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SOCIOMATERIAL ETHNOGRAPHY: TAKING THE MATTER SERIOUSLY

Marko Niemimaa,

Turku Centre for Computer Sciences / University of Turku, marko.niemimaa@utu.fi

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SOCIOMATERIAL ETHNOGRAPHY: TAKING THE MATTER SERIOUSLY

Complete Research

Niemimaa, Marko, Turku Centre for Computer Sciences / University of Turku, Turku School of Economics, Finland, marko.niemimaa@utu.fi

Abstract

Ethnographic research is a form of qualitative inquiry that creates deep and rich understanding of a studied naturalistic phenomenon. Traditionally, ethnographic research has focused on uncovering the meanings and interpretations of those studied. In other words, ethnographies have focused on uncovering the social construction of the world that reflects underlying interpretive stance. However, recent theoretical developments within Information Systems (IS) and management research emphasize that it is not only social constructions but 'matter' that matters. Research that aims at taking matter seriously in their theorizing are referred to as sociomateriality. Despite that empirical sociomateriality research seems to prefer ethnography as research approach, explicit reflections on the applicability of ethnography for sociomaterialist studies lack. This paper aims at contributing by arguing for the applicability of ethnography for sociomaterialist studies, building especially on agential realist worldview. Applying sociomaterial stance for ethnographies emphasize (1) studying the entanglement of social and material in lieu of social constructions; (2) sensitivity to performativity over representations; and (3) viewing researcher as part of, in lieu of, within, the phenomenon studied. The study contributes to the discussions on sociomateriality by lowering the barrier to conduct sociomaterialist empirical work. Conclusions are drawn.

Keywords: Sociomaterial, ethnography, Barad, field study, worldview.

1 Introduction

'Listen: all this opposition between 'standpoint' and 'view from nowhere', you can safely forget. And also this difference between 'interpretative' and 'objectivist'. Leave hermeneutics aside and go back to the object—or rather, to the thing' (Latour, 2005, p.415).

Ethnographic research is a form of naturalistic inquiry that emphasizes deep understanding and rich descriptions of a studied phenomenon (Lincoln & Guba, 1985; Myers, 1999). Having its roots in (cultural) anthropology, ethnographic research has traditionally focused on understanding cultures, whether they are societal cultures or organizational cultures (Koskinen, Alasuutari & Peltonen, 2005). Given its original focus, it is no wonder ethnographic research has become associated with interpretive research (Klein & Myers, 1999; Walsham, 1995a; Walsham, 2006; Orlikowski & Baroudi, 1991). Although interpretive research is not a single (philosophical) worldview, central to the worldview, is the emphasis of social constructions over that of the material world. Despite that its original focus and common understanding of applicability of ethnographic studies has been on the social construction of reality, such as cultures, meanings and identities, ethnographic research provides an opportunity to understand the materiality of everyday life from a naturalist, realist perspective that is not interpretive. Understanding the materiality of everyday life is especially relevant for Information Systems (IS) researchers, who study the relation between material apparatuses (Boell & Cecez-Kecmanovic, 2012) and organizations (Leonardi & Barley, 2008; Orlikowski & Baroudi, 1991; Walsham, 1993).

However, during the existence of IS discipline, theorizing the relation between technologies and organizations has swung like pendulum between technological determinism and social voluntarism/determinism (Leonardi & Barley, 2008; Orlikowski & Scott, 2008). In order to theorize the relation in a more balanced way IS researchers have lately focused on a highly theoretical perspective known as sociomateriality (Leonardi, 2011; Leonardi, 2013; Kautz & Jensen, 2013; Kautz & Jensen, 2012; Orlikowski & Scott, 2008).

Sociomateriality research within IS and management literature, draws its insights from a loosely connected group of sociologists and Science and Technology Studies (STS) scholars, also known as 'new materialists' (Dolphijn & van der Tuin, 2012). Central to sociomateriality is to take 'matter' seriously in theorizing. As Barad (2003) argued '[I]anguage matters. Discourse matters. Culture matters. There is an important sense in which the only thing that does not seem to matter anymore is matter' (p. 801).

Past literature suggests that empirical accounts of sociomateriality seem to employ ethnography as their research approach (see Leonardi (2011), Østerlie, Almklov and Hepsø (2012) and Doolin and McLeod (2012) for example). Despite the significant shift in the research focus, from social constructions to taking 'matter' seriously, the empirical research seems to adopt ethnography without explicit reflections on the applicability of ethnography for sociomaterial studies.

The aim of this paper is to argue for the applicability of ethnography for empirical sociomaterial studies building on a philosophical worldview of agential realism (Barad, 2003; Barad, 2007). I readily acknowledge that there are other forms of sociomateriality that are not necessarily based on agential realism (such as critical realism (Leonardi, 2013)). Focusing on agential realism is reasonable as Barad is one of the leading new materialists (Lemke, 2014) and has become very influential in the IS discipline through Orlikowski and Scott's (2008) work (Mutch, 2013; Leonardi, 2013). Jones (forthcoming), for instance, found 140 articles published in management/IS research since 2007 that all used the concept sociomateriality and almost all of them made references to Orlikowski and Scott (2008) (who built their theorizing on Barad's agential realism). However, I caution, that the particular discussion provided here on the applicability of ethnography for sociomaterial studies, applies mostly to the conduct of sociomaterial research of agential realist nature. The possibility for other authors to

study the applicability of ethnography to other forms of (empirical) sociomaterial inquiries is, thus, open. Indeed, the choice made here to focus on agential realism should not be seen as an attempt to limit or exclude other perspectives to sociomaterial research; it is rather a compulsory choice due to feasibility and space constraints.

The paper is structured as follow. First, sociomateriality as philosophical worldview is introduced, centering around worldview of agential realism. The chapter aims at providing sufficient background to appreciate the importance of philosophical worldviews to research inquiries, and to outline those central assumptions embedded in agential realist worldview. Second chapter outlines some of the prior studies in which ethnography have been applied to study sociomaterial phenomenon and that have appeared in top IS outlets. After the discussion on the prior contributions, the implications of sociomateriality for ethnographic studies is outlined, and the prior research assessed based on the described implications. Lastly, conclusions are drawn.

2 Sociomaterial Worldview

Research and philosophy are closely related. The philosophical worldview fundamentally affects the research (Orlikowski & Baroudi, 1991). Assumptions embedded in any philosophical worldview render certain parts of a studied phenomenon more salient than others, and, consequently, they also embed certain blind spots.

The philosophical worldviews can be seen as beliefs one has about the nature of the world (i.e., ontology) and about the way of creating (valid) knowledge of that world (i.e., epistemology) (Chua, 1986; Orlikowski & Baroudi, 1991). Viewing the philosophical worldviews as beliefs suggests they are accrued rather than learned or chosen. This conception, however, expresses some significant deficiencies in the context of scientific research. In the context of our everyday experience, we accrue certain beliefs over time, and those beliefs form the basis of our values amongst others. However, in the context of science, conflating the worldview as synonymous to belief, is slightly misleading. Although one can hardly dispute the influence of the past experience to which worldview one is compelled by, the worldview is more likely to reflect that experience than be a direct result of it. Committing to a certain philosophical worldview is a matter of intensive reading and thinking. The philosophical worldviews are not the same as loosely connected ideas that are referred to as 'philosophising' in our everyday life. Instead, they are comprehensive and complex frameworks of ideas, constructed by the means of cogent and solid argumentation.

As a summary, the philosophical worldviews are cohesive frameworks, that are often well-known, that embody a certain set of assumptions that reflect one's life experience but are not accrued through life experience *per se*.

2.1 Sociomaterialist Critique: Beyond Matter/Meaning Duality

The canonical way for categorizing the philosophical worldviews in IS and management research is based on a duality view of interpretive versus positivism (Orlikowski & Baroudi, 1991; Chua, 1986; Chen & Hirschheim, 2004)¹. Despite the seeming unity secured by the very duality, each of the two perspectives enclose a number of perspectives (see for instance Cohen (1980) for perspectives categorized as positivism and Klein and Myers (1999) for

¹ Critical research, or Critical Social Information Systems Research (CSISR) (Klein, 2009), is often taken as the third worldview. However, in line with Chen and Hirschheim [2004], as the critical is marginal in IS it is left aside here.

interpretive). As mentioned above, the duality has created intense debates between positivism and interpretive. Where some have focused on defending/promoting a certain view (for instance Klein (2004)), others have been on a quest for uncovering the *tertium non datur* (Stahl, 2007), the non-existing third one. Despite the claimed non-existence, Mingers (2004) has suggested critical realism as a possible bridge to gap the duality in order to form a common philosophical worldview for IS research; pragmatists have argued for discarding the question of worldviews altogether (Rorty, 1982); and 'new materialists', foremost Barad, has argued the whole debate reflects false assumptions embedded in Cartesian thinking (i.e., according to this view Renè Descartes falsely assumed a given internal/external dichotomy) which should be discarded altogether. Due to the scope of this paper, I will not pursue other than Barad's thinking further.

Renè Descartes has been a very central figure for Western thinking. He was a philosopher who lived early 17th century and established what is known as the “new age” of philosophy. Central for him was the clear cut dichotomy between internal and external world; the internal being the mind and the external being the world of material. The dichotomy has hugely influenced thinking since Descartes: the separation between the social and natural (or material); between epistemology and ontology; and between object and subject (Barad, 2007). Central for agential realism is the rejection of this very foundational assumption of a given/fixed/clear dichotomy, accepted at the outset of an inquiry before the inquiry even starts [Ibid.]. It should be, however, said already at this point, agential realism aims not for the complete removal of the dichotomy, but rather emphasizes how the dichotomy becomes/is enacted matters (in both sense of the word). Overcoming the Cartesian dichotomy has large implications for research and for understanding any phenomena.

2.2 The Worldview of Agential Realism

Karen Barad, the figure behind agential realism, has a rather unique combination of research interests; she is a graduate of particle physics and a professor of feminist philosophy as well as a forefront new materialist (the new materialist turn has been greatly influenced by other feminist philosophers as well, such as Judith Butler and Vicky Kirby).

Given her background as particle physicist, it is of no surprise Barad is a naturalist (Rouse, 2004). In order to make the leap and departure from the thinking that has dominated us for centuries, Barad turns to the peculiarities of quantum mechanics. Barad takes the Nobel prizewinner Nils Bohr's physics philosophy as her starting point, but in contrast to Bohr, she does not settle for mere epistemological issues of quantum mechanics but seeks for an elaboration that also encompasses ontology. This philosophical framework is coined as (ethico-)onto-epistem-ology (the parenthesis are mine in order to exclude the 'ethico' part of her framework in order to limit the scope of this discussion) (Barad, 2007).

For agential realism, the world is not 'out there' as individual 'things' or constructed socially, but enacted as practices (i.e., it is performative). Any knowledge creation takes place as part of the world and contributes to the world in its becoming. And science, as a form of knowledge creating activity, is no exception. That is, any research takes place as part of the world and shapes how the world becomes to be, giving rise to questions on accountability. As Bohr has argued in physics, any observation is possible only if the impact of measurement is indeterminate (Bohr in Barad (2007)). This shift has important implications, as the researchers are not seen as external viewers of the world (in the sense of the positivistic/empiricist view), neither are they within the world (in the sense of idealism/relativism view) but active 'agents' as part of the world in its differential becoming.

In order to come up with such a bold claim, Barad (2007) reworks the ontological and epistemological foundations. For her, world is not composed of individual things and their representations, but a world is composed of phenomena and within-phenomena-“components” that are configured (and reconfigured) in a certain way to constitute a phenomena. Individual “components” in the world get their meaning and properties only in relation to other components within a phenomenon (thus the citation marks around “components”). As Rouse (2004) points out, according to agential realism 'world only acquires definite boundaries, and concepts only acquire definite content, together' (p. 146). These a priori indeterminate relations between the “components” are referred to as 'intra-actions' (note the 'intra' rather than 'inter' to signal that no pre-existing relation exists between the components) and they are constitutive of the phenomenon produced. Thus, world is composed of within-phenomenon intra-acting “components” that receive their significance only as part of the phenomena rather than having independent universal properties (i.e., in the sense of essentialism (Fuchs, 2005)).

Within phenomenon, the “components” are active agents, possibly consisting both material and social agents (i.e., it is a “post-humanist” perspective) (Barad, 2007). Her view on material as an active agents that are constitutive of a phenomenon is in close proximity with other relational ontologies such as Actor-Network-Theory (ANT) (see Latour (2005) for a detailed account of the perspective). But for Barad, the agents are not given, i.e., they do not exist as objects-within-phenomenon that await for discovery and representation. Instead, what comes to matter as agents within phenomenon, is a process of enactment, a process of *material discursive practices*² that cuts the “components” of the phenomenon as agents of material and social. These cuts, that are epistemic and ontic, are referred to as agential cuts.

2.3 Agential Realism in Ethnographic Information Systems Research

As I have indicated earlier, sociomateriality is a rather late addition in IS research, but has quickly caught the attention of IS scholars (Jones, forthcoming). During the course of this chapter, I will provide some illustrative examples of ethnographic research that has appeared in top IS or management/organization venues and that study sociomateriality building on agential realism.

One of the early examples of ethnographic studies building on agential realism is Nyberg (2009). He studied the enactment of agential cuts between the social and material within the context of call center work. The main method for the creation of empirical material was observations. He paid specific attention how the technologies become cut differently over time as the call center clerks engaged in the practices of serving the customers over the phone and using IT technology as part of their work. Nyberg (2009) observed the meaning and identity of technology are intra-actively produced, emerging *in situ* rather than being stable and fixed.

Schultze (2011) studied the performative nature of identities, agency and worlds through an ethnographic study of virtual world (Second Life) users. Central to her theoretical thinking is the agential realist insights of performative view, rather than fixed and stable representational view, on identity, agency and the world. Through analyzing video recordings of virtual world sessions and conducting interviews, she argued virtual world users engage in a number of discursive and material practices through which the identity, agency and world becomes performed. In other words, identity, agency and world are not clearly cut into that which is virtual and to that which is real, but constructed and changing/shifting through enactments. Schultze (2012) further elaborates the performative nature

² As part of her onto-epistemology, Barad reworks the notion of 'discursive' practices. It is not possible to elaborate the concept further here, and thus readers should refer to Iedema (2007) for the different uses of the concept, including Barad's definition of the concept.

of especially, identity, arguing the virtual worlds challenge the understanding of embodied identity in the real world, with that of identity as performed and experienced as cyborgism.

Doolin and McLeod (2012) studied boundary objects in IS development project. The focus, the boundary objects, in the study are viewed as entanglements, or assemblages of humans and artifacts that have no inherent ontological separability. Boundary objects thus emerge through the intra-actions of the “components”. The sociomaterial conception of boundary objects significantly transforms the understanding from that of boundary objects as static and fixed entities, mediating knowledge exchange and cooperation, into boundary objects that are (1) only meaningful as part of a certain practice (the boundary objects emerge from specific intra-actions); (2) dynamic and emerging; (3) useful only as assemblages/entanglements, not as separate, individual components; (4) performed differently across different times, contexts, and practices; (5) multiplicity of co-existing and related objects; that are 'performed and come into being in specific sociomaterial practices' (Doolin & McLeod, 2012, p.573).

Mazmanian, Cohn and Dourish (2014) studied the reconfiguration of sociomateriality within the context of NASA's space flight mission through a long-term ethnography. Building on the powerful concept of (re)configuration from Barad (2007), the focus of the study was to understand the ongoing and shifting relations between social and material, that is, the processes of reconfigurations. In order to study the ongoing relations, the authors argued for the need of a more careful and closer examination of how the reconfigurations take place. As their focus is on a space mission, graphical representations and a multitude of figures constitute the relation between "here" (as in earth) and "there" (as in space). These '[o]ngoing acts of documenting, imaging, and imagining the world—graphically, mathematically, numerically, digitally, physically, organizationally—engender reality through dynamic reconfiguration between and across sociomaterial phenomena' (Mazmanian et al., 2014, p.16).

Lastly, Østerlie et al. (2012) focus on the materiality of knowing through long-term ethnographic study in petroleum drilling context. While they build explicitly on agential realist notion of entanglement, the influence of Barad's conception of material knowing has clearly influenced their thinking. The authors argue, instead of viewing knowing as a material activity (Orlikowski, 2007), a dual materiality is more appropriate conception. The dual materiality of knowing, emphasizes 'how IS becomes important, as its materiality plays an integral part in creating, not simply representing, the materiality of the physical world, in our case, the well flow' (Østerlie et al., 2012, p.102).

2.4 Sociomaterial Ethnography

The sociomaterial stance necessitates expanding the ethnographic method from understanding the social construction of the world into understanding the world as sociomaterial becoming. Three main considerations for the sociomaterial ethnographies apply. First, sociomateriality emphasizes accepting the assumption of constitutive entanglement of social and material (i.e., sociomateriality). Second, sociomateriality emphasizes the performative over representational. Third, the sociomateriality situates researcher as part of phenomenon. Table 1 provides an overview of a comparison between interpretive and sociomaterial ethnographies. Next, I will elaborate these.

	<i>Interpretive</i>	<i>Sociomaterial</i>
Phenomenon of interest	Social constructions	Sociomaterial entanglement
Type of knowledge	Representations	Performative
Role of researcher	Within phenomenon	As part of phenomenon

Table 1. Comparison of interpretive and sociomaterial ethnography

As the sociomateriality emphasizes the entanglement, ethnographers studying sociomateriality need to pay careful attention not only to the meanings and interpretations, but also how they are material. The informants, are likely to not talk about sociomateriality, but will make clear differences between a material artifact, and a social actor (Leonardi, 2013). But even if the informants do not use the language, it is the theoretical lens through which the empirical material is constructed into meaningful theories about the world. As Geertz (1973) puts it '[w]hat we call our data are really our own constructions of other people's constructions of what they and their compatriots are up to' (p. 9). In the context of agential realism, however, constructs should not be seen as mental constructs, but rather as what Barad (2007) calls descriptive concepts. The concepts are material discursive, in such a way that the concept is a material arrangement of the world, but they are also discursive. Here, the discursive is not the same as discourse or a speech act. Instead, the discursive refers to the conditions for a specific concept to be intelligible. The word hammer is not intelligible unless there is a material construction that is hammer and that the word makes sense within those conditions (for instance, in English speaking context, and where 'hammers' make sense). Thus, in order to accurately conceptualize the sociomateriality of a phenomenon, it is imperative to immerse into the context. The researcher needs to understand the material discursive nature of the context. It is unlikely that such understanding would be attainable through mere interviews, but requires one to immerse into the context of study. Long-term studies using observations are thus appropriate approaches. Further, as the discussion above indicates, the prior research has adopted the long-term approach.

Sociomateriality emphasizes the processual nature of the world. World is in its differential sociomaterial becoming, rather than stable and fixed. Each intra-action reconfigures the world, and new opportunities arise as others are excluded in the reconfiguration (Barad, 2007). The challenge for ethnography then, is to capture and describe the performative nature of the world, rather than its static representations. This is not to indicate interpretive would take its phenomenon to be static. On the contrary, 'interpretive research seeks to understand a moving target' (p. 73). As Barad (2007) and Orlikowski and Scott (2008) underline, sociomateriality is also a semantic issue. The semantic nature is already encapsulated in the very concept of "sociomateriality" that itself, written without a hyphen, aims to signal the inseparability of matter and meaning. However, the move away from representation into performative accounts requires a vocabulary that is of doing. Beyes and Steyaert (2012), for instance, argue for a non-representational conception of space (not as the place outside of earth, but as that which separates). Instead of space, they argue for performative understanding they conceptualize as *spacing*. It is a matter of doing, a matter of performing and thus something which is always in its becoming and never finished. The ethnographic researcher has to understand the happening, which emphasizes being there as part of the happening, but also to adopt a way of writing, a language that conveys flux.

Sociomateriality positions researchers as part of the phenomenon studied. This differs from the interpretive way of seeing researcher as being *within* the phenomenon. The difference between the two views is that interpretive research sees that any observation is 'distorted' by our preconceptions (Klein & Myers, 1999; Gadamer, 2004). The 'distortions', the preconceptions, however, for interpretive researchers are the very condition for understanding, and thus are seen as positive rather than negative (although my use of the concept 'distortion' might suggest otherwise). Due to the reworking of internal/external dichotomy, sociomaterialists have no place for preconceptions as 'internal'. Instead, researchers are part of the phenomenon. They are agents and thus constitutive parts of what they study. However, this does not place the researcher in position in which anything or everything would be possible (Barad, 2007). On the contrary, intra-actions are constraining and enabling and 'regulate' possibilities for reconfigurations (that is, shifts in the social/material boundaries and properties). The possibilities are not, however, fixed, but iteratively (re)configured through each intra-action. Positioning the researcher within phenomenon emphasizes accountability (Barad, 2007). The intra-

actions of the researcher matter, and (re)configure the world in its becoming. Thus, ethnographic researcher has to be sensitive to the cuts she/he helps to enact.

2.5 Assessment of Ethnographic Sociomaterial Research

The previous discussion provides the necessary basis for assessing the past literature. The identified differences between interpretive and sociomaterial ethnographies enable to assess whether the past research has considered the sociomaterialist insights in their inquiries. Further, the assessment highlights the way in which these insights appeared in the past literature. Table 2 provides the assessment across the three identified differences. The assessment uses the same literature that was introduced earlier as examples of high-quality sociomaterial research within IS and management disciplines. The assessment is based on those information documented or interpreted from the published articles. Despite that all of the assessed research focus on sociomaterial entanglements in lieu of social constructions, none of the research provides explicit reflections on how the chosen focus influenced the research design. What the authors, however, emphasize is the sociomaterial nature of the phenomenon they studied.

	<i>Nyberg (2009)</i>	<i>Schultze (2011)</i>	<i>Doolin and McLeod (2012)</i>	<i>Mazmanian et al. (2014)</i>	<i>Østerlie et al. (2012)</i>
<i>Sociomaterial entanglement or social constructions</i>	Social construction and sociomaterial entanglement. The study aimed at constructing what the author calls as 'customer service call', as a social construction. The study, however, aimed at better understanding of the shifting boundaries constructed by actors.	Sociomaterial entanglement. The research centers around identity as entangled between virtual and real worlds.	Sociomaterial entanglement. The study views boundary objects as sociomaterial assemblages that emerge from human/material intra-action.	Sociomaterial entanglement. As the authors 'emphasize social and material are each simply selective projections of a tangled whole' (p. 2).	Sociomaterial entanglement. The study shows how knowing is not merely a human based activity, but entangled with the materiality of IS.
<i>Performative or representational</i>	Performative. At the core of the study is to challenge static representations by showing the constantly shifting and changing boundaries (the agential cuts) that produce and reproduce multiple human and non-human actors.	Performative. The research questions the taken-for-granted boundary between virtual and real world identities. Instead of static boundary, the research shows how the identities are performatively produced.	Performative. The authors draw on Barad's concept of intra-action to develop a performative account of boundary objects that emerge through the intra-actions, rather than being fixed artifacts/objects.	Performative. The study centers on the concept of dynamic reconfiguration. The concept provides sensitivity to the ongoing, shifting relations of matter and meaning.	Performative. The study conveys the performative nature of knowledge, by shifting the focus to <i>knowing</i> (as doing) rather than knowledge (as representations of that which is represented).

<p><i>Researcher as part of or within phenomenon</i></p> <p>Within phenomenon. Author spent significant amount of time onsite, during an extended period (8 months), during which he closely monitored the customer care employees. Nevertheless, the study externalizes the researcher as being an interpreter but not as a part of the research.</p> <p>Despite that agential cuts provided the lens for analyzing the shifting boundaries, the author provides no reflections on the implications and accountability for the cuts he himself helped to enact.</p>	<p>Within phenomenon. Despite that the author draws on Barad's concept of intra-action, the research does not provide explicit account on how the researcher intra-acted as part of the phenomenon.</p>	<p>Within phenomenon. Although the concept intra-actions form the central arguments of the paper, the authors do not provide explicit discussion on how the authors intra-acted as part of the phenomenon.</p>	<p>Within phenomenon. The authors themselves engaged in the activities/practices of those who they studied (participant observations). However, they provide no explicit reflection of how they (and their participation) contributes to the world in its differential becoming.</p>	<p>Within phenomenon. The authors make clear distinction between their analysis and the informants. Thus, understandably, no explicit reflections on the part of researchers in the studied phenomenon.</p>
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Table 2. Assessment of sociomaterial ethnographic research

In overall, what seems to be at the core of the studies is the ambition to re-conceptualize the phenomena of interest as situated and performed over static, fixed and stable representations; doing in lieu of representation. Further, they move the theorizing beyond the conception of separate entities of social and material into analyzing them as entangled. For instance, the conception of knowing in Østerlie et al. (2012) dramatically questions understanding of what has been traditionally viewed as very anthropocentric concept, knowing (i.e., it is a person, the self, that cognizes and knows), by theorizing it as (dual) material. Lastly, despite that the view of researcher as part of the phenomenon is one of the core arguments in agential realism, none of the assessed research seems to place researcher as part of the phenomenon.

3 Conclusions

The article sought to study the applicability of ethnography for sociomaterial IS studies. The focus was especially on sociomaterial studies that build on agential realist worldview.

The provided discussion suggests ethnographic research is suitable for creating knowledge of sociomaterial phenomena. However, ethnographic studies taking sociomaterial perspective should (1) emphasize sociomaterial entanglements over social constructions; (2) provide empirical accounts that

are performative rather than representational; and (3) position researcher as part of the studied phenomenon in lieu of within phenomenon.

An assessment of prior high-quality ethnographic research studying sociomateriality suggests the past research has focused on the sociomaterial entanglements and the performative and temporal nature of the entanglements (aforementioned criteria 1 and 2). The entanglements as temporary and fluid are in a flux, which underlines the importance of studying the phenomenon *in situ* as it unfolds. To this extent, ethnographic research is particularly apt. It allows researcher to immerse in to the 'heat of the everyday' and observe the entanglements of matter and meaning as informants go about their everyday work routines. It is likely that, for instance, through interviews, the flux of the entanglements is less likely to unfold as vividly as experienced *in situ*.

The assessment further suggests, the assessed research has neglected the insight of researcher as part of phenomenon, or at least, has not provided explicit discussion on how the author(s) research practices were a part of what they studied and reported. The lack of the discussion misses two important points of agential realism: (1) how the researchers' work practices are a part of the phenomenon in its becoming; and (2) with what consequences. First, the insight of researchers intimate relation to the phenomenon studied is not new, especially not in social sciences. Already one of the most cited and well-known American sociologist, Anthony Giddens, recognized the 'the dual hermeneutics' that is, the reflective, dual nature of objects/subjects, by arguing it is not merely the researcher who is in the privileged position of the interpreter but is also actively interpreted by those studied. However, this is not to suggest hermeneutics as a way to understand Barad's insight of researcher as part of phenomenon, but to rather indicate the researchers' active role in the becoming of the phenomenon of interest. To appreciate some of the consequences of the insight, it is necessary to look afield from IS. Schadler (2014), based on her ethnographic studies that build on new materialist insights, she argues 'researchers' tools become an apparatus (Barad), which is becoming with a research environment. As a consequence research has its part in the formation of those boundaries, which are researched and in the figurations of the "object", while we study how the object is figured'. In relation to the second important point, agential realism emphasizes the researchers' accountability over the cuts that researchers help to enact which reconfigure the phenomenon in its becoming. To this extent, further research is needed. As a conscious choice, in this research, I have excluded discussions that go to the domain of (research) ethics. Thus, future research should delve into the topic, in order to understand the ethical questions of 'post-humanism' for IS researchers.

The results should be seen as illustrative rather than indicative. The low number of assessed articles limits the possibilities for making more general arguments. As the research here did not conduct a systematic literature review to uncover *all* research that studies sociomateriality, but focused on high-quality examples to illustrate sociomaterial ethnography, it is possible other IS research exists that adopts the stance of researcher as part of phenomenon. However, as the reviewed articles have been published in a top IS and management venues, it is likely they have had significant influence on the way other similar studies have been conducted.

The analysis provided here contributes to the sociomateriality research by lowering the barrier to conduct empirical research that is known to be a challenge (Leonardi, 2013; Mutch, 2013). By identifying those salient aspects that empirical sociomaterial studies should take into account, the researchers are better apt to pay attention and design their research in a way that is truthful to their adopted position.

Nevertheless, ethnographic research provides a compelling and useful approach for building knowledge on organizational and other phenomena, whether the focus is on social constructions or on the materiality of the phenomenon.

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