Rational, Interpretivist, and Practical Approaches to Organizational Memory

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KEYWORDS	ABSTRACT
Organizational Memory Practice Theory	To study organizations means to study their memories. At different points in time, organizational memory has been considered in the literature as a time-capsule, a social system that attributes meaning, and a teleological aspect of a practice. Building on these theories this essay will attempt to present a holistic overview of the mnemonic phenomenon. A proposed distinction between short- and long-term manifestations of practice memory and the role of organizational memory in solidifying regimes of practices within an organization is discussed. Possible questions for further research are put forward.

Introduction

Organizational memory is a feature that contextualizes and communicates an organization both internally and externally. It is difficult, if not impossible, to understand an organization without looking at where it came from and how it got to where it is. Furthermore, memory is a key epistemic feature – Tsoukas and Vladimirou (2001), for example, place prior experience and history as primary aspects in the generation of knowledge.

The prevalent way of thinking about memory stresses the importance of preservation juxtaposing this against the fear of loss. Good memory is pre-emptive to the loss of information and knowledge, and poor memory is inadequate at preservation of those. A rational course of action in those cases is to minimize or eliminate those aspects of memory that cause defects to the preservation process - achieving this goal would allow for next to ideal background to knowledge codification, dissemination, and absorption. However, this is not the only way of looking at organizational memory. In this essay I will journey through academic literature on organizational memory and attempt to infuse this thinking with the epistemology of practice to allow for the role of power and contestation. To assist in navigating the considerable body of work on organizational and collective memory I have grouped the theories that I will consider into two broad categories. These categories attempt to group theories together based on their common ontological and epistemological orientations towards the rationality of organizational memory, i.e. the collective orientation to the efficient accomplishment of functional collective goals (Scott, 1987). Ontological assumptions concern such areas as nature and mechanics of memory and epistemological assumptions concern how memory is defined and operationalized.

Following this review I will argue that there has been a misrepresentation of the role and relationship of the collective memory as it relates to organization. I propose an alternative way of thinking about practice memory as an essentially recursive, continuing accomplishment of practice memory at an organizational level and within the greater field of practice as a whole. I will demonstrate how thinking of practice memory in such a way aligns the field of organizational memory with the epistemology of practice.

Rational approaches to collective memory

Key assumption on the rational approach to organizational memory is that there is a purposeful function to it. This function is normally to do with storage and retrieval of information and knowledge. By storing knowledge through time and enabling a way of retrieving it, organizational memory should allow organizational members to gain deeper and broader understanding of organizational history and past actions in order to learn and avoid repeating

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certain organizationally undesirable courses of action. There is a noteworthy paradox generated by the rational approach to organizational memory which provides a snapshot of this entire theoretical platform - organizational knowledge is cumulative and persists indefinitely through time (Argote, 2013). Despite individual persons moving within and outside of the organization, technologies and structures changing, organizations fail to not remember and persist in learning for the length of the existence of the organization, and possibly longer (Burt, 2002).

From a rational perspective, the way organizational memory works is by recording information useful to organizational goals, maintaining it through time and space, and releasing it to those members of the organization who can make use of it. There are variations across different theoretical approaches, but the fundamental ontology assumes that individuals are willing contributors and distributors of organizational memory, and that those individual inputs into the memory of the organization are equally valid. The entire concept of memory is only meaningful when defined against the idea of 'knowledge' as well as some rudimentary aims and/or objectives of knowledge, such as 'learning' and 'forgetting'. In the case of organizational memory, the rational approach implicitly proposes that individuals are able to take these concepts into account when engaging in collective action, recognize how their (inter)action will align with these concepts, and regulate their behaviour accordingly.

In this section I will identify and group a variety of approaches to organizational and collective memory that may, otherwise, be perceived as incompatible. While I concede to the internal heterogeneity of these schools of thought, I believe that it is useful to group them in this way so as to highlight fundamentally similar assumptions about the role of the organization that they make, rather than dwell upon the different approaches to memory that they take (see Rowlinson et al., 2010 for a good review).

Transactive memory systems and the repository model

The concept of a transactive memory system is based around the idea that individuals serve as external mnemonic aids to each other (Wegner, 1987). When applied to organizations, this suggests that individuals are capable of benefitting from each other's individual knowledge and expertise if they develop a shared understanding of 'who knows what' in the organization. A transactive memory system is built on the assumption that there is internal and external memory. Routinely individuals memorize into their 'internal' memories (i.e. brains), and 'external' memories (i.e. diaries, notes, documents,

etc.). When memorizing into 'external' memory, individuals 'internally' make a note of the type of knowledge and its location, but do not memorize the knowledge itself.

As individuals make notes of where the knowledge is, or who has the knowledge, they enact 'meta-memories' (i.e. memories about the memories of others). Wegner (1995) distinguished between two types of meta-memories – one, where individuals collect information about what each person in the organization knows (i.e. areas of expertise); and another, where individuals collect information about the locations of the knowledge and ways of reaching them (i.e. how, and where to look in the database). Remembering is achieved when knowledge that is encoded and stored in various locations across the organization is identified and retrieved by means of transactions (verbal, material, political, etc.) between individuals, based on their meta-memories. Individuals do so by '*verbalizing details about the context in which the knowledge was obtained, posing questions, or verbalizing associations with the question*' (Hollingshead, 1998: 661). As, in order for individuals to enact 'meta-memory' a knowledge of 'who knows what' is required, the transactive memory systems perspective potentially allows to account for inequality amongst actors. Indeed, Bunderson and Reagans (2011) have indirectly touched upon the subject, but even their work concludes, in key with the rational paradigm, that transactive memories can be functionally managed by altering the behaviour of powerful actors.

Directly following the transactive memory system view is the idea of organizational memory as a knowledge repository. Otherwise known as the repository model, this view considers organizational memory as a '*set of repositories of information and knowledge that the organization has acquired and retains*' (Huber, Davenport & King, 1998: 3), or simply '*stored knowledge*' (Moorman & Miner, 1998; de Holan & Phillips, 2004).

A detailed literature review by Walsh and Ungson (1991), conducted with this concept of memory in mind, is widely acknowledged to have established organizational memory as a sub-field of its own (Olivera, 2000). They defined organizational memory as '*stored information from an organization's history that can be brought to bear on present decision*' (Walsh and Ungson, 1991: 61) with the fundamental proposition that organizational memory should be understood in terms of its function and location. Where 'function' is the benefit of 'good' memory in preserving information that may aid organizational decision making and 'location' is the whereabouts of such information within the organization.

Walsh and Ungson (1991) were not naïve in their understanding of organizations – they did not

think of them as machines that can be reduced to their constituent parts. Walsh and Ungson (1991) though of organizations as interpretative systems held together by common language. From this epistemological stance they concluded, based on the existing literature at the time, that certain types of knowledge tend to 'gravitate' towards certain places in the organizational order. These places became known as the five 'storage bins': individuals, culture, transformations, structures, and ecology; as well as external archives. If the five storage bins could be effectively identified by management, they could be tapped into to improve '*the organizational outcomes and performance*' (Walsh & Ungson, 1991: 62) as and when required.

The repository model has been subject to some fierce criticisms over the years. These are normally addressed at the mechanics of remembering, the nature of repositories, and the functionalist nature of such organizational. To summarize, what most of the critiques argue towards is that a better understanding of the role of the social is required if we are to have a serious discussion on the nature of organizational memory. In part, because thinking of memory as a container for knowledge sterilizes it into a neutral, objective entity.

It is worth noting that theories that fall under the label of repository model, however arbitrary, tend to postulate that good memory is pre-emptive to the loss of information and knowledge, and poor memory is inadequate at preservation of those. While this makes sense from a rational or functionalist perspective, if followed through to their underlying assumptions, these views of organizational memory seem to result in a paradox - if memory is a process of reducing the loss of information and knowledge from within an organization or even an individual, then upon the attainment of perfect information and knowledge preservation and zero loss (however unlikely), organizational memory will have succeeded in serving its purpose. However, if such memory is defined and understood against memory loss, then the removal of the potential for memory loss made possible by the attainment of total and infallible memory will also result in the removal of memory as such. For if memory is defined against memory loss, then the absence of memory loss removes the very purpose that memory is supposed to serve - if there is no possibility of memory loss, there can be no meaning to memory for it will do nothing.

While the above is clearly more at home in the domain of philosophy than organizational theory, it does expose the questionable nature of assumptions underlying the codification movement and the repository model that is part of it.

Social memory studies

Critique of the repository model called for a more socially inclusive theorization of organizational memory. This call was addressed by what is now referred to as social memory studies. Seen through this lens, organizational memory as a retention bin disappears to give way to organizational memory as continuously (co-)constructed and reconstructed by individuals interacting with each other and their socio-material environment (Corbett, 2000). Social memory is understood in social time and can be described as '*the representation of the past in a whole set of ideas, knowledge, cultural practices, rituals and monuments through which people express their attitudes to the past and which construct their relation to the past*' (Misztal, 2003: 6).

Social memory studies school of thought can be further sub-divided into two categories: one, more closely related to the repository model, that views memory as socially negotiated but still located in people's heads; while the other, more sociologically oriented, that views memory as patterns of symbols objectified by a particular society at a particular period in time. These are respectively referred to as '*collected memory*' and '*collective memory*' (Olick, 1999: 336). The collected memory perspective is operating within non-rational approach and so will be discussed later. The collected memory perspective is more epistemologically receptive to the idea of inequality of memory, but not much of current theory makes use of this capability.

Collective memory is discourse in general and language in particular. No memory is feasible outside the collective, in this school of thought, and the collective nature of memory is made most apparent '*by the degree to which it takes place in and through language, narrative, and dialogue*' (Olick, 1999: 343). Groups create definitions, as well as divisions, by which they consequently establish meanings of events; and then share, legitimize, and translate those meanings amongst interacting groups and individuals. This externalizes symbols and their relationships away from the individual and into the social. As one of the most fundamental aspects of using language is the ability of individuals to use it in an appropriate social context, the use of a particular language by an individual also signals distinct social context to the outside world. Individuals do not understand each other because language has a representational relationship to reality, but because of co-contracted and co-negotiated structures of communication (Wittgenstein, 1953).

The same principle applies to collective and organizational memory. Collective memory view considers organizational memory inseparable from '*the frameworks used by people living in society*

to determine their recollection' (Halbwachs, 1992: 43), and as co-constructed through interactions in particular social contexts. While the social contexts of memory are distinct, they are also equal in their representational value and any implicit power discrepancy is considered in passive terms. What this means is that when one memory replaces another, the change is confined to history and not elaborated upon nor brought forward into the present - the process behind change is left in the shadows (Assmann, 1998 for example). Language and collective memory do not exist in some external state, like in the repository model, but are re-established at every interaction (Berger & Luckmann, 1967). As individuals remember and memorize in groups and organizations they simultaneously constitute those groups and organizations in the process of remembering and memorizing. Language as a concept of memory is essentially a Plato's cave.

Organizational memory as language may seem to exist as a system with its own external logical reality, lingering around objects in particular, but it is only so because groups construct it as such using narrative patterns to create and maintain persistent institutional arrangements (Elias, 1991; Luhmann, 1996; Olick, 1999). This is an outsider's illusion - social memory is not something that can be managed or designed for organizational purposes; it is an 'organic' product of epistemological development of a group of people. Here, the term 'epistemological' denotes the rationale for the grounding of a particular knowledge in a particular social fabric (Knorr-Cetina, 1991). In other words, social memory is a form of retrospective logic (i.e. the meaning of a series of past decisions that bear on the current social situation) of a particular group of people brought together by their vocation or avocation. What is traditionally understood as forgetting (i.e. failure to internalize knowledge (Kransdorff, 1998)) is the main function of social memory because it enables the system to continue to exist and '*to be sensitive to new irritations*' by preventing unfiltered influx of new information and knowledge (Luhmann, 1997: 579). For a group to forget, for example, would actually mean to become overly receptive to new information up to the point where the group would cease to exist in a recognizable form.

Summary

Transactive memory systems and the repository model of organizational memory are vastly different from the social memory studies perspective. But the three share similarity on an ontological level, where the rational approach prevails. The analysis at the centre of these theories focuses on establishing the logical ways in which acquisitions, storage, and retrieval of knowledge from memory. The rational approach has helped to break a great deal of ground in some aspects of memory studies, but it has also restricted the way scholars perceive other aspects. Namely, there is either a denial of the heterogeneity of memories on an organizational level, or a distinct inhibition of considering interaction of memories of different groups as confrontational and/or domineering.

Organizational memory, interpretation and power inequality

If the rational view of organizational memory assumes logical coherence to actions of groups and individuals as well as, indeed, memory, the theories in the perspective I will discuss here reject these premises and attempt to understand how the pervasive nature of human hierarchy and power inequality interacts with organizational memory. Within this group I have included one sub-group of social memory studies, the 'collected memory', as well as the more recent development in the field - practice memory.

Morgeson and Hofmann (1999) suggest that collected memory is enacted by interacting individuals who, through the process of probing their personal (biological) memories and organizational information systems, recall and make sense of past events. Similarly to the repository model, function is an important criterion, but location no longer matters and is replaced by structure. If function, for example, is the recollection of past events, then structure would determine how individuals interact so as to socially remember. Relationship between memory and organizational outcomes is presented as socially and politically mediated, reflecting interests and agendas of powerful parties and implying that organizational memory is embedded within a particular social context.

Work of Nissley and Casey (2002) on corporate museums as sites of memory is illustrative of collected memory approach. Corporate museums are seen as results of a historical mix and match by corporate management. This suggests that memory can be broadly politicized for use as a strategic asset and that it is also a '*dynamic, socially constructed phenomenon or* […] *a process*' (Nissley & Casey, 2002: 37). One fundamental property of the process present in the construction of corporate museums that Nissley and Casey (2002) describe is the subversion of one version of memory by another in a public forum. Museums are instruments for learning about the past, and frequently museums are the primary sources of experiential learning about the past - a space where individuals can experience materiality of the past and contextualize it into the social. This process also functions in reverse when individuals re-conceptualize the social based on the materiality of

the past that they experience in the museums.

The idea that certain groups can, and do, manipulate the selection of historical materiality available for learning as well as supply only partial information to assist in contextualization is very significant to understanding the inequality of memory. At the very least this voids the implicit assumption within the rational approach that all memories are equally valid. In the case of corporate museums only certain memories are valid and only those that are seen as valid are the ones that are perpetuated. Assmann (1998) refers to this phenomenon as 'mnemohistory' - a history where events are not arranged in a chronological order, but in order of social significance. The work of Nissley and Casey (2002) essentially transplants the idea of mnemohistory from a macro-level of societies to the micro-level of organizations and their constituent groups. And while the account of 'collected' memory paints a broad picture of how organizational and collective memory can be politicized, it does not offer a detailed account of this process.

Practice memory

Practice-based view has been experiencing a re-emergence in the recent years, with an increasing amount of authors exploring what it has to offer (Nicolini, 2013). Applied to organizational memory, the practice-based view simultaneously evolves sociological underpinnings characteristic of social memory studies, and provides a viable alternative to the pragmatic aspirations of organizational memory studies. It does so by considering individual cognition as emergent and embedded in social practices.

In short, practice theory argues that in order for anything to exist in the society, there has to be an element of production and reproduction behind it. Practices are self-perpetuating through the process of 'doing' – something that in itself is a product of dispositions acquired under the epistemological orientation of the practice (Bourdieu, 1977, 1990). In terms of studying organizational memory, epistemology of practice allows to shift the unit of analysis from the individual or the collective as a source of meaning, identity, and organization, to the practice itself (Chia & Holt, 2008). In doing so, the practice theory provides an alternative to the collective-individual dichotomy as well as to theories of rational action. It is practices and their combinations that produce and reproduce the politically uneven structure of society as they serve the interests of some groups of people and get contested by others (Bourdieu, 1977; Nicolini, 2013). In effect, to practitioners, practices are akin to applied epistemologies – by performing practices, practitioners simultaneously determine the validity of their own knowledge as well as perpetuate and reproduce it for fellow practitioners, who repeat the process duly.

Organizational memory as practice

Schatzki (2006) views organizational memory as persistence of structures of practices from the past into the present by the way of rules, understandings, and teleological orderings. He anchors these ideas in the work of Assmann (2005), who, similarly to Halbwachs (1992), argued that memory is primarily a mechanism to instill certain ways of interpreting the world into the identity of individuals. Assmann (2005) distinguished between memory as collective and memory as cultural, where collective memory is localized and cultural memory is embedded in language as a whole. These would be operationalized via 'mnemohistory' – an active process of assigning meaning to selected events from the past (Assmann, 1998: 14). Mnemohistory is what enables an otherwise sterile chronology of events to become a social memory.

Schatzki (2006) adapted the idea of collective memory as manifestations of practices from the past, and cultural memory as a translation mechanism that uses language to place practices from the past into the socio-material context (such as rules) of the present. In many ways, what Schatzki (2006) proposes is a comprehensive adaptation of Luhmann's (1996, 1997) theory of systems of communication to the epistemology of practice, where memory is a filter rather than a sponge.

From what Schatzki (2006) suggests practice memory can be seen as a vector of a practice, spanning from decisions made in the past into the future situations made possible by these decisions. After all, teleology is embedded in the very nature of practice (Schatzki, 1997). This does not mean, however, that practices are objective. Teleology simply implies that there is a direction (into a potential future) to practices, but this direction is constantly contested. The very consideration of potential futures is contingent on the experiences and decisions made in the past – once a decision has been made, it will inevitably close some doors in favour of others by rendering certain versions of the practice unavailable. Practice memory is a *telos* of a practice that encapsulates the past, present, and future dimensions of the practice as of this moment (this will be further discussed later). Practices persist because practitioners 'do' them, and practitioners 'do' practices because they provide structure to comprehend everyday life, the past and the future, as well as the surrounding objects.

While a detailed discussion of teleology of practice is beyond the scope of this essay, it is worth noting that by grouping a complex combination of spatial, material, and temporal activities into a *telos* of something is a form of organizational memory in itself. Teleological thinking has its roots in the Aristotelian philosophy of knowledge in general,

and in the notion of final causality in particular. Final cause is the purpose for the sake of which something exists. Contemporary science is by and large less sympathetic to such metaphysical reasoning about the world, so to understand teleology would normally mean to impose a *telos* on an arbitrary pattern of events that exhibit some form of regularity. In other words, teleology of practice, or the 'why' in 'why are we here doing this organization/project/product' is very much a subject to interpretation and manipulation by practitioners as well as the reason behind why the memory of practice is not homogenous – teleology is a post-hoc description, not an essence of any kind.

Practice memory is maintained by actions, shared thoughts, abilities and readinesses of its members. Memory persists only because there are practitioners, and also because it is not spread evenly amongst them. The idea of uneven distribution is central to the inequality of memory. The presence of practitioners is an obvious pre-requisite, as practice requires individuals to labour behind it. For many purposes, these individuals do not even have to be alive and/or present within the practice at the moment – the mere social sustenance of their identity by living practitioners may often be enough to perpetuate practice memory. As for the imperfect distribution of practice memory, it allows practitioners to debate, discuss, politically engage, and otherwise remember their practice. It is inscribed in their identities, language, rules, and surrounding objects, all of which reinforce and are reinforced through practice. In remembering, practitioners are enacting the practice and perpetuating it (Lave & Wenger, 1991; Gherardi & Nicolini, 2002).

One way of understanding something as abstract as practice memory is by looking at what routines do. Routines offer a medium of communication between practitioners (Giddens, 1983; Pentland & Feldman, 2005). They have ostensive and performative aspects, the relationship between which is a source of change and evolution of routines. Routines can simultaneously signal and camouflage the practices they belong to to/from the outside world. Consider a locksmith and a thief working together to unlock a door – while the routines they perform are probably similar, the locksmith may find it surprising to see the burglar remove the contents of the property the door to which they've just opened. That these two hypothetical individuals would find themselves in such situation suggests that actions are interpreted through practice memory – a prior understanding of a situation (Wittgenstein, 1953). However, unless there is a reason for consideration (such as conflict), as illustrated by the act of theft, practitioners may not even recognize the different practice origins of the superficially similar routines that they enact (Giddens, 1983). Unlike actions and routines, practices reserve the right to ontological properties (Schatzki, 1997).

It must then follow that the relationship between practices and routines suggests at least two levels of memory that can be thought of as 'short-term' and 'long-term'. Practice memory in a form discussed by Schatzki (2006) is a form of meta-memory – a 'long-term' memory of the epistemological nature that determines meanings of activities of practitioners. Practice memory is closely related to where the practice takes place, the site of the practice as described by Schatzki (2005), or *habitus* as theorized by Bourdieu (1977). It is something that resembles the concept of 'collective memory' in the way presented by Halbwachs (1992) and Assmann (2005), as well as the way in which practices continuously extend and renew themselves by replicating the conditions that define them (Giddens, 1978).

Importantly, practitioners perpetuate the memory of practices through actions and routines within organizational contexts, not on a scale of practice as a whole. As discussed above, this is because different practices are brought together within the frameworks of the organizations. It is there that practitioners are mobilized by other practitioners to engage in their respective practices and interact with one another. This interaction, depending on the resilience of memory (Luhmann, 1996, 1997), dilutes practices. As practices performed within the organizations are 'diluted' by other practices, they may become at odds with the 'long-term' practice memory, which can also be thought of as a 'dominant memory'.

The dominant memory may then become challenged by the 'diluted' practice and, depending on the outcome of this challenge, the practice as a whole may either change or remain. In the event the practice does change, the 'diluted' practice becomes the new 'dominant' memory and establishes the epistemological regime in own image. If the practice remains unchanged, the 'diluted' memory most likely falls back in line with the epistemological regime of the dominant practice after some time. Practices performed on organizational levels can thus be considered as 'short-term' memory that may, or may not, translate into the 'long-term' memory following an internal power struggle.

Summary

Epistemology of practice presents an appreciatively more inclusive picture of inequalities between memories. Practice memory can be summarized by the following five characteristics:

- Practice memory is fundamentally subjective and relativistic owing to the fact that it is unevenly distributed between practitioners. This means that different groups and individuals would have varying perspective on the practice in question when they attempt to remember it.

- Practice memory is inherently political as different groups benefit from remembering and/or memorizing the practice at the expense of others.

- Practice memory is consistently challenged from 'below' (at the level of 'short-term memory') and from the 'flanks' (at the level of other practices).

In many ways there is little distinction between a practice and its memory and it can be reductively argued that practice memory is simply a practice that has transpired a moment ago. There is some truth to such a statement, but practice memory achieves a far more important task than just providing a term to describe past practice. Practice memory defines practice as it is a record of numerous political battles within the practice that made it as it is now (teleology). Practices are hugely complex in their own right but, as discussed above, they never exist in isolation. Not only do practices encapsulate internal political struggles to define them, but also from other practices. In effect, practice memory is a 'hall of fame' of very specific objects and decisions that succeeded in subverting their challengers and managed to persist on a large enough scale to dominate within the framework of the entire practice and to define it (Bourdieu, 1977; Engestrom, 1987; Miettinen & Virkkunen, 2005).

Rethinking the place of the organization in practice memory

Considering collective memory at the level of practices allows for significant insight into the peculiarity of the spatial-temporal arrangements of organizational life, but it also demeans the importance of individual organizations and the role they play. As discussed above, organizations irritate practices to confront and acknowledge one another by bringing them together for the purposes of work. But this part of the argument accounts for the multitude of memories within a frame of any single organization.

As with anything in the epistemology of practice, organizations and practices exist in a recursive relationship. Organizations can simultaneously be equated to the practices that they house and as unrelated temporal arenas for practices to interact on. In other words practices both can and cannot comfortably exist outside of any one organization. Even though practices fundamentally precede any kind of 'doing' that may happen within and between organizations, they cannot persist without the aforementioned 'doing' regularly taking place. Analytically this presents an almost dichotomy between practices as performed on an organizational level and practices as maintained on a practice level. But as this relationship is recursive, the events at the organizational level have every chance of influencing the overall direction of the practice because, after all, practices are argued to be teleological in their entirety.

Following the discussion above, practice memory is closely related to the spaces where practices occur. Even though such spaces do not have to be within organizations, they probably most often are. This does not exclusively mean buildings or meeting rooms, but organization in the broadest sense – as an ongoing holding together of different practices in some recognizable inter-related arrangement. Seen from this perspective the role of organization is far less proactive in the mnemonic matters than presupposed by other theorizations.

Thinking of organizational memory in this way results in several implications relevant to those people who develop products and make decisions based on their understanding of it. Firstly, a literature review of organizational memory should have demonstrated a strong case for it being far from a rational process. A great deal of models used in product development and learning initiatives by contemporary organizations assume a naively linear, almost causal, relationship between learning, memorizing and remembering. Organizational memory is far more inclusive and unstable than such approaches suggest. Secondly, organizational memory does not end, or even begin, with the organization in question – there are nexuses of practices and spatio-material arrangements that stem above and beyond the limits of an organization, however large it may be. In the design of knowledge management systems and information communication technologies that go on sale to organizations, this insight has important connotations – not including parts of the practice outside the organization means drawing artificial lines of separation within larger practices. Finally, with organizational memory as a time-capsule like entity gradually descending into the annals of organizational history, it is worth reconsidering the way we operationalize our thinking about organizations – how uniform, monolith and/or stable are they? how can we integrate broader practices into organizational space, especially using ICT's? what is the role of materiality and objects in organizational memory?

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