

On Studying Organizational Knowledge¹

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ABSTRACT

There is a sense of incompleteness pervading today's conceptualizations of knowledge in organizations. While the theorizing on knowledge from different disciplinary perspectives and intellectual foci has produced a vast and diversified body of literature on the subject, the proliferation of organizational knowledge theories has not been accompanied by a parallel development of methodologies for studying knowledge empirically. Following the tenets of the phenomenological method this paper develops a framework to conduct description and observation of knowledge-based phenomena in organizational settings. Such framework is based on three methodological lenses: time, breakdowns, and narratives. The three lenses provide operational devices to disentangle organizational knowledge from the tacit background against which it is utilized on a day-to-day basis.

¹ The ideas contained in this paper are largely based on a forthcoming book published by the author (see Patriotta 2003)

1. INTRODUCTION

Knowledge is a very seductive, but elusive concept. Following the wider debate about the emergence of the information age and the knowledge society, recent years have seen an explosion of writings about organizational knowledge from different disciplinary and theoretical perspectives. Yet, theoretical development has not always been accompanied by sound methodologies for documenting empirically the processes of creation, accumulation and maintenance of knowledge in organizations. This paper aims to fill the gap between theory and method by developing a phenomenological approach to the study of knowing in the context of organizing. As well known, the phenomenological method emphasizes the inquiry into the structure of everyday life. The essence of such method lies in the detailed analysis of human experience as a way to rescue the tacit, unstated, and taken for granted assumptions underlying both individual and social practices. On the other hand, phenomenology as an intellectual perspective requires a strategy of investigation for studying empirically the interconnected processes of knowing and organizing. This involves devising tactical tools able to render operational the methodological principles provided by the phenomenological approach. In this paper, I develop a framework to conduct description and observation of knowledge-based phenomena in a systematic fashion. Such framework is based on three methodological lenses: time, breakdowns, and narratives. The three lenses provide operational devices to disentangle organizational knowledge from the tacit background against which it is utilized on a day-to-day basis.

This paper is structured as follows. The next section presents a phenomenological perspective on human and organizational knowing. The paper then discusses the three-lens framework, analyzes each of those lenses, and provides examples of their application in the context of organization studies. The concluding section highlights the main contributions of the paper for the study of knowledge in organizations.

2. THE NATURE OF KNOWLEDGE IN ORGANIZATIONS

In a recent essay the Czech writer Milan Kundera (1997) examines a novel written at the beginning of the century by his fellow-countryman Jaromir John. A forest ranger under the old monarchy, having spent most of his life in the Bohemian countryside, moves back to his native Prague where he plans to spend his retirement. Here he is confronted with a world that is profoundly different from the one he left. The newborn Czech republic has replaced the old monarchy, while Prague has become an emblem of the modern city. Interestingly, however, the feature that strikes him most is not the presence of democracy or the changed political climate; rather, the hallmark of modernity—what will become a nightmare for the main character of the book—seems to be an increased level of noise. It is a new noise, that of the cars and machinery, what he calls the ‘monster engines’. As the forest ranger arrives in the city he moves to a mansion located in a residential area. Here, because of the ‘monster engines’, he witnesses for the first time the presence of the evil sound that will deeply affect his existence and turn his life into an endless escape. He moves across different parts of the city until he resolves to spend his nights in the trains. These, with their pleasant and archaic sound, can finally give him relatively calm sleep. In Kundera’s view, what is interesting in the above account is the method of inquiry

followed by the novelist in the construction of his story. In fact, rather than taking for granted the distinctive traits of the world we dwell in, the author has chosen to proceed in an inductive way by detailing the existence of a real person. The findings of the inquiry are astonishing. The noise of the cars has managed to radically change the life of the main character more than the independence achieved by his country. Freedom, national independence, and capitalism are shorn of their sacredness, relegated to the background, while human conduct is explained by recourse to such a mundane category as noise. Ultimately, the most salient feature of the novel is precisely the apparent inversion of foreground and background, here instantiated by a reversed relationship between noise and silence.

Kundera observes that at the time John wrote his novel there probably was one car for every hundred inhabitants in Prague, or maybe even one for every thousand. At a time when environmental sonority was still minor, the irruption of noise turned out to be a sort of 'cosmology episode' for the forest ranger, an event that abruptly displaced him from his established habits of thinking and acting and seriously impaired his sensemaking capabilities (Weick 1993; Lanzara and Patriotta 2001). It was precisely then that the phenomenon of noise could manifest itself in such powerful fashion and astonishing novelty. From this, Kundera tentatively elicits a general rule of method: a social phenomenon is more conspicuous not at the moment of its greatest expansion but in its incipient phase, when it is still innocent, hesitant, comparatively weaker than it will become in the future. The forest ranger could still feel a sense of wonder at the presence of noise. For him noise was a noticeable phenomenon, one that carried an existential meaning and dramatically affected his lifestyle. In contrast, the next generation was born in a world of noise, one in which noise had receded in the background and had become an established feature of everyday life. As a result, the pervasiveness of noise was not astonishing any more. The essence of man had been changed and man had been turned into a different type of man: the man of noise.

The frustration of the character depicted in the above story highlights some fundamental questions regarding the nature of human knowing. In particular, the predicament contained in the story of the man of noise can be reframed as follows: how do we make sense of experiences that are deeply entrenched in routine contexts and therefore not amenable to observation? How can we understand phenomena of which we ourselves are part and which we often contribute to creating? In sum, how do we break into the ontological blindness of pre-interpretation?

The argument depicted in the novel by John is essentially a phenomenological one, since it has to do with the ways in which individuals construct reality on a day-to-day basis. The world before the transition to modernity, as portrayed in the novel, was a simple one. Just like darkness follows daylight, so the ordinary, everyday nature of the forest ranger was punctuated by the regular succession of periods of work and rest. Within such a world, the city provided a reference system for the forest ranger, a practical background for thinking and acting. Indeed, the intricate nexus of equipment, communication infrastructures, machinery, and conventions defining the modern city constituted a pre-interpreted, self-contained, and self-organized world. The sudden loss of this reference system, occasioned by a reversed relationship between silence and noise, made manifest in a dramatic way what was hidden in the ordinary, everyday experience of the forest ranger. From this we can infer that human knowing is a relational phenomenon; it is essentially about world

making (Goodman 1978). As such it can only be understood in the presence of an organized world that defines and gives meaning to a particular mode of existence. The story of the man of noise points out that we live in a pre-interpreted world which we ourselves have contributed to create and which serves as a backdrop for our everyday dealings. In a sense, the world we dwell in is self-explanatory and self-referential; it possesses an aura of naturalness. Pre-interpreted worlds can be seen as cosmologies; they point to a universe thought of as an ordered and integrated whole (Weick 1993). A cosmological order is one in which background and foreground stand in a stable relationship. For example, the cosmological order of the forest ranger was defined by a particular (and stable) configuration of silence and noise. In its turn, the dichotomy of silence and noise embodied a number of further oppositions between ontological states: blindness and conspicuousness, background and foreground, absence and presence, order and disorder, and so on. The ontological significance of the above opposites lies in the fact that any alteration in their configuration produces a disruption in the established order of things and thereby requires a redefinition of what it means to be in the world.

Pre-interpretation, organized worlds, and the relational nature of knowing seem to provide valuable points of entry for exploring the link between human and organizational knowledge. To be sure, organizations contain a collective dimension as well as a material one. They can be seen as assemblies (both in a material and social sense) of human and non-human 'actants' (Latour 1993) operating around a specific activity system. Organizations are to such assemblies what the city was to the forest ranger. Just like cities, they constitute a background for the accomplishment of complex tasks. Such background consists of routines, standard operating procedures, technological implements, and organizational artefacts—the stuff of which organizations are made. Under these circumstances, the specificity of organizational knowing, and hence its *raison d'être*, lies in the structure of the work organization, in the nature of the task, and in the pattern of collective activity, that is, in the specific way in which knowledge is organized. Exploring the link between knowing and organizing implies looking at how knowledge is inscribed, internalized, encoded, distributed, and diffused in organizational structures of signification.

In this paper I argue that studying knowledge in organizations is like seeing silence in a world of noise. It essentially amounts to understanding the subtle interaction between background and foreground, absence and presence, order and disorder within an organized setting. Understanding such relationships implies acknowledging the fact that the more something is obvious, the more it is hidden to observation; the more we get closer to the picture, the less we notice; the more we know, the less we see. Like silence, knowledge is seductive and elusive at the same time. Indeed, a common reference in the current literature on organizational knowledge is Polanyi's maxim that 'we know more than we can tell'. From the same literature we have also learned that organizational knowledge can be intangible, tacit, path dependent, and idiosyncratic. All these features make knowledge a valuable asset and a source of competitive advantage. The same features explain why knowledge-oriented phenomena are so difficult to grasp. Unfortunately, most organizational scholars have interpreted Polanyi's maxim as a problem of reconciliation between tacit and explicit knowledge. This has resulted in a prescriptive effort aimed at bridging the gap between what organizations know and what they can tell. Typically, the recipe put forward by mainstream knowledge-based theories

of the firm suggests the development of management practices and conversion mechanisms able to render knowledge available throughout the organization. However, this approach does not take into full account the complexity of the phenomenon under study. Indeed, Polanyi's maxim reminds us that since we cannot express most of what we know, much of what we know remains silent. The presence of knowledge is 'silenced' by the practical background against which such knowledge is used and acquires meaning. But there is more than this. Proper functioning of our everyday life heuristics requires that part of our knowledge remain in the silent background of the things we take for granted. In fact, not articulating the premises of our conduct is a precondition for efficient behavioural performance.

In the remainder of this paper I present a three-lens framework for studying organizational knowledge empirically. The strategy of inquiry informing the framework is similar to the one adopted in the story of the man of noise. It takes into account the fact that we live in a pre-interpreted world—where organizations provide ready-made backgrounds to human knowing—whose obviousness and familiarity are often deceiving. Following the tenets of the phenomenological method, the three lenses seek to dig into the 'life world' of organizations in order to capture the taken-for-granted stream of everyday routines, interaction, and events that constitute both individual and social practices.

3 THREE LENSES TO STUDY KNOWLEDGE EMPIRICALLY

The methodological framework adopted in this paper provides a composite tool for gaining empirical access to highly idiosyncratic knowledge systems. As we have learned from the work of Polany (1966), Nelson and Winter (1982), and Nonaka and Takeuchi (1995) a major issue in the study of knowledge-oriented dynamics is the distinction between tacit and explicit knowledge. From a methodological point of view this distinction poses a major challenge for the analyst. In fact, while we have access to the explicit, formalized features of knowledge, it is not possible to get the same insight into the tacit, experience-related side of it. In order to tackle the above problem one has to find a way to operationalize tacit knowledge. This implies addressing two main questions: a) What are the ontological foundations of tacit knowledge? b) What are the factors affecting the degree of tacitness of knowledge?

Tacit knowledge is much more intricate than the reductionist treatment offered by the managerial literature. It is not just a property or a convertible steady state. Rather, as I have shown above, the tacit nature of human and organizational knowing is related to problems of pre-interpretation. Reality is necessarily apprehended through socially constructed lenses that have sedimented over time. This leads to a sort of ontological blindness, whereby social phenomena become gradually entangled in the structure of everydayness and defy notice. Indeed, the notion of pre-interpretation is paradoxical in nature. Human knowing occurs against a practical background that is transparent to the user and therefore not accessible for inquiry. However, such background is itself a human construction, it is the effect of human's everyday coping with the world. It incorporates a history of experiences, consolidated habits, and structural repertoires, which over the years have provided successful responses to the emergence of problematic situations. In other words, existential backgrounds presiding over the practice of everyday life are both the source and the outcome of human knowing. If pre-interpretation provides the

ontological foundations of human knowing (and therefore tacit knowledge) then we need to redefine the distinction between tacit and explicit knowledge in terms of a dichotomy between background and foreground. In the light of the above redefinition the two questions above can be rephrased as follows:

a) How can we disclose the particular configuration of background and foreground within a given setting? b) What are the factors that affect such configuration?

Taking a phenomenological perspective, our operationalization is based on a theory of the actor and on the existential background surrounding the actor's everyday coping with the world. In particular, I suggest that there are at least three important factors that affect the particular configuration of background and foreground knowledge in organizations. The first is history: knowledge recedes to the background as a result of the sedimentation of learning experiences over a time span. The second is habit: when knowledge is deeply internalized and institutionalized we tend to use it in an almost automatic and irreflexive way. The third is experience: by definition tacit, background knowledge is experience-related. The above factors identify three 'lenses' for studying knowledge processes as an empirical phenomenon: time, breakdowns and narratives.

Time looks at the dynamics of social becoming underlying processes of knowledge construction in organizations. It points to the sedimentary nature of knowledge and to the deep structures that govern daily practices in the work setting. Breakdowns call into question our habitual way of doing things and thereby point to the patterns of routinization underlying the smooth functioning of human activities. By interrupting the ongoing sense making activity of organizational actors, breakdowns also disclose the thematic content of intentionality and highlight the cognitive dimension of organizational knowledge. Finally, narratives provide distinctive modes of knowing through which experience-related knowledge is articulated into some form of organizational discourse. The focus on narratives allows the researcher to gain an insight into how organizational actors represent and make sense of their everyday coping with the world.

The three methodological lenses can be seen as specially crafted tools for studying such relational phenomena as societies, organizations, institutions, cities, knowledge systems, and so on. The main assumption underlying the proposed framework is that social phenomena become conspicuous under special circumstances. For example, when they are in their incipient phase (e.g. witnessing a phenomenon for the first time). What today appears to be invisible and taken for granted, must probably have been apparent in a previous time. Time allows the researcher to trace back the origin of a complex phenomenon (e.g. noise as a proxy for modernity) by providing a formidable travel machine. Or, when there is a disruption of an established order. Breakdowns provide a way of voicing a background that is taken for granted. In this regard, breakdowns and disturbances have the same function of noise in a world of silence. A third strategy of investigation suggested by the above discussion consists in the patient piecing of evidence and clues. This involves reconstructing past or present experiences through the narratives of the actors involved. The focus on narratives presupposes treating reality as a text unfolding as a story (Geertz 1973; Ricoeur, 1981). This strategy derives from literary criticism. It amounts to deconstructing a text, as Kundera does for the novel by John.

Lens	Focus	Process
Time	Discontinuities in time	Sedimentation of knowledge-based patterns over time
Breakdowns	Discontinuities in action	Routinization of successful responses to problematic situations
Narratives	Discontinuities of experience	Embodiment of notable experiences into some forms of organizational discourse

Table 3.1 Three lenses to study knowledge empirically

Taken as a whole the three lenses represent modes of de-institutionalization of knowledge (see tab. 1). They look at knowledge creating dynamics in reverse, so to speak, by focusing on discontinuities in time, action, and experience. Each lens provides a distinctive angle, or mode of access to the tacit features of organizational knowledge systems. Specifically, it is possible to identify three distinctive but interrelated processes to which each lens directs our attention:

- the sedimentation of knowledge-oriented patterns over time (time)
- the routinization of successful responses to problematic situations (breakdowns)
- the embodiment of successful practices into some forms of organizational discourse (narratives)

Under these circumstances, the three lenses also provide a form of methodological triangulation. The triangulation of multiple sources of evidence is a common strategy in qualitative research aimed at improving the richness of the data while reducing the risk of interpretative biases. The three-lens framework presented below extends the principle of methodological triangulation to a higher level of complexity encompassing issues of meta-level perspective and ontological significance. In the following section each lens is discussed in greater detail in order to assess their methodological relevance and distinctiveness.

3.1 Time

The centrality of time in strategy and organizational research has been underscored by those scholars who have conducted longitudinal and processual studies on such phenomena as change and innovation (e.g. Pettigrew 1985, 1987, 1990, 1997; Whipp and Clark 1986). Other scholars have adopted a historical perspective to interpret the evolution of organizational structures and behaviours as a result of culture-specific historical developments (Chandler 1990; Kieser 1994). The use of the historical

dimension as a methodological lens raises important issues relating to the type of approach and the corresponding conceptualization of time adopted by the researcher. Traditionally, the epistemologies underpinning the historical method have oscillated between the so-called analytical and narrative approaches. The analytical approach refers to a positivist tradition privileging explanation and the identification of law-like causalities. Accordingly, this perspective tends to deny the importance of events in favour of more generalised patterns and structures. In its most radical formulation, known as the 'cover law model' (Ricoeur 1984), the analytic approach aims to develop predictive models of historical evolution and therefore to endow history with the same status as science. A typical application of the analytical approach is Marx's notion of historical materialism as used in the analysis of capitalist societies. Despite the strong criticism levelled at the analytical approach, its added value lies in the possibility of identifying patterns and regularities and therefore reconnecting organisational phenomena to some kind of causal explanation. At the other end of the spectrum, the narrative approach denies any causality in favour of the objectivity of the plot (i.e. how one writes history and tells the story). For narrativists, the point like event constitutes the minimal unit of analysis. The historical account relies on the construction of a plot out of a collection of equivocal events. In this respect, the work of the historian is about sense making rather than tracing back patterns and regularities. The craft of the historian lies in his/her capacity to cut out the field of events in order to build a meaningful plot (Veyne 1971). Plausibility and probability are the criteria of validation of the historical account. A critical point of synthesis between the above perspectives is provided by the Annales School (see Bloch 1953; Braudel 1972-74), which attempts to integrate the contributions of history and sociology. Representatives of this School tend to deny the singularity of the event and the role of the individual in favour of holistic notions such as social facts. History is not made of heroes and battles. In this regard, the Annales School is close to the positions of the analytic approach, although within an anti positivist orientation (Ricoeur 1984). At the same time, the Annalists recognise the importance of human understanding advocated by the narrative approach. Most of the recent approaches in organization studies have tended to set themselves in some sort of intermediary position. For example, the historical account of the dynamics of change and innovation at Rover provided by Whipp and Clark (*ibid.*) can be defined as an 'analytically structured narrative'.

When applied to study of knowledge-related processes in organizations, the rationale for the use of this dimension reads as follows: if the sedimentation of idiosyncratic stocks of knowledge occurs over time, the solution devised to deconstruct knowledge that has become tacit and mostly taken for granted relies on the possibility of manipulating time. Admittedly time exists in different forms. Chronological time emphasize linearity and provides a trajectory in the sequencing of events (a time span). Knowledge systems are unravelled through the identification of discrete phases, seizures, and breakpoints, which identify evolutionary paths. Sedimentary time (Latour 1999) allows the researcher to develop an appreciation of the processes of inscription and stratification by which knowledge becomes progressively institutionalized. The multiple strata identify distinctive knowledge contents evolving towards increasingly complex forms of organizing. Narrative time (Ricoeur 1984) provides organizational actors with a structuring device that punctuates the unfolding of action according to distinctive plots. It focuses on processes of collective remembering (Middleton and Edwards 1990) surrounding the creation and institutionalization of organizational knowledge (see also

narratives). Time as commodity directs our attention toward the ways in which the equivocality of action is harnessed in stable temporal structures (e.g. work shifts, production cycles, deadlines, and so on). Time as tense implies the notion of 'pastness', i.e. the idea that the past exerts an important influence on the present and over the future. The theorization of the influence of the past on organizational performance can be reconnected to theories of imprinting (Stinchcombe 1965), according to which the explanation for current performance of a firm or institution can be traced back to its foundation. Likewise, the notion of path dependency connects the idiosyncratic knowledge base of a firm to specific learning trajectories developed over time. Finally, social time calls into question of the 'facticity' of knowledge (Knorr Cetina 1981). It provides the analyst with a time machine for deconstructing facts that have become taken for granted within a given community (Latour 1987). The journey in space and time allows the analyst to follow the characters involved in situated processes of knowledge construction 'while they are busy at work', and to trace back the network of events, decisions, physical artefacts, and institutions, surrounding the 'making' of things. In this respect, emphasis is placed on 'knowledge in the making' rather than ready-made knowledge (Latour 1987). The use of time as a travel machine points to the ubiquity of the researcher, i.e. the possibility of being in different places at the same time. This possibly redefines time as a spatial dimension.

3.2 Breakdowns

Breakdowns, in the form of discontinuities, interruptions, and so on, provide a cleavage between organization-disorganization, and therefore can be fruitfully deployed for an empirical investigation on knowing and organizing. Indeed, the need to capture relations between flux and stability, practice(s) and narratives, order and disorder are central to the nature of organized activity. There is a considerable body of literature dealing with disruptions and sense-making (Weick 1988, 1993; Perrow 1984; Shrivastava *et al.* 1988). These studies emphasize the cognitive implications of major events such as crises, accidents and failures, often within the context of high-risk systems. Typically, the crisis literature tends to focus on low probability/high consequence events that jeopardize the mission of the organization. Furthermore, given the unpredictability of a crisis, research deals with situations of high discretion in which the cognitive/emotional responses of individuals faced with a breakdown will ultimately prevail over the structural properties of the organization. In particular, the nature of the task at hand is such that a serious disruption could result in a 'collapse of sense-making' (Weick 1993) and lead to the disintegration of organizational structures.

To be sure, breakdowns are 'accidental', unexpected, related to the performance and the reliability of a system, they can be more or less serious, local or systemic. More fundamentally, as the literature on situated cognition (Winograd and Flores 1986; Suchman 1987) has pointed out, breakdowns relate to the domain of everyday life and to our way of encountering things. In other words, breakdowns pinpoint the disruption of a pragmatic connection with tools and equipment. They express discontinuities, mismatches, disjunctions, seizures between knowledge and experience, representations and praxis, and between the obvious and the concealed. This view is in line with socio-technical analyses of disruptions in the work place. In particular, the study of socio-technical systems (e.g. Trist 1981) has looked at how organizations react to breakdowns

as a way to explore such issues as the robustness and reliability of a technology in relation to the work organization. From a socio technical perspective the focus on breakdowns provides a means for testing the resilience of a given organizational setting. As Akrich has pointed out:

A breakdown can only be understood as part of practice – that is, as the collapse of the relationship between a piece of apparatus and its use. A breakdown is thus a test of the solidity of the socio-technical network materialized by a technical object. The rapidity with which the search for the causes of breakdown can be completed is a measure of this solidity (Akrich 1993: 224).

The use of breakdowns in the present study is informed by the following assumptions. First, breakdowns are treated as a pervasive, everyday phenomenon that organizations are able to absorb and to harness thanks to their repetitive pattern of recurrence. In other words, the focus of the research is on low risk breakdowns in large organizations. Second, sense making is not considered as a mere psychological process, but is anchored to the phenomenon of organizing. Third, the conditions whereby breakdowns produce a disclosure of the tacit features of organization are reconnected to the borderline location of breakdowns in the opposition organization-disorganization.

As a tool for inquiry, breakdowns draw on discontinuities in action as a mode to disentangle knowledge from consolidated work practices and routines. In so doing they point to the processes whereby order is disrupted and eventually recomposed within organizations. At the empirical level, the dialectic organization-disorganization translates into the dynamic interaction between routines and breakdowns. Routine and breakdowns identify alternative modes of knowing pointing to different types of intentionality (Dreyfus 1991; Louis and Sutton 1991). In routine situations, organizational actors are absorbed in coping with business as usual. The content and the context of the task at hand are somewhat enfolded in a single knowledge system, which makes the task itself transparent to the user. In other words, when things are functioning smoothly, organizational knowledge is experienced as something 'ready-to-hand' and used almost unreflectively. On the other hand, when disruptions occur, the coherence of the task (what Heidegger (1962) would call the constitutive assignment of the 'in-order-to') is called into question because the functional relationship between action and goals, activity and context, has been disturbed. As a consequence, the obviousness of daily routines becomes problematic (Ciborra and Lanzara 1994; Ciborra Patriotta and Erlicher 1996). Since, in those situations, knowledge needs to be applied in a deliberate way, the ongoing flow of action and sense making is articulated in the form of narratives, moves and decisions, while projects emerge as they are interrupted. In order to restore normality organizational actors need to explicitly interact with the tacit background against which knowledge is used. As a consequence, knowledge references to the context of use are disclosed and emphasized. In this respect, breakdowns bring tacit knowledge to the fore by exhibiting it as 'present-at-hand'. This has two major consequences for the disclosure of tacit knowledge. Firstly, breakdowns produce a de-coupling of action and cognition and thereby reveal the projects behind the execution of a task. Secondly, practical knowledge is disentangled from its context of use and is de-situated. The analysis of breakdowns provides, then, a useful method of reflecting upon the organizational context 'hosting' a particular knowledge system and opens up the possibility of deconstructing the meanings

embodied in organizational artefacts, routines, and other knowledge-based products. In this regard, breakdowns provide a window through which it is possible to access the organizational reality as they put the organization in a situation that requires deliberate attention.

The discussion carried out above raises the issue whether breakdowns can be at all distinguished from organizational routines. For instance, Nelson and Winter (1982) contend that breakdowns are absorbed by organizations through the incorporation into some kind of problem solving routine. From a phenomenological perspective routines and breakdowns have to be seen as alternative modes of encountering things. Namely, while routines relate to things functioning smoothly, breakdowns point to the temporary collapse of a pragmatic relationship with things. Another way to understand the difference is to locate the interplay of routines and breakdowns within a broader epistemology of action. In this sense, it is possible to think of action as an ongoing flow of routine and breakdown events unfolding in time and space. Following this line of reasoning routines do not include breakdowns, rather they embody the possibility of disruption in the smooth flow of action. As Winograd and Flores (1986) have pointed out, 'things' do not exist in the absence of a concerned activity with its potential for breaking down. Of course, the entity of the breakdown affects the extent to which order is interrupted and eventually recreated.

To conclude, breakdowns do not destroy organizations, let alone routines. Rather, they help us understand why and how certain strands of knowledge have become tacit. Once a specific routine has been invented, the problem addressed by it simply stops being a (conscious) problem. Echoing Latour's terminology, it is possible to argue that breakdowns constitute an alternative way of opening organizational black boxes and uncovering concepts that have become tacit. The close examination of disruptions takes us back in space and time and, hopefully, leads us to the understanding of the organizational devices designed to anticipate them. To use an analogy, just as in science, a fact or a paradigm is challenged by the emergence of a counter-evidence that leads to a controversy, in organizations the concept of organizing is challenged by the occurrence of disruptive phenomena.

3.3 Narratives

Narratives deal with the vicissitudes of human intentions (Bruner 1986). They can be seen as a form of problem solving in our everyday coping with the world. In a sense, narratives provide access to the world conceived, in William James' terms, as 'a buzzing, pulsating, formless mass of signals, out of which people try to make sense, into which they attempt to introduce order, and from which they construct against a background that remains undifferentiated' (James 1950, cited in Czarniawska 1998). The significance of the narrative approach to the study of contemporary organizations has been widely recognized in the literature. For example, Boland and Tenkasi (1995) consider narratives and storytelling as the basic organizing principle of human cognition. They believe that explicitly recognizing the narrative mode of cognition is important for understanding how perspective making and perspective taking occur within a community of knowing. In a similar vein, Weick (1995) contends that stories simplify the world by providing cognitive devices to guide action. Brown and Duguid (1991) have reconnected the narrative process to a situational view of organizational knowledge and learning (Lave and Wenger 1991).

Narration is seen as a central feature of the *modus operandi* of informal communities-of-practice, reflecting the complex social web within which work takes place. Accordingly, the practice of creating and exchanging stories has two important aspects. First of all, storytelling allows organizational actors to keep track of their behaviour and of their theories; secondly, stories act as repositories of accumulated wisdom (p. 45). At the empirical level, Orr's (1990, 1996) ethnography of photocopy repair technicians (reps.) probably provides one of the most classical applications of the narrative approach. By following in detail the technician's 'talk about machines', Orr discovers that the practices enacted by the reps in their everyday coping with troubled machines is much richer and more complex than the prescriptive documentation provided by the company manuals would suggest. Narratives appear to be fundamental diagnostic devices, enabling operators to perform a coherent description of machine breakdowns. In addition, they maintain the stability of the work setting by fostering the circulation of organizational knowledge within the community of workers.

Narratives connect modes of knowing with modes organizing. On the one hand, it is possible to say that narrating is organizing (Czarniawska 1997). Indeed, organization itself can be regarded as a story, as a social construction that is interactionally relevant and constraining. At the same time, narratives identify a distinctive mode of thought (Bruner 1986). They point to the cognitive processes through which people in organizations engage in debate, dialectics, and collective inquiry. From a phenomenological perspective, narratives provide access to the controversy-based dynamics through which organizational actors deal with the equivocality of everyday action. They unfold the features of knowledge-making processes in terms of an internal dialectic between text and action. According to Ricoeur (1981) action may be regarded as a text, it is a meaningful entity which must be constructed as a whole; however this construction is subject to conflict of interpretations that can be resolved only by a process of argumentation and debate. Like a text, human action is an open work, the meaning of which is 'in suspense'. In this regard, narratives turn action into text and text into action. Through the institutionalization of meaning action is temporarily fixated, it turns into a textual artefact that can be dissected by using the methodology of text-interpretation. In turn, by connecting event and meaning, the text becomes a script to be acted upon, a prompt for *ad hoc* performances. Ultimately, texts provide a guide to conduct and thereby link action to cognition and sense making.

The above considerations bear important implications for knowledge, knowing and organizing. Firstly, narratives show how knowledge in organizations is mobilized through discourse, and therefore highlight a distinctive mode of knowing related to the everyday coping with the world. Because of their connection to experience, narratives display common-sense wisdom - in the form of anecdotes, jokes, and war stories - in organizational discourse. Common sense is based on unspoken premises and therefore underscores the tacit aspects of knowledge in organizations. Narratives, articulated as plots, are the carriers of such a deep-seated, sticky, commonsensical stock of knowledge. Furthermore, because of their commonsensical nature, narratives point to shared worldviews, i.e. to the meanings that the members of a given community have come to take for granted. The deconstruction of organizational narratives should therefore allow the analyst to look at how individuals in organizations articulate knowledge by weaving webs of signification (Geertz 1973). Secondly, narratives emphasize the processual nature

of knowing and organizing. Like routines, they act as carriers of tacit knowledge as well as storage devices. However, while routines refer to organization as a clockwork, governed by mechanisms of repetition and standardization, narratives exhibit organizations as enacted through discourse and characterized by ongoing processes of transformation and social becoming. The text metaphor reinforces the idea of narratives as instances of knowledge in action. Narratives, articulated as texts, can be seen as material traces of learning and collective remembering processes, social imprints of a meaningful course of events, documents and records of human action.

Within the framework depicted above, the task of the researcher is simply to describe in detail how organisational actors make sense of equivocal happenings in the work setting while attempting to identify emerging patterns and regularities of action. On the other hand, the focus on narratives highlights important consequences as far as the relation between actors and observers is concerned. In fact, the observer is him/herself involved in the construction of narrative accounts in order to make sense of certain patterns of behaviour. He/she too engages in the construction of plots (texts) out of equivocal events and in so doing he/she deals with 'interpretation of interpretations' or texts about texts. In this respect the relation between actor and observer may become self-referential insofar as the distinction between the actor and observer's accounts get blurred. Narratives are a sense-making device in a two-fold sense: they allow actors to articulate knowledge through discourse; and they provide the observer with access to tacit stocks of knowledge that have been externalised in a text-like form. It is therefore important to distinguish between narratives as a methodological lens (focus on actors) and the narrative voice of the observer in describing certain organisational phenomena (see Hatch 1996).

4. CONCLUDING REMARKS

The main methodological challenge taken up by this paper has been the possibility of documenting empirically the processes of creation, accumulation and maintenance of knowledge in organizations. In fact, there is a sort of ontological blindness related to the difficulty of making sense of experiences that are deeply entrenched in routine contexts, taken-for-granted backgrounds, and pre-interpreted worlds. The paper has developed a compact framework dealing with the epistemological, methodological, and operational assumptions underlying an inquiry into organizational knowledge. Such framework includes phenomenology as the overarching intellectual perspective and a set of methodological lenses as operational tools to gain access into knowledge-based processes.

Admittedly, students of strategy and organizations have stressed the importance of defining some entry points for accessing knowledge systems. In different versions, they have identified breakpoints, discontinuities, interruptions, disruptive phenomena, and controversies as the elements that allow the analyst to put together a flow of events in a sensible way. However, the issue of access to knowledge systems has never been problematized in an explicit way by the previous literature. Rather, it has been treated as a marginal, taken-for-granted question. Put another way, the purely instrumental stance towards the problem of 'looking for a way in' has impeded the development of a coherent framework for the study of knowledge as an empirical phenomenon.

The analysis conducted in this paper show that knowledge making is based on entropy, on

the presence of imbalance and discontinuity. Therefore, knowledge can only be studied as a phenomenon in motion, through displacement, surprise, controversy, and contest. The paper has addressed the issue of how to study knowledge-making processes in organizations without reifying them, but taking account of the cultural specificity and context-dependency of knowledge systems. This is perceived as an important step in closing a major gap in the literature.

A salient contribution of this paper has been the development and application of a three-lens framework for studying knowledge empirically. In operational terms the three lenses provide complementary tools for zooming into consolidated organizational practices which time, habit, and experience have rendered opaque and mostly taken for granted. The added value of each methodological lens has already been discussed earlier. Here it is important to reiterate that the three lenses are informed by a unifying principle: the presence of discontinuities. Discontinuities in time, action, and discourse provide not only access to background knowledge but also the narrative devices informing description. In fact, description itself is a form of discontinuity; it unfolds by following the chains of transformations occurring within a given work setting. The linking theme underlying the three lenses is precisely that of following organizational actors at work and describing the discontinuities informing their practices. Accordingly, the use of description as a narrative device has relied on the assumptions that knowledge systems are immanent to organizational practices. In this respect, description represents a mode of disentangling tacit knowledge from the variety of organizational devices in which it has been crystallized.

The three lenses can serve as a template for future research in different organizational and institutional settings. In fact, they seem to possess a generic validity which derives from their potential for deconstructing complex knowledge-related phenomena by focusing on discontinuities in the smooth functioning of organizations. A future research agenda will have to take into account the following issues. First of all, there is a problem of applying the three lenses as a methodological framework. Here the emphasis is on the possibility of defining a typology of knowledge problems, settings, and processes that can be usually studied through the three lenses. For example, the three-lens framework was originally applied in the context of a broad research study conducted within Fiat Auto and including three case studies (see Patriotta, 2003). Two distinctive organizational settings were considered - a green field site and a brown field - as a way to study processes of change and knowledge transformations over time. Further work will need to consider additional organizational and institutional settings in order to corroborate the generic validity of the methodological framework and possibly fine tune the three lenses.

A second issue concerns the possibility of developing further lenses for studying knowledge-related phenomena. The new lenses should be able to work on the cleavage between knowing and organizing; that is, look at situations where order is temporarily disrupted or recreated. Controversies, focusing on discontinuities of perspective, seem to provide a promising candidate as a fourth lens. They have been fruitfully utilized in studies on science and technology (e.g. Latour 1987) as well as in the study of social dramas underlying processes of change and continuity within a particular cultural context (Pettigrew 1979, 1985; Turner 1996). More recently, Lanzara and Patriotta (2001) have looked at the knowledge-making dynamics surrounding the controversial adoption of video recording in six Italian courtrooms. Overall, the new lenses should be able to

capture the mutuality of continuity and discontinuity in dynamics of knowing and organizing. The latter point leads to a more general problem regarding the elaboration of methodological frameworks for studying co-evolutionary processes of knowing and organizing.

Finally, this paper can be seen as an attempt to unpack and enact Polany's maxim that 'we know more than we can tell'. I have suggested that the dichotomy between tacit and explicit knowledge be replaced by the distinction between background and foreground knowledge. Background and foreground identify ontological categories explaining how individuals and organizations make sense of their worlds on a day-to-day basis. Understanding the particular configuration of background and foreground provides a wealth of information about the inner workings of a given organizational setting: how organizational actors make sense of everyday practice; what they take for granted; what they deem as necessary, obvious, natural, and inevitable. The ontological categories of background and foreground are related to the concept of pre-interpretation. Pre-interpretation deals with how individuals in organizations construct reality on a day-to-day basis and how such construction affects organizational behaviour; why organizations face knowledge dilemmas, rigidities, and paradoxes; and how this may lead to inertia and poor performance. At the diagnostic level the analysis involves understanding whether a particular configuration of background and foreground is functional or dysfunctional to organizational performance; that is, whether the idiosyncratic stock of knowledge possessed by a firm supports its capacity to compete or, conversely, is an obstacle to the accomplishment of desired goals. Only then is it possible to analyse learning and change requirements, and accordingly devise courses of action aimed at improving the firm's level of performance. This latter point possibly highlights important managerial implications. It invites managers and practitioners to reflect about the repertoire of knowledge they possess and yet cannot articulate. In this regard, phenomenology provides a meaningful strategy of reflective inquiry both for theory and for practice. It aims at unveiling the structure and meaning of everyday experience; it stresses the importance of the details of practice; it shows how micro phenomena speak to grand realities.

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