hierarchical and geographic remove from the centre of the organization. The work practices of those people entail that they interact with clients or users beyond the organization's borders. Peripheral workers need, therefore, to be 'bicultural translators': they translate between their employing organization and the external community with whose members they interact. Insofar as they do so, peripheral workers transgress organizational borders, thus 'polluting' the category system and boundary definitions of their home organization – being in between two worlds, they possess an ambiguous status to which managers react by distancing themselves from them.

Moreover, since the local knowledge peripheral workers possess is largely narrative, experiential and particularistic (Tsoukas, 1998), it is deemed to be inferior not only to the formal organizational knowledge (the sort of generalizations that ensure that recurring behaviours occur by means of connecting typified responses to typified expectations – see Tsoukas and Vladimirou, 2001) but also to the 'scientific knowledge' that is privileged by modern societies and finds its way in the 'professionalization' of management and the privileging of technical-rational-scientific expertise. The old Cartesian dichotomy between 'thinking' and 'doing', and the long associated

superiority of the former over the latter, reappears in the marginalization and under-privileging of local knowledge in organizations. What the organization knows depends on the power-imbued socio-technical relationships that enable it to achieve knowledge.

The importance of power in shaping the criteria for what counts as knowledge is also discussed by Nick Marshall and Jeanette Rollinson in their paper 'Maybe Bacon had a point: the politics of interpretation in collective sense-making'. In this paper the authors seek to complement practice-based approaches to organizational knowledge, by focusing on the politics of interpretation and the process of validating knowledge claims in organizations. Marshall and Rollinson first point to a blind spot in practice-based perspectives concerning their treatment of power and politics. Practice-based perspectives, argue the authors, consider power and politics in the creation and sharing of organizational knowledge only to a limited degree and, even then, they do not extend this acknowledgement to its logical conclusions. Struggles over the appropriation and fixing of meaning, as well as over the acceptance of the underlying premises of knowledge claims are noted only in passing without further elaboration. Marshall and Rollinson set out to explore the interplay between power and knowledge by focussing on the pragmatics of language use in a problem-solving episode. Following Weick (1995), the authors argue that attention to breakdowns and disruptions makes it easier to show the explicit manifestation of power, the negotiations over meaning taking place, and the deployment of an array of rhetorical and political moves aiming to establish a collective understanding of the situation.

Marshall and Rollinson's detailed ethnographic study focuses on a problem-solving encounter, stretching over twelve days, involving members of a multi-disciplinary, cross-organizational project team whose task was to remove a series of faults that came about as a result of implementing a software upgrade of one of a telecommunication network provider's telephone exchanges. The authors empirically show how the process of making and validating knowledge claims is not wholly internal to the process of argumentation, but hinges crucially on the power/knowledge strategies participants advance. The authors discuss two such strategies: the

construction of expertise ('believe me, I am the expert') and the construction of formal authority ('I am in charge here'). Both strategies aim at reinforcing knowledge claims by making use of resources that lie outside the narrow process of argumentation itself. Both power/knowledge strategies are not seen as expressing actors' innate capacities but as unfolding processes making selective use of materials provided by the formal mandate, the shared experiences and the collective memory of the project team. As Marshall and Rollinson point out, the process of collective sensemaking is conditioned by social and material contexts of action in which meanings are collectively negotiated and knowledge claims are validated.

The quality of social relationships among organizational members and the way it impacts on knowledge construction is explored in the next two papers, which focus on social capital and the conditions under which it contributes to the creation of organizational knowledge. In their paper 'Social capital and knowledge integration in an ERP project team: The importance of bridging AND bonding', Sue Newell, Carole Tansley and Jimmy Huang point out that a company's knowledge of its own processes is a process of construction – to be precise, in their case, it is a process of integration. Investigating empirically the implementation of an ERP system in a large, multinational engineering company, Newell, Tansley and Huang point out the difficulties and outline the antecedents of successful knowledge integration.

ERP systems aim, by design, to develop a common IT infrastructure for the benefit of integrating diverse business activities. Combining and standardizing information across processes that have historically been diverse and dispersed enables a company to reap important benefits in terms of productivity and speed. An ERP system aims at offering a comprehensive picture of organizational activities. Such a picture, however, needs to be worked out, and this is a complex social process. Existing organizational processes need to be mapped out and possible improvements to be spotted and suggested.

Although an ERP system provides the template for information to be collected, nonetheless the system needs to be customized and for the information that is required to be worked out. That means that an ERP implementation team

will need to access and integrate knowledge about heterogeneous organizational processes, through drawing on the team members' collective social capital – making 'bridges' (networking) with other organizational members who possess heterogeneous knowledge sets. However, for this to happen, a project team's members will need to 'bond' – to create internal social capital in the team. Unless this takes place, argue the authors, it is unlikely that distributed, heterogeneous organizational knowledge will be accessed and effectively integrated.

The authors document how a particular project team failed to develop strong internal ties and develop a shared purpose. As a result, team members, insofar as they appropriated existing social capital, did so for their own private good rather than for the common organizational good. Self-interest dominated over collective interest. Consequently, the integration of dispersed organizational knowledge, necessary for implementing the ERP system, was never achieved. Notice here the recursive process authors point at: for the team to integrate effectively external distributed knowledge, it needed first to have integrated its own diverse knowledge sets. As the authors remark, the internal bonds within the team needed to be forged before the team embarked on integrating diverse organizational knowledge sets through building external 'bridges'. In other words, the organizational knowledge that enters into, and eventually becomes an outcome of, an ERP system depends on the social practices through which that knowledge is constructed.

The benefits and costs of social capital are explored by Linda F. Edelman, Mike Bresnen, Sue Newell, Harry Scarbrough and Jacky Swan in their paper 'The Benefits and Pitfalls of Social Capital: Empirical Evidence from Two Organizations in the United Kingdom'. Drawing on the work of Adler and Kwon (2002) and Nahapiet and Ghoshal (1998), the authors provide empirical evidence that demonstrates the simultaneously positive and negative consequences of social capital in organizations. Reporting findings from two case studies in two UK companies from the telecommunications and construction industries respectively, the authors put forward three propositions concerning the effects of social capital on organizational knowledge creation and dissemination. Structurally, relying solely on social capital for access to information can be

problematic when an organization experiences change in its structure – 'knowledge holes' in the social capital network are created. Cognitively, while social capital can indeed create strong bonds between members of a group, the very same bonds can obstruct problem-solving efforts since they may create barriers between groups with different sources of knowledge. Relationally, social capital can help significantly in creating a knowledge-sharing environment but, in certain circumstances such as, for example, when reciprocity is absent or an authoritarian culture exists, it can lead to individuals guarding their knowledge and adopting defensive strategies. The two sides of social capital are perhaps to be expected: social capital bonds people together and helps provide organizational members with identity and cohesiveness; however, cross-project knowledge transfer may be hindered by the very identity that social capital networks create. The reduction of 'communication friction' that social capital contributes to may be reversed when different social capital networks come into contact.

In 'Strategies for Knowledge Creation in Firms', C. Annique Un and Alvaro Cuervo-Cazurra explore how firms develop the capability to create knowledge. Taking the view that firms are distributed knowledge systems, and drawing primarily on the literature on product innovation, the authors suggest that new organizational knowledge is created through the interaction among individuals with heterogeneous knowledge sets. The possibility of exchanging knowledge and recombining existing knowledge in order to create knowledge is greater, Un and Cuervo-Cazurra argue, when individuals with diverse knowledge sets regularly interact. For such knowledge-creating interaction to take place, individuals need first to be willing to share their knowledge with others, and second, to be able to understand one another. Both of these drivers for organizational knowledge-creation are necessary and can be influenced by management through the use of two substitute strategies, operating at different levels of analysis: an organizational strategy and a project-team strategy.

Both strategies consist of the same components – integrative rewards policy, integrative employee socialization and integrative routine communication – but are implemented at different levels of analysis (organizational and project-team level) and each is associated with different

benefits and costs. Firms typically choose between these two strategies, although their combination is also possible, albeit incurring higher implementation costs. The authors tested their model with data gathered through surveys of 182 cross-functional knowledge-creation teams of organizations in 38 US and Japanese firms located in the USA. They focused particularly on the divisions responsible for the manufacture of personal computers, photo imaging and automotive products. Their empirical results show that both strategies are valid avenues for knowledge creation in firms.

Concerning why certain firms chose one strategy rather than the other, the authors point out that it was not industry characteristics or country origin that accounted for such a choice, but, rather, it was firm-specific *managerial* choice. This, of course, begs more questions as to what are the conditions that shape such choices, but this is beyond the scope of the paper. Un and Cuervo-Cazurra usefully bring to our attention the importance of interactions between individuals with heterogeneous knowledge sets and how the willingness of participants to engage in such interactions, as well as their mutual understandings, are shaped by different strategies. In other words, knowledge creation presupposes human interactions, and the latter are shaped by the knowledge-creation strategies managers choose. Organizational knowledge largely reflects the kind of social relationships at work. What an organization knows depends on *how* its members interact to make knowledge.

The papers included in this special issue contribute to our knowledge of the processes, practices and strategies through which knowledge is constructed and created in organizations. There is of course more work to be done. As Edelman, Bresnen, Newell, Scarbrough and Swan (2004) point out, we need more empirical studies of firms in different sectors, over time, in order to develop a more sophisticated understanding of the contextual influences on the construction of organizational knowledge. Conceptually, we need to explore the role of language in knowledge construction and creation as well as the validity criteria used to adjudicate between competing knowledge claims. Furthermore, we need more studies that bridge levels of analysis. Linking macro-discourses within which actors find themselves situated (e.g. the 'professionalization' of management and the privileging

of scientific knowledge) with micro-discourses, such as the 'speech acts' through which knowledge claims are made and power relations are sustained or challenged, will help us better understand the dynamic of knowledge creation and construction.

Enjoy the special issue!

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