Maps of organizational learning in regional development projects: Stories, objects and places[1]

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Abstract

This article presents the idea of mapping organizational learning as a way of doing organizational ethnography. It suggests that organizational learning is a (re)assemblage of human and non-human and material and immaterial forces that reverberate in networks of lived stories. Mapping is suggested as a process of collecting and writing about lived stories as they emerge in different historical, geographical and material conditions. It is seen as a way of capturing a dynamic, changing and unfolding network of stories that are tied together, but are still disparate from one another. The article ties the idea of mapping to regional development projects concerned with the actualization of the bio-economy.

Introduction

In this article, we present organizational learning as a (re)assemblage of human and non-human and material and immaterial forces that reverberate in networks of lived stories. We intend to present organizational learning as emerging in the complex relations between both human and non-human agents that combine established ways of knowing with new forces. The framework is constructed in order to analyze projects concerning the actualization of the bio-economy in Northern Jutland.

The framework is thus constructed in order to explore how narratives of the bio-economy are enacted in practice. These narratives rely on support from other forces (economic, managerial, political, etc.) in order to produce real effects.

However, the enactment of these narratives relies on the in situ multiplicity of forces that define the conditions of what can be seen, said and done. This in situ enactment is also where new forms of knowing – i.e., learning - are actualized in language, bodies, objects, systems, technologies and so forth.

The framework should enable us to do an ethnography of organizational learning in which we use the term mapping for the process of generating and writing stories of assemblage formations, including the material and immaterial conditions in which and by which these processes are taking place. Our case is the actualization of sustainable energy supply systems in three municipalities in Northern Jutland, which are part of the realization of the bio-economy in Denmark.

Our framework emphasizes the highly relational aspects of knowing and learning in the sense that the experience of knowing something is considered to be a situated response, which cannot be located in a knowing subject, but relies on the complex situated configuration of human and non-human agents. The "I" and the "other" are not separate entities, but are immanent in one another (e.g., Deetz & Simpson, 2004). Mapping is a way of capturing these complex relations and their material effects as they unfold in practice.

The framework is different from perspectives on organizational learning that emphasize how people think, i.e., reflect, thereby trying to ground learning in individual subjects. Our perspective instead emphasizes learning through circulations, flows, relations and connections in and across time-spaces. It is through such processes that new assemblages are made and new ways of doing things are made possible. It is also this kind of life that is of interest to an ethnographer of organizational learning.

The article is structured as follows.

First, we describe the case that serves as a background for our article, and from there, we identify some principles in our research. More specifically, we argue for the idea of mapping associations, relations and connections as they unfold in the projects. Mapping is presented as a description of dynamic and evolving sets of relations, as assemblages in the making. It follows that we do not expect a linear or planned story to unfold, but rather expect the unfolding of a rhizomatic network of stories.

Secondly, we elaborate on our notion of knowing and learning as assemblages. In particular, the notions of lived stories and their connections with discursive and material forces are described and analyzed in this section. What follows is an account of experience and action as fully relational phenomena in which both human and non-human agents play important parts, and in which the boundary between the personal and the collective, the "inner" and the "outer," is dissolved.

Thirdly, we return to the question of mapping. This time, we draw the methodological implications of the second part. In particular, we argue for very specific analyses of situations with an eye for the details, because these small practical and subtle details matter in regard to what people do. From that, we argue for the meticulous undertaking of analyzing and organizing the empirical material in relation to each other, allowing the larger patterns to emerge from below.

Finally, we make some final remarks on the notion of mapping.

Mapping the Bio-economy

The term bio-economy has been the subject of intense political interest and debate in recent years in Denmark and in the whole Baltic Sea region. The term encompasses "…the production of renewable biological resources and the conversion of these resources and waste streams into value-added products, such as food, feed, bio-based products and bioenergy" (European Commission, 2012). It is believed that its sectors and industries have strong innovation potential due to their use of a wide range of bio-technology sciences, enabling and industrial technologies, along with local and tacit knowledge.

Implicit in the bio-economy is a strong narrative of sustainable energy supply production that is free of CO_2 emissions and based on natural and local resources. It is a narrative that is supported by the European Commission, the political aim of creating a fossil-free energy supply system in Denmark by 2050 and the general concerns about CO_2 emissions and global warming. The whole Baltic Sea region is thus a living lab for the realization of the bio-economy. It is mentioned as one of the key focus areas for the European research program Horizon 2020 and has been the subject of many conferences and workshops in the Baltic Sea region.

We have participated in four different workshops organized by the Nordic Council of Ministers in Copenhagen, Stockholm, Berlin and Warsaw. The goals of these workshops were to create networks and contacts, to match different people and institutions, and to spark, intensify and accelerate the realization of the bio-economy. The participants in these

workshops have ranged from researchers specializing in different sciences, business people, politicians and other actors with an interest in the bio-economy.

We participated because we are part of a network that works on the implementation of biogas system solutions in the energy supply chains of three municipalities. The idea of these projects is presented through the following video link, https://vimeo.com/66146627, which describes a prototype of the idea. The pictures below are taken from the video and show the Danish Minister, Martin Lidegaard, presenting the Ringkøbing-Skjern demonstration plant and the whole idea: Biogas for the Danes – A good and long-term investment.
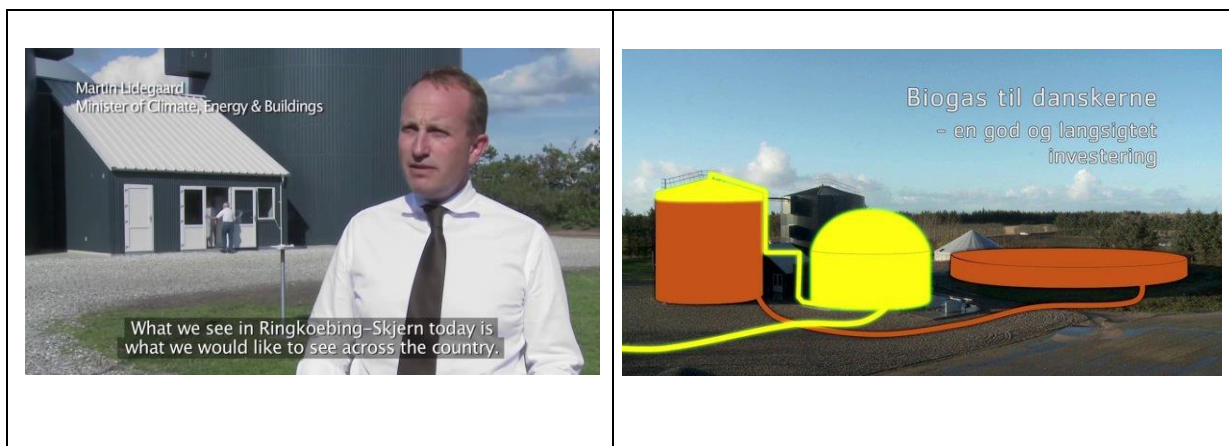
The projects in which we are involved are very complex and involve a number of technological, organizational and management challenges. They are network projects in which collaboration takes place across organizational and institutional boundaries. They involve diverse actors such as politicians, municipalities, small and medium-sized private companies, energy production companies, professional experts, farmers, citizens, grass roots organizations and researchers. As such, inter-organizational collaboration is required on an unusual scale, and the projects seek to combine the most sophisticated technologies and research knowledge with traditional knowledge in one energy supply chain.

Our starting point is that organizational learning will take place in interplay between these actors and the different circumstances from which these actors participate in the projects. Our idea is to try to capture learning from the experiences that people create and to locate these experiences in very concrete circumstances. Meaning and experiences do not jump out of the blue. Nor are they processes that are sealed off from the concrete world of other people, languages, materials, systems, technologies, spaces, animals, natural surroundings and resources.

What people do and the stories they create in relation to these doings are neither fixed nor absolute. They are always relative to the concrete historical, geographical and material circumstances. Thus, on the one hand, people have agency; on the other hand, this agency always relies on the human and non-human others present in any situation. They exist in a state of mutual interdependence in such a way that it becomes impossible to disentangle what is personal from what is material and social (Molly & Jørgensen, 2015). These points will be elaborated in the next section, which deals more closely with conceptual considerations.

Our framework is developed in order to try to capture these processes, thereby allowing us to navigate in these very complex realities. The term "navigate" is consciously chosen, because it emphasizes that we are travelers and explorers in the projects. It implies that nothing can be taken for granted, and the relationships are undergoing change and movement all the time. This means that we are not looking for a framework in which we can say that now – at this moment, in these circumstances – people have learned. Rather, learning takes place all the time – and it also changes its face all the time.

As such, our framework is not used to explain a given state of affairs. Nor is it used to explain or assess a particular movement from one state of equilibrium to the next. We use it to describe many different movements in the form of new relations, new actions and meanings, new objects, techniques, technologies and systems. Our notion of organizational learning is thus as a tool and as a conceptual framework for describing and understanding "the lived stories" of the actors, without judging these experiences from fixed categories of what is and is not learning.

What emerges will neither be a linear story nor one story, but a bundle of stories that are not the same, but relate to each other in many different ways. We can compare it with Wittgenstein's image of an ancient city, which is described as "… a maze of little streets and squares, of old and new houses, and of houses with additions from various periods; and this surrounded by a multitude of new boroughs with straight regular streets and uniform houses" (Wittgenstein, 1983, §18).

What we want to capture is what emerges from peculiar combinations of old and new; high-tech bio-technologies mixed with farming, district heating companies, local business and political structures, public institutions and research institutions.

Another useful image proposed by Deleuze and Guattari (2013) is "the rhizome." When history is seen as rhizomatic, it does not emerge from one point, nor is it organized around such a point. What we will see is a bundle of stories that are tied together, but disparate from one another. They form a complex network-like structure of lines of forces that criss-cross, are always on the move, become entangled with other lines and continuously change direction and purpose. These lines do not have a core or a center, but seem to come from many different points. These lines are both connected and heterogeneous. They form what they call "an assemblage."

As noted by Deleuze and Guattari (2013), any point in this assemblage can be connected to any other and must be. This image is very different from a root three, which plots a plot and fixes an order (Deleuze & Guattari, 2013, p. 6). So, the point we want to make by using the metaphor of the rhizome is that of the pluralism and multiplicity that will unfold in the projects. These multiple lines will not unfold from a center around which these lines of stories pivot, but rather in the sense of stories having multiple beginnings.

An assemblage is an increase in the dimensions of multiplicity that changes as it expands its connections. There are no fixed positions or structures, but only positioning and structuring in continuously evolving shapes, curves and lines of lived life (Deleuze & Guattari, 2013, p. 7). These lines may be broken and shattered at given spots, but they will start up again on old lines or on new lines (Deleuze & Guattari, 2013, p. 8). As such, the activities we seek to describe can be viewed as an unfolding map of different characters, roles and relations that form an unstable and varied organization.

This also means that we do not try to trace stories, actions and events back to an origin or an essential core. We do not seek to "diagnose" the present. Instead, we seek to map it as recommended by Deleuze and Guattari (2013, p. 12). We think this notion is useful because it invites both carefulness and continuous navigation and exploration instead of reducing actions to relatively simple linearized cause-effect manifestations. Mapping is an explorative practice that builds on the assumption that organizations, activities and people are multitudes, which contain within them many possible futures.

As we see it, mapping implies playing with connections and possibilities as we research and write about them. It also implies playing with accounts and their contextual and relational setup. Importantly, "mapping" keeps the possibilities open, while a diagnostic "tracing" confines stories into an ordered, simplistic linear narrative (e.g., Jørgensen & Boje, 2010; see the next section for an elaboration on narrative). A map fosters connections between fields and disciplines without closing in upon itself. The map is itself part of the rhizome.

> Perhaps one of the most important characteristics of the rhizome is that it always has multiple entryways; in this sense, the burrow is an animal rhizome, and sometimes maintains a clear distinction between the line of flight as passageway and storage or living strata … A map has multiple entryways, as opposed to the tracing, which always comes back "to the same." The map has to do with performance, whereas the tracing involves an alleged "competence" (Deleuze & Guattari, 2013, p. 12).

Rhizomatic mapping thus involves exploring and discovering new avenues and entryways; it involves playing with accounts and their inherited contextual and relational setup. At the least, it means gaining some insights and understanding of the complex relations that have made organizations into the complex multifaceted assemblages they are. As such, mapping is a process of continually exploring and questioning the grounds of lived stories.

With this approach, we seek to face the complexity that characterizes the projects with which we are concerned. One of the distinctive characteristics of the projects is that they go across organizational and institutional boundaries and become a matter of concern for actors who function under very different circumstances. Our focus point is not knowing and learning within a particular organizational unit, but knowing and learning that circulates within the network of relations that constitute the energy supply systems in the three municipalities and run across organizational boundaries.

Another main characteristic of mapping is the attempt "to follow the actors" (Latour, 2005, p. 12.). This means that we want to understand the actors where they are, but also the connections and relations they create during the projects. Following the actors means following their stories, including the social, material and natural conditions in which they are created (e.g., see the next section). Following the actors also implies that we need to follow the social orderings that they create when they talk and act. Another point from Latour is that actors are not in a social context as if the social was something "out there." Actors create the social through the connections they produce and the actions they make, including

the accounts and meanings they attach to these connections. The social is a "… very peculiar movement of re-association and re-assembling" (Latour, 2005, p. 7).

The question is then what we actually get from such stories. At the least, we get a language through which we can talk and write meaningfully about events, including the meanings attached to them and the conditions in which they are unfolding. We seek thereby to situate experiences locally. This implies providing many details about the conditions in which people do and story events. We do this based on the presumption that it is this type of knowledge that actors need when they are going to relate and position themselves to projects of the type we are exploring. In other words, the power of the good example (Flyvbjerg, 1991, 2001) is used to create "general" knowledge about the bio-economy.

The point is that knowledge about general themes like innovation, learning, regional development, technology, etc. becomes general because we provide knowledge about the specific situations in which themes like the above are actualized. Our approach thus requires a lot of very specific knowledge about the conditions in which people act – thereby also changing the conditions for the events that follow.

We use our conceptual framework as a tool that allows us to describe a complex world and to make sense of what things, systems, techniques and technologies mean through how they are being used by people. It is not a static world, but a world under continual transformation. It is important for us to go beyond the mechanic image that, for example, interpretive methods sometimes produce – that people look at and use to interpret a world, and then, they act. This is a static image, in which people are somehow located at an observer position distant from the world before they act. But people are part of the world, and the world is part of people. It lives and breathes in them. It runs in their veins. You cannot separate experience from the world, nor is it purposeful to do. People are of-the-world (Barad, 2007) and are "entangled becomings," not distinct entities in the world (Taguchi, 2010, p. 47) (see the next section).

The focus point for this mapping is knowledge and learning and the conditions in which the events of the projects unfold. But the readers and the involved actors are themselves engaged in reflecting on the norms and standards from which the effects of the projects are to be evaluated as desirable or purposeful. We have the responsibility to try to capture the complexity and the pluralism of different considerations that need to be taken into account. We also have a responsibility to capture the political situation in which the projects are embedded in regard to those whose interests and intentions are taken into account and those who are left out, because creation implies destruction and the distribution of privilege and advantage (e.g., Foucault, 1984; Jørgensen, 2007).

This does not mean that there are no overall goals and aims that we think are reasonable and desirable. These overall goals concern more sustainable energy supply systems, a cleaner environment, more jobs, business development and social and cultural development. But within these goals and aims, the actors will position themselves differently and have different priorities. They are located in different situations and have different positions, intentions and motives in regard to the concrete projects.

The presumption that there are more specific common goals and standards from which the projects' effects can be described as either "good" or "bad" seems naïve. Still, however, there is a significant point in trying to illuminate the different themes from different perspectives and positions. There is also a point in describing the changes in relation to issues of knowledge, learning and organization, because it enables us to reflect upon how to move towards an appropriate organization of a sustainable energy supply system and what is required to make this move.

To follow these initial considerations, we will now delve more deeply into the theoretical considerations regarding organizational learning as a re-assemblage.

Organizational learning as a re-assemblage

An assemblage is a complex network-like structure of lines of forces that criss-cross, are always on the move, become entangled with one another and continuously change direction of purpose. These lines do not have a core or a center, but come from many different points. It is this network-like structure that we will try to unpack in the following and relate to organizational learning. It includes dealing more thoroughly with important concepts such as stories, objects and places and their interrelations, which are all important for understanding what assemblages are and how they work. An important part of this framework is the understanding of the concept of *story*, which has a close affiliation with experience.

Arendt notes that stories are the media for transforming inner emotions, thoughts, feelings, passions, etc. into public appearance (Arendt, 1998 p. 50). It is through stories that people make themselves accessible to others. Experience, in other words, becomes social through stories, which are thus seen as the ways by which we communicate. As such, stories are not used here to denote a particular literary genre, nor are they used as a particular genre of speech. Stories are seen as

embedded in everyday talk and actions in organizations. They are spontaneously emergent and denote lived experience in the now (Jørgensen & Boje, 2010).

As such, stories are not considered to be linear, ordered narratives organized around a plot (Boje & Durant, 2006). Narratives are more simple institutionalized stories of cause-effect that have been established and promoted as the proper way of perceiving and doing things. Further, we consider a narrative to be a recounting in the sense that narratives give an account of and explain events across time-space. While a narrative is about the past, a story is about what unfolds in the now (Boje, 2008). Stories are thus much more spontaneous, diffuse, plural and chaotic. While there are narratives in the stories unfolding in the now, these stories also embrace other forces and voices.

Stories do not emerge in individual experiences. Individuals are not alone in the world, but are part of a social world that flows and circulates through them. Neither experiences nor stories jump out of the blue. They are never independent of the spaces and places in which they emerge. Nor are they independent of the material arrangements in these spaces and places. As such, experiences and stories are the results of dynamic entanglements with human and non-human others.

This conclusion follows from the work of Strand, Boje and Jørgensen, who have highlighted the relations and connections between storytelling and materiality through the work of Karen Barad (Strand, 2012, Jørgensen & Strand, 2012a, 2012b, 2014; Jorgensen, Strand & Boje, 2013). The point we wish to make here is that stories are inevitably entangled with concrete situational aspects such as words, concepts, bodies, spaces and artefacts. It follows that experiences cannot be carved out in stone as clearly separate entities from other people's speech, systems, spaces, technologies, artefacts, etc. (Jørgensen & Strand, 2012a, pp. 18-9, 2014, p. 65).

This also means that dualities that are often constructed between the "I" and the "other," between objective and subjective, between nature and culture, are dissolved. We are entangled with one another, and we already have the other in one's skin as Barad (2007, p. 392) puts it. It follows that we understand experience, and thus, we know and learn very differently from how it is usually conceptualized. Most approaches focus attention on the individual self as a fixed originator of meaning (Deetz & Simpson, 2004), while the character of the relations in social practices has little to say.

Our argument is instead that what goes on in these relations plays a decisive role. The point of a relational view is that people are inseparable from situations, and the other (whether human or non-human) becomes, in some way, also inseparable from the "I." We cannot talk about an individual self without talking about the other. As a result, the moment and the stories within it become the results of what Barad terms an intra-active play of differentials in which the term intra-action is used before interaction to denote that there are no entities with an independent self-contained existence (Barad, 2007, p. ix).

This means that we are part of situations, and our beliefs, actions, meanings, accounts, identities, etc. are shaped and enacted through the dynamic entanglements with human and non-human others (e.g. Barad, 2007, pp. 22-23; Jørgensen & Strand, 2014, p. 56). Our experiences thus emerge through these dynamic entanglements. We constantly reinvent ourselves and are transformed through the situations in which we find ourselves; or perhaps it is better to say that situations constantly reinvent and transform us, with the inevitable consequence that we are guided more by situations than we guide them.

As such, memory resides in situations and relations rather than in an individual "I." It is distributed in networks and relations. Stories do not come about from individual storytellers. Storytellers, storytelling and stories are "of-the-world" and are shaped iteratively from complex social, material and natural circumstances (Strand, 2012, p. 46; Jorgensen, Strand & Boje, 2013; Jørgensen, Strand & Thomassen, 2012, p. 452). A story is a differential enactment of forces that originates in both human and non-human others and in which it becomes impossible to disentangle what is material and discursive (Strand, 2012, p. 102).

Now, this does not imply that there are no traces of individual or personal agency. People make a difference and are actors because of it (Latour, 2005, p. 30). But it is impossible to disentangle the personal from the social in stories (Molly & Jørgensen, 2015). Perhaps the most adequate way of describing it is that the social becomes personalized through the stories of individuals. These stories do not reflect or mirror the social, nor do they reflect or mirror some internal state of the individual. They are continuously reinterpreted, translated and transformed into something new.

Stories are "assemblages" of forces combining differences into some kind of convergence, while at the same time, maintaining forces of resistance, divergence and heterogeneity in dominant story lines in the social. In other words, stories represent a transition or a new beginning as noted by Arendt (1998, p. 177), but they also contain within them traces of tradition and habit. Transition and renewal are embedded and embodied in stories.

Experience is thus an assemblage of material and material forces that is differentially enacted in stories and actions, i.e., in lived stories. We consider stories to be fully embodied and material expressions. This includes what we do with words, what we do with our hands and bodies, and how we use objects, tools, systems, technologies or natural resources. As a toolbox in itself, language plays an important role in granting our lives some kind of symbolic meaning.

But we are not alone when we act. We are, in Latour's words, "a wasp nest." He argues that we are held together by forces that are not our own making (Latour, 2005, p. 43). "Action is not done under the full control of consciousness; action should rather be felt as a node, a knot, and a conglomerate of many surprising sets of agencies that have to be slowly disentangled" (Latour, 2005, p. 44). In other words, other human and non-human agencies act through us although our actions are transformations of these agencies. When we act and live stories, we should ask who else is acting. How many agents and agencies are present in what we call action (Latour, 2005, p. 43)?

An important part of these agencies and forces in organizations comes from what Foucault has called a dispositive, which is where power relations become concrete. A dispositive is a network established between heterogeneous elements such as discourses, institutions, buildings, laws, measures, instruments, propositions, routines, procedures and so on (Foucault, 1980, p. 196). It has a strategic function in guiding and controlling action towards desired ends (see also Agamben, 2005, 2009; Bager, Jørgensen, & Raudaskosski, 2016; Deleuze, 1992; Jørgensen & Klee, 2014).

A dispositive does not encompass all forces and agencies that penetrate situations. It is network of agencies that speaks through the discourses, words, concepts, methods, systems, technologies, etc. inherent in any situation and that has the intention of governing actions towards desired ends. A dispositive is, as such, a particular assemblage of control technologies in organizations. It is the expression of the dominant power relations and comprises the organizations' legitimate memory. Narratives of how to do things in the true, proper or best ways are embedded in the dispositive. They reside in the small details and small devices that we often no longer notice or recognize.

But details matter. In this respect, Michel Foucault recalls the words of Marskal de Saxe:

> Although those who concern themselves with details are regarded as folk of limited intelligence, it seems to me that this part is essential, because it is the foundation, and it is impossible to erect any building or establish any method without understanding its principles. It is not enough to have a liking for architecture. One must also know "stone-cutting"' (Saxe quoted in Foucault, 1977, p. 139).

One of the general and most important points of Foucault's whole philosophy was the analysis of these small devices that ultimately would end up shaping or at least co-shaping institutions like the school, the modern organization, the factory, the military, the hospital, the prison, the modern bureaucracy and other important institutions in society. He notes that a

> … meticulous observation of detail, and at the same time a political awareness of these small things, for the control and use of men, emerge through the classical age bearing with them a whole set of techniques, a whole corpus of methods and knowledge, descriptions, plans and data. And from such trifles, no doubt, the man of modern humanism was born (Foucault, p. 141).

"Small" devices, such as instruments, techniques, routines, rules, regulations, procedures for delegating authority, laws, economic arrangements, architectures, performance management systems, reward systems, disciplinary procedures, training and educational programs, strategic plans, actions plans and the like, matter – and they matter a great deal more than it is often recognized in management and organization studies. But, beyond everything else perhaps, an organization is a set of arrangements designed to guide and govern action towards desired ends.

Immaterial forces like tradition and habit are part of these arrangements, including how they affect relations with customers, citizens, suppliers, politicians, etc. and the mutual expectations they imply. Traditions, habits, ways of doing things, norms, standards, etc. penetrate the assemblages that make up the organization at any point. They are embedded and embodied in expectations, relationships, language and conversations, accounts, systems and other kinds of material objects. They are distributed across the network-like structure of ties and include both material and discursive forces.

They come to life in the moment in which they are translated and transformed into concrete stories. It is like the established know-how is translated and transformed into stories that meet the challenges of the moment. The moment is, however, fundamentally indeterminate, as noted by Deetz and Simpson (2004). It is ambiguous and plural and can be understood in many different ways. It can never be fully captured or controlled by dispositives. There are agencies beyond

dispositives that penetrate and influence moments and situations, and thus, challenge the dominant power relations in organizations.

The moment is always fundamentally open to other forces (e.g., Bakhtin, 1993). First of all, this is because the moment can be approached and interpreted in many different ways, and as such, can never be exhausted. Further, many organizations are facing challenges that were hitherto unknown to them to an increasing degree. The world has become more complex and less transient. It is much more fluid and changeable (Bauman, 2004). Globalization, technological development, social and political changes, climate changes, economic forces, etc. continuously expose organizations to new challenges. The moment is open and so are the assemblages that make up the moment and the organization.

To summarize, what is an assemblage? It is an open, more or less loosely or tightly, coupled network of ties and relations between material artefacts such as systems, technologies, techniques, procedures, rules, regulations and so forth and discursive dimensions such as ideas, strategies, concepts, language, words and so forth. These networks are more or less durable and comprise established and dominant forces, but also new forces. These circulate and become embedded and embodied within and through people and their interrelations. Increasingly, the assemblages that make up organizations are not stable, but dynamic, fluid and moveable.

What does this mean in relation to knowing and learning in organizations? First of all, knowing does not belong to individuals. It circulates and flows in the changing network of relations. Knowing arises through a network-like structure. It is distributed and relies much more on the "other" in the form of human and non-human agents than the "I." Knowing resides in the whole situation. Similarly, learning also occurs through this network-like distributed structure and also relies much more on the "other" than the "I." It is also distributed and emerges in relations, flows and circulations.

In this way, organizational learning simply denotes the processes by which new assemblages are being made. It is a *re-assemblage* in which established ties and relations are deconstructed and re-assembled or recombined in a new way and/or with new material or discursive elements, while others are left behind. The key to organizational learning lies thus in how practices are combined, how they are assembled together, which kinds of knowledge are assembled together and the relations they imply. Organizational learning is a re-assemblage that is more or less continuous or discontinuous from that which was before.

This definition is different from the established literature in several ways.

First, our approach highlights that organizational learning is a relational phenomenon. But it is different from the learning view in relational leadership, for instance, which grounds learning in individuals' experiences, because it emphasizes how organizational agents (leaders) reflect on the small stories embedded in how they relate to others through language use (Cunliffe & Ericsson, 2011). Our approach takes a more radical relational view in emphasizing that learning emerges through re-assembling and recombining people, materials, systems, technologies and so forth. This is a radical position because "reflection" has been the locus point of knowing and learning in the history of education, psychology and organizational learning (e.g., Argyris & Schön, 1996; Bruner, 1996; Dewey, 1916, 1991 Schön, 1983).

But reflection locates knowing and learning in the human mind –even if the reflection is about what takes place in the interaction between individuals and their environment. Our argument is that reflection perhaps grants the individual too much power in knowing and learning. Worse, we are led towards focusing on what takes place in the human mind, instead of looking at the power of relations, and thus, what we can achieve by combining and assembling people and objects in new ways. There is perhaps more potential for learning in playing with changing the character of these relations or by creating new combinations.

Secondly, our approach implies that we emphasize the importance of "small things." Our notions of relations basically mean that the world in which we are situated is extremely important for how people think, how they can think, what they do and what they can do. Therefore, we have to focus on this concrete material world and to ground knowledge and learning in that world. Above, we have referred to this world of the concrete and material as "a world of small things." Doing ethnography can perhaps best be seen as trying to understand this world of small things and the life that is unfolding within them.

Thirdly, organizational learning happens when discourses, concepts, embodied know-how, materials, techniques, systems and technologies are assembled in new ways. It is a process that is looking for some degree of stabilization in order to achieve some kind of durability. As noted by Latour (2005) (see discussion below), discourse and language cannot do this alone. We need procedures, rules, arrangements, devices, contracts, trust, systems, technologies and concepts to keep things in place, to pre-arrange our social life for us and also to make new things possible when we enter into the moment together with others. Our experiences, our ethics and our language cannot do this alone. This is just a

reminder that in order to anchor learning, we also have to focus on the things that give the social its steely qualities. This point will be elaborated further below.

Next, we will draw the implications of our theoretical framework for doing organizational ethnography.

Doing Organizational Ethnography

Our conceptual framework has consequences for how we go about doing organizational ethnography, and in this case, for researching and writing about the bio-economy projects. The *first* consequence is a disappointment for those who want quick results. But, unfortunately, there is no way of speeding things up. We have to dig into "the field" and follow the actors. Latour argues that this type of science should be as slow as the multiplicity of objections and objects it has to register in its path (2005, p, 121).

Mapping stories has to emerge in conjunction with the circumstances in which these stories are produced. Where do we start? In reality, we always start in the middle of things – "in medias res" (Latour, 2005, p. 123). We always seem to bump down into the stories when they have already started and when we think we have got a hold of them, they slip and turn into something else. Stories are unfolding in many different directions and are divided in numberless strings at the same time that they are changing the meaning of the past. That is how it is to write ethnographies. We are never on time, and we miss most of what is happening. New events change the meaning of past events and so forth. But that is part of the life we are trying to depict.

Lots of data are generated. Interview transcripts, reports, descriptions, files, photos, video clips, etc., pile up on desktops and in folders and subfolders of which there can be many. How can a good story be written from all of that mess? For an ethnographer, there is no better way than to go through it all and to try to organize all of the different fragments in relation to one another and to allow the overall patterns to emerge from a detailed reading of all of the different texts that have been collected together. As noted above, details not only matter, it is important to have a detailed reading of the situations in which new assemblages are put together.

The different forces – or at least many of the most significant ones – have to be disentangled in order to provide good research accounts. This is the *second* consequence. Latour argues that a good research account is one that "*… traces a network"* (Latour, 2005, p. 128). We use the word to map a network, instead of using the word trace, as noted above when discussing the rhizome. It implies mapping a string of actions where participants are treated as mediators (Latour, 2005, p. 128), where actors are doing something. In other words, a good research account maps living stories and all of the agencies that speak through them and are transformed and bent into something else as they are personalized in stories. In this way, we can get a sense of who people are, what they do and why they do what they do.

Now, above, we have emphasized the notion of stories. But beware of stories. Stories are made within dispositives – or we may say that stories are – in part - the differential enactment of dispositives, as noted previously. They are dispositives-in-action. Dispositives live and breathe through stories, which are where subjectivities are made. At the same time, stories are also something else in being the places where people try to resist relations of power and create a unique human identity. They are lines of escape, as noted by Deleuze (1992, p. 161).

In stories, we see this constant struggle between power relations that want to create particular subjectivities and the subjects' own desire to carve out their own being and personal identity as something untouchable and as something special and unique for them. While stories express a personalized enactment of forces, and thus, may dramatize the personal as something untouched by power relations, the webs of points of convergence are often more mute, silent and taken for granted. This is very natural. People need their stories, but to a certain degree, these stories are also somehow masks or facades: something desired, rather than a reasonable depiction of what is.

A part of this is to carve out an identity - an "I" or "we" – that is clearly separable from "you" or "them" and an inherent tendency to story the world in black and white categories such as good/bad, fair/unfair, just/unjust, appropriate/embarrassing, etc. This division is, however, simplistic in the sense that things are more much varied and complex. Furthermore, it is also a political positioning. Finally, they create a smokescreen that perhaps covers up that people in reality are very disciplined and ordinary, and that they have already internalized a dense network of power relations.

The problem in terms of research is that the work of dispositives is often mute. The dispositive invests the body in a political economy whose general principles we no longer really question or notice. Stories do not disclose that very clearly. They rather seek to carve out an identity and to resist the fear of being completely ordinary. The notion of political economy is a term that describes that peoples' bodies, from the minute they are born, are taken over by a whole army of

bureaucrats, technicians, doctors, teachers, educationalists, leaders, etc. who are armed with rules, laws, systems, procedures, concepts, methods and technologies that guide us through life and make us worthwhile citizens and submit us to the disciplinary gazes of established power relations (Foucault, 1977, p. 16).

Dispositives affect our will, inclinations, ways of thinking and reasoning, ways of behaving, ways of speaking and ways of relating. There is nothing particularly wrong about that. The power relations at work in society and in organizations have many good things and have tremendous qualities. We rely on them because they are embedded in the very technologies by which we master our world. But we also have to be aware of this and try to be critical about what Foucault refers to as the *body-politic* (Foucault, 1977, p. 26) in terms of becoming more aware of ourselves and in terms of trying to create something else.

For that reason, we have to focus on details, and this is the *third* consequence of our conceptual framework for doing organizational ethnography. The point is that organizational situations are also all governed and regulated by laws, procedures, routines, systems, discourses, spatial and material set-up, etc., which are cunning, subtle and pervasive, and therefore, hardly noticeable. Recently, organizational analysis has not been very good at capturing and describing these devices. It is easier and seems more persuasive to be concerned with visions, missions, strategies, cultures, perceptions, attitudes, and more recently, stories and narratives.

But in order to tell really good stories and to analyze the forces embedded in stories, we have to situate them concretely in many different human and non-human and material and immaterial forces. That is why an analysis of power is grey (e.g. Foucault, 1984, p. 76) and not blue. These "small things" may seem boring, dull and grey, but perhaps the really interesting stories are right here. In any case, it seems to us that it is exactly these small things that we need to focus on in leadership and management – especially in bio-economy projects.

Because how is it possible to talk about project management in the bio-economy without taking seriously the laws and regulations regarding competition, outsourcing and public-private partnerships, the laws and regulations regarding land use, wind mills, building biogas plants, transportation channels for manure, bio-mass, local infra-structures and traditions, access to human capital, wind, water and salt caverns, financial models and the political configurations in the city council. The actualization of the bio-economy has to be erected on such foundations and many more.

These practical devices play a very significant role because the connections we are able to weave together by means of interaction and conversation are always too weak to sustain the social (Latour, 2005, p. 66). Such connections are too fragile, too temporary and too transient to hold anything in themselves. Such connections are as fragile as the stories we tell. Memory is transitory (Levi, 1986). We always change accounts, and we can never rely on them to be very adequate depictions of what happened.

The argument that interactions and conversations create the durability of the social is contradicted by the fallibility of the human mind. What then grants the social some kind of durability, so that it becomes meaningful to talk about social ties? It is not language or meanings, even if they are, of course, very important when we create, recreate and transform the specifics of the social in the moment of becoming. What gives the social its "steely" quality is phenomena like things, objects, practical arrangements, set-ups, laws, systems, procedures, technologies, etc. (Latour, 2005, p. 68), which keep language, narratives, stories, etc. on track so to speak. When they are in place, they pre-arrange the world and create the scene for the social to be made.

These pre-arrangements are thus important. They grant people a position and a possibility to speak and to be heard, or on the contrary, the opportunity not to speak and be heard. They are important because it would otherwise be an extremely difficult world in which to live. If we did not have laws, procedures, systems, houses, transportation systems, vehicles, tools, methods, banks, monetary systems, arrangement, contracts, job descriptions, communication tools, power plants, etc., we would always have to remake the social from scratch, which would be very difficult, chaotic and stressful.

So, these phenomena prearrange the world and make it relatively reliable and predictable. They condition what kind of world we can make, both in terms of possibilities and constraints. They pre-arrange our living, as well as how other people relate to us. Even if the social always has to be made, these arrangements help structure the world and are important actors in making a difference. But they are, however, so common that they are often mute, which is perhaps why they do not appear prominently in organizational analysis.

Furthermore, nature is also an actor, because it makes a difference. Wind and weather make a difference in terms of what is possible and what life it is possible to live. The kind of resources nature provides is important in terms of making fishery, farming, mining or other kinds of activities possible. The configuration of geography makes a difference in terms of how difficult it is to get from one place to another. Nature makes a difference. It always has and probably always will.

However, the meaning of nature often relies on the social. People, for example, change their relationship to nature through the knowledge they gain about it, and it can also be an important actor in politics.

In the last 30-40 years, CO2 has become an important actor in daily politics. Wind has become a resource instead of a nuisance. Sun, water and environmental changes affect what we do and how we story the world. Suddenly, we have the technologies to convert biomass into energy, where livestock and manure become important actors in energy planning. As such, nature makes a difference – and sometimes, it strikes back and resists the manipulation imposed upon it by humans. Things, objects and people make a difference and are actors. It is their peculiar combination into the lived stories that is the focus of analysis in organizational ethnography.

The important point is that we can use it to overcome the dualities that are often made between object vs. subject, nature vs. culture, human vs. non-human. The point is that these agencies become assembled into the stories we live and are so entangled that it does not make sense – at least for our purpose - to make such dualities. They only make sense together. Stories make sense only in a physical and material world and in a specific place and time, and with other people. Otherwise, stories are empty illusions that tell us nothing.

Mapping the processes of organizational learning thus means mapping the agencies involved in creating the connections that make up projects like the ones we have described. It must be a method that pays sufficient attention to the details and devices used to create these connections. Following the actors means following the actors "… in their weaving through things they have added to social skills so as to render more durable the constantly shifting interactions" (Latour, 2005, p. 68). We rely on dense descriptions of what happens in situations, including how people story what happens and what the historical and material circumstances are for what happens.

This leads to the *fourth* consequence, which has to do with the approach to the material. Foucault relies on archaeology (1995/1972) and genealogy (1984) to give detailed accounts of how methods, tools, technologies and procedures emerged and developed according to specific historical circumstances. They were invented to describe and govern actions according to new ideas of, for example, what the state is and how it should relate to its citizens (e.g., Foucault, 1977). It is built on an important principle, which is to look at every text as a unique document that needs to be studied on its own terms and evaluated according to its own time, space and circumstances, without the arrogant gaze of the totalizing historian.

The important principle is to imagine that the future does not exist when a historical document is read. It has not yet occurred. Only in that way is it possible to read the document on its own behalf and to unravel the forces inherent in the document. We do not want to totalize history by putting the document into its proper function and location in some grand essentialist narrative. Nor do we want to disqualify the document as irrelevant and marginal to the story (e.g. Jørgensen, 2002, 2007). As a starting point, these texts must be allowed to speak for themselves, because this is the way that we may learn something new.

From that, the agencies can be unravelled and disentangled through arranging texts in their proper time and place and by conducting a systematic rewriting from beginning to end according to who, how, where and in what circumstances. And from that systematic rewriting, the larger patterns will emerge from below and will qualify the processes of the following actors and the agencies they enact. We do not think that it is possible to imagine where the story will take place or when the story will end. It is a detective story in which we try to unravel and disentangle the agencies within a specific case. We have to use our imagination and our fantasy, and work hard to pursue where the case takes us. This is both archaeological and genealogical at the same time that it is neither of them.

What we are trying to say is that we know the principles of these methods and other methods, but we are probably more inclined to say that following actors means following the forces in situations and trying to go where they lead us. It is both a situational mapping, as well as a historical mapping. What guides us is the actors and the materials, as well as the practical circumstances under which we conduct the studies.

Conclusions

Here at the end, we might return to the question of mapping. It is a loose concept. There are many loose ends. Who are the others, for instance, and who are the most significant of the others. We do not know. Practice will tell us – hopefully. What assemblages are you precisely looking for? Again, we do not know. And there is a good reason for that. The life of an ethnographer is that of an explorer, who may be looking for something, but does not know what he or she will find. The narrative cannot be defined in advance. The social cannot be defined in advance. An explorer has to go out into the field to find out how the social is made, the stories and objects that are part of the social and so forth.

We have to follow our gut sense and intuition in following the actors and in following the stories. Follow the actors, follow the stories, follow history and follow activities. We must be open to what we might find and must be daring enough to let the field guide us. Doing ethnography is like a detective trying to solve a mystery or puzzle. We have every possibility of running into dead ends. Figuring out what is a dead end also has worth. In fact, they are probably part of every major learning process. Our maps and our stories are the only things we provide in ethnographies. But stories are made for giving advice (Benjamin, 1999) and are often very effective for doing so (see, for example, Latour, 1996 and Flyvbjerg, 1991). Stories are a way of transmitting experiences in a much more lively way than a scientific report.

We cannot give you anything that is certain, but we can locate experiences in concrete spatial and material circumstances. In terms of organizational learning, we can describe all of the dilemmas, difficulties, conflicts and traps, as well the breakthroughs, the engagements, the sharing of knowledge and so forth that are all parts of organizational learning. We hopefully can show the specifics of how organizational learning occurs concretely. But do we also think that this is what we need in the organization literature, as well as the organizational learning literature? Actually, we think that this is enough; in fact, it is a very ambitious goal that we have set for ourselves.

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