

LEARNING AND KNOWING THROUGH SENSING PRACTICE

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ABSTRACT

In this paper we describe the shifting knowledge logics of two work communities as these two communities try to align with stakeholders in the development and implementation of two different projects. In both cases the display of senses becomes vital in order for the communities to appear as if they align with rationalistic and cognitive learning and sense-making. Observation of and narratives from the informants in the study show, however, how they make use of a wider range of senses.

More specifically we describe how these communities use senses and emotions in communicating and further develop the knowledge creating processes, as they worked with story telling and collective reflection that incorporated elements of intuition and gut-feeling. In one of the cases this may represent an obstruction to learning and knowledge creation in practice, while in the other it seems to trigger learning and a shift towards sensing. In both cases we describe how the employees cope with the differences in knowledge logic, and how they develop survival mechanism and problem solving tools in a different vein than the knowledge logic of the stakeholders.

The purpose of the paper is further a call for more research and conceptual development of the influence of stakeholder's assumptions on knowledge and learning.

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INTRODUCTION

In a world where continuous learning is vital for performance, long-term evolution and sustainability of firm-level competitiveness, the role of knowledge and assumption of what knowledge is and how it evolves and disperses becomes critical. During the 1990's several theoretical frameworks for studying and managing knowledge were introduced (Blackler, 1995; Nonaka, 1994; Spender, 1996; Wenger, 1998). These frameworks focus on two particular challenges within the field of knowledge management: the nature of knowledge and the situatedness of learning and knowledge creation.

This paper aims to increase our understanding of how the processes of experience accumulation, knowledge articulation and knowledge codification (Zollo & Winter, 2002) are nurtured by sensing. We describe two cases where rational discourses are dominant and knowledge codification lies at heart of the involved parties. Both cases involve stakeholders that also enforce this thinking. As the parties work with their tasks, ambiguity prevails rationality and sensing becomes a remedy to appear rational in this ambiguous situation.

We describe how sensing occurs and unfolds as a mean to appear rational. The sensing processes are partly hidden from the actors themselves and the use of more senses than the cognitive are often unconscious and emergent. We describe how (hearing and smelling, intuition and 'just feeling'), intuition, emotions and narrative elements, although difficult to express as codified knowledge, are very important aspects of learning and knowing for practitioners both in a hospital setting and in a technology development setting.

We study knowledge development within a practice based approach. Learning and knowing are seen as ongoing processes, and knowledge as constantly made sense of and translated in the interaction between individuals and between individuals and artefacts. The use of tacit knowledge (Nonaka, 1994), the development of collective reflection (Schön, 1983), and communities of practice (Wenger, 1998), are often seen as vital in practice based learning. Multiplicity in voices and tools (artefacts) are often mentioned as important for triggering the externalization of tacit knowledge, as well as collective reflection, and calls for the use of senses and emotions. We assume that this sharing takes the form of collective reflection combined with intuition and gut feeling which constitute a pattern that we aim to describe in this paper.

All work communities are historically and socially situated and they co-develop with external forces, stakeholders as well as external contingencies (Wenger 1998). This is also the case for the development and creation of knowledge within the practices. The underlying assumptions on how knowledge is shared and developed and how sense is made, the knowledge logic, will surface when practice attempts to align with the interest of the stakeholders and external forces. Limited attention seems however to be paid to how knowledge logics of work communities may be affected by this influence.

The research questions asked in this paper are linked to the processes that take place when different knowledge logics meet in practice. And we ask how sensing is used to face the dilemma of shifting knowledge logics in project development and

implementation in practice. Through the presentation of two different cases we attempt to demonstrate how the actors act in order to cope with the ambiguity that emerges when the map and the landscape appear not to fit.

KNOWLEDGE LOGICS AND LEARNING THROUGH SENSING

Knowledge is dynamic and can best be described as a process (Zollo et al., 2002) or as ‘knowing’, and this process is learning and knowledge creation (Blackler, 1995). The dynamism is a typical feature of the practice based view (Gherardi & Nicolini, 2000). Learning through sensing, in a broad sense of the word, turns us in the direction of 1) the tacit dimension of knowledge and to 2) learning as an interactive, physical and more-than-cognitive activity. Sensing on one hand, like hearing and smelling, behaving intuitively and ‘just feeling’, are important aspects of learning and knowing for practitioners. Sensing as one aspect of knowing requires specific conditions for situatedness, and is difficult to express as codified knowledge. The more recent emphasis on the tacit dimension of knowledge is therefore indeed a return to practice.

Recently, attention has been paid to the issues of sensing in knowledge creation and learning, by for example Yanow and Tsoukas (2007) and Wenger (2007). These processes of sensing are emergent and subtle in the sense that they are often informal and unanticipated. Learning and knowing is, however, visualised through emotional and relational sharing of work-practice (Weick & Westley, 1996). One such shared practice, common and often also used with learning as a goal, are project-groups. Project based forms of organizations and increased use of projects in organizations in general, opens new fields for learning (Scarbrough et al., 2004). Projects are organized in short term groups to solve clearly defined tasks within a set time.

Several theorists insist on the concept *knowing* instead of *knowledge* (Blackler, 1995; Nicolini, Gherardi, & Yanow, 2003), pointing to the dynamics of knowledge and the way it changes through use. Knowledge changes as it is “passed on” to others in a translation-like process (Gherardi et al., 2000). Similar to the way a text will be slightly changed in a translation process, a change will also happen to knowledge as it is made visible and shared. We view knowledge as dynamic and as changing and developing in the process of interaction and collective reflection.

The underlying assumptions about the characteristics of knowledge or the knowledge logic of the parties concerned in a task solving process will influence the way they interact. Assumptions of knowledge as partly tacit, for example, will imply face-to-face interaction and collective reflection as part of the task solving process, in order to be transferred and in order for peers to benefit from experience already gained (Duguid, 2006). Likewise, if knowledge is assumed to be predominantly codified or codifiable, this represents a different knowledge logic for learning and knowledge transfer. Codifiable knowledge can more easily and less costly be transferred than uncodifiable knowledge (Cowan & Foray 1997), but this assumes that knowledge is indeed codifiable and this is complicated further through the sensing dimension.

Stakeholders and their assumptions

Development processes and task solving processes, always deal with social, economical and political matters as well as the task solving itself (Latour 1987). Most work communities solve tasks that involve other parties, their stakeholders. There seems to be an increasing interest in the importance of stakeholder management. General stakeholder theory deals with identifying and classifying stakeholders and Freeman (1984) and Mitchell et al. (1997) are examples of salient contributions within stakeholder management theory.

We see a stakeholder as anyone who may affect and/or may be affected by the project. In this we rely on the original work of Freeman (1984). A stakeholder is a party that potentially impacts or is impacted by a production process.

The idea of *stakeholder management* is that the work community is assumed to be able to some extent to influence the stakeholders. Seldom is it discussed how the stakeholders affect the interaction of the work community members. We explore the relation between stakeholder influence and knowledge dynamics in projects. Our assumption is however that this interaction is influenced by the assumptions on knowledge that the stakeholders have and the tension that can emerge when the knowledge logic of the stakeholders and the communities differ

EMPIRICAL INQUIRY

Our main aim in the present study has been to discuss the research question at hand through two single case studies. It is not a comparative case study, and these cases are sampled from very different contexts with two sets of actors with presumably fundamentally different epistemological basis. In the first case sharing of tacit knowledge lies at heart, while it has been the tradition in nursing and healing that sensing has been an important part of the professional competence. In the second case codified knowledge and display of rationality seems to prevail.

In the first case the context is a hospital, and the majority of the actors are nurses. They are familiar with and have meta-knowledge on tacit knowledge, learning through sensing, intuition and knowledge creation in situated interactions. Learning in a master-apprentice relationship has long traditions within the hospital professions. In their encounter with the efficiency demands for the health sector and with customization as a goal, which are demands from different stakeholders like authorities, patients and families, their workday and their physical surroundings are altered. Through the new way of organizing work and building hospitals represent a rational and quantitatively oriented knowledge view and different knowledge and learning views meet.

For the second case it is the other way around and there is reason to believe that they at the outset have a different view of knowledge, in this case compared to the previous case. The context is from the engineering field, which is situated in the quantitative field with emphasis on exact and certain knowledge, and the actors are socialized in a rational and scientific environment. The case is a project and the project team is working with traditional project methods. These methods for planning, execution and controlling goal oriented action are underpinned by a belief in the

economic man and high degree of rationality. As the case story shows however, in this case sensing, intuition and storytelling become vital processes for keeping the project afloat.

We have used a case study approach in both cases presented below. A case study allows several methods of data collection (Yin, 2003), and in this study we have made use of interviews, observation and document studies. This study is closely linked to the interpretative approach (Lincoln & Guba, 1985). It is designed to be qualitative, both in the way data are constructed and the way they are analysed. Inspired by ethnography, the research is longitudinal and explorative (Hammersley & Atkinson, 1995). The aim is to obtain a deeper *understanding* of the concepts and phenomena under study. The tools used for data construction are systematic observation and semi-structured interviews (Kvale, 1995, , 1996). The aim for further development of this paper will be concept- and theory development.

A case study is applied because the issues under study are processes very much linked to their contexts. Secondly, the complexity of the case makes the study unfit for a cross-sectional questionnaire; there are too many “variables” for the number of observations made (Hartley, 2004:324). Thirdly, even in an interview situation and a direct observation situation, it is difficult to observe and ask questions on this topic of sensing. The informants are often unaware of and often only unconsciously learning and sharing knowledge. It is difficult to imagine straight forward questions on a questionnaire on this topic. The danger of misunderstandings and the difficulty of applying measurement scales would be great.

Case 1 – Implementation of project; Patient Focused Redesign

In the first case, which is a study of several units in a Hospital in Norway, we will in particular report from the introduction and implementation of a business-process-reengineering inspired project called: *Patient focused redesign*. The unit under study is a cardiac ward and the study focused on learning and knowing in the new processes introduced as part of the redesign project. Through empirical examples we will demonstrate how sensing, which originally has been an important part of the knowledge logic in nursing, is obstructed by the logic of the redesign project and how the actors cope with this contrast.

The cardiac ward consists of two small wards with nine single en suite rooms. The wards are laid out physically in very similar manner and this makes it easy for the nurses to move from one ward to another. The ward is part of a new clinic, which opened in 2004. It is very modern and has 9.25 nurses and nurse’s aids (man years) and 2-3 doctors employed.

Previous to the time when this study was performed, the ward moved to new premises and this coincided with the introduction of a process oriented work method based on Patient Focused Redesign. This method was originally developed in Great Britain and based on Business Process Reengineering. This work method was adapted for this specific organization through project-work. The architecture of the new hospital building was constructed and modified to support the new work method. The idea of Patient Focused Redesign (PFR) is to organize tasks around processes, rather than functions, where the processes are the *main* treatment (of illnesses) processes.

The assumption is that 80 % of the patients receive one of these main treatment processes, and there is a large potential efficiency gain in streamlining these processes. The mapping of the processes had been implemented in most parts of the hospital at the time when this study was performed, and the mapping itself is seen by the facilitators to have created fields for learning and interaction. Further implementation, however, has been difficult. There are major difficulties in establishing vertical teams, which need to be created in order to fulfil the PFR project. A balanced score card system has been introduced on one of the wards and is considered to be a prolongation of the patient focused redesign. The balanced score card is to be maintained by the process teams, and this team is part of the patient focused redesign.

The new way of organizing the work is slowly being introduced to the whole hospital. The redesign project is influenced by New Public management. It has the patient (customer) in focus and this is combined with a demand for more efficiency in the daily work. This is economically motivated. These demands are pushed by the authorities, who are central stakeholders for the hospital.

In this presentation we will focus on two of the routines that were radically altered on the cardiac ward due to the Patient Focused Redesign project, which were the reports given when shift staffs overlap and the routines around the ward rounds.

On the ward there are very few frequent meetings except for the report, but there is a general tendency to convert the face to face spaces into “reading clubs”. The new procedures on transfer of information and knowledge about the patients, focus on reading written reports and journals. Talking is not *safe* enough. They are afraid that important pieces of information will be forgotten in a verbal exchange, and in addition it is more time consuming. When the old shift is anxious to go home, they think that it should be sufficient for the new one to read the important information in the journals and written reports, and not have to have it transferred face to face. However, there is a tendency to slip back to the old habits of talking together. One of the nurses describes the routines for giving report, how it is supposed to be – contrary to how it tends to be.

Quote no. 1

A: No, it has not been changed just now. It has been a while since it was. Q: What was it changed to? A: Well, that they had to read the reports first and then we came in at the end of the shift. Because earlier, there was an oral report more or less. It was not supposed to but things lapsed. Q: When things lapse, what is it that lapses? A: Some want an oral report instead of reading it. Q: So, it is not that it should not be written, it is just that they want it verbally. But why does that mean it lapses? Does it take too much time, or? A: Yes, it is not as safe, because if you forget to mention something, they won't know and they miss some information. Now, you can write a little during the day. Q: They do not have to read too much, or? A: No, and they should be able to put up with reading what concerns the patient. (nurse G, cardiac ward)

Still, knowledge or information characterized as – of “less importance” is shared face to face during the report. Like in the instance where a health care assistant has seen that a patient that has looked poorly, but finds it difficult to write down exactly what she means. What the health care assistant is saying is “she did not look too good, perhaps it is nothing, keep an eye on her”.

Quote no. 2

Q: Yes. But it is not like: you didn't say that, and: it didn't say that there. A: No, because it may be that you could say: maybe she is a little semi-conscious. In other words, you can't write it because you don't know whether the patient is semi-conscious. In some cases: can you observe a little - things like that, - which I feel perhaps is a bit unclear. Or maybe she is that just now, or perhaps just woke up or slept poorly. Anyone can feel a little out of it when just waking up. So, it is things like that, nothing more important. Because the important things are always written down. (nurse's aid V, cardiac ward)

The procedure for the rounds has been changed, formally, as a part of introducing the processual way of working. Previously they had pre-rounds, where the doctor and the head-nurse would discuss the patients before they enter the room. Further they had post-round meetings, where all the tests etc were decided and booked. In the new procedure for the rounds the pre-round meeting is eliminated.

The new procedure is simpler than the old one, and the idea is that most of the discussion and the making of the diagnosis should take place in the patient's room with the patient present. The doctors come to the ward anywhere between nine thirty and twelve o'clock. When the doctor arrives, the nurse should be ready to go into the patient with him. When the doctor arrives on the ward, the nurse is supposed to grab a laptop and enter the patient's room right away with the nurse.

Quote no. 3

Q: But what happens to – how are things being documented during the rounds? A: That is done afterwards. Q: You do not bring the PC and write then and there? A: No. Q: You do not bring it at all? A: No. Q: But,.... you are laughing! A: Yes, because that was, indeed, the intention. (nurse G, cardiac ward)

The nurse reads the journal when she starts work and the doctor is supposed to read it when she comes to the ward. There are several indications that the procedure where the pre-round is eliminated is not followed, and that the doctor still wants to ask a number of questions before they enter the room.

The nurses could not see the point in pre-rounds because they felt that it was a waste of time. It was, however, reintroduced because the one doctor that had really promoted this change left his position.

Quote no. 4

The idea was when we moved over here not to have pre-rounds. You know what that is? Yes. We were supposed to do direct rounds. But now that doctor has left. Q: The doctor left? That means you can no longer do the direct round? A: Correct, it is not possible then. Q: And you think that is unwise? A: Yes. Q: But what is with the pre-round that the doctors want to keep and you do not? A: A waste of time. We do not have time for it. Q: It serves no purpose? A: Yes; what happens is the doctor finds out everything about the patient. Q: You already know about the patient? A: Old habit? He already has it all on the computer. (nurse's aid V, cardiac ward)

The nurses have very limited expectations as to what can be gained from the interaction, as opposed to reading the material by themselves, and see it as a waste of time. This is partly because they feel like they first have to feed the doctor the information that is in the journal, that is increase the level of overlapping knowledge, and only after this can they discuss the patient.

Quote no. 5

Q: In other words, you did not have pre-round? A: We did when she had been prepared a little. Instead of me feeding her with information, she can read it first and thus be prepared, and then I can talk with her. We did that. (nurse G, cardiac ward)

The ICT and training department finds it odd that the nurses have a negative attitude towards the pre-round meeting.

Quote no. 6

A: But I do think that they feel the pre-round has been marked by, well, a lot of unnecessary information. Q: The doctors? A: Yes, both, I think. Both nurses and doctors. That is, that they don't feel any – because what they mean when dropping the pre-round is that they can talk about everything when they are with the patient. That they can spend more time with the patient. (internal consultant S)

The new procedure is not followed; this space for vertical interaction is substituted by a horizontal space, on the doctor's part. The medical doctors meet three times a week before the rounds and discuss the patients, without the presence of the nurses. This is in accordance with the "Operating manual for the new clinic" which states:

Quote no. 7

If the doctors need a short pre-round meeting for mutual de-briefing before the rounds, this can be arranged without involving the nurses (page 15).

The purpose of the new procedures for the rounds (with no pre-round meeting) is to move most of the reflection and discussion into the patient's room and include the patient in the discussion. There is very little that cannot be said and discussed when the patient is present, according to both management and the nurses. Still, the doctors will often insist on maintaining the old procedure of pre-round meetings with the nurse. One of the nurses thinks that this is due to the doctors' need to have a diagnosis ready as she/he enters the patient's room. This nurse says that she does not think that the doctor wants the collective reflection in the room with the patient.

Quote no. 8

Q: Do the doctors want that, or? A: Yes. It is difficult. And there is very little we talk to the doctor about that the patient can not hear. Q: Do you think the doctors disagree? Do you think the doctors feel there are some things that are not suitable (to discuss) in the patients' presence? A: No, but they want – they have it in their heads that they need a definite treatment from now and to the end of January from the time they come into the room. Instead of obtaining information once in the room, both from the patient, from us and from the computer; then think about it and ponder while in the room, and then draw a conclusion. (nurse G, cardiac ward)

During the round in the patient's room, the nurse will often act as a mediator between the patient and the doctor. She will ask questions that the patient has asked here earlier and that she could not answer then. Or she might know the answer, but she wants the patient to hear it from the doctor. This way a collective reflection can be initiated.

In the hospital setting the emphasis on classifiable and theoretical knowledge at the expense of practice knowledge is apparent in the Patient Focused Redesign project. The status of theoretical knowledge is high and this is partly connected to the nature of the enterprise, where evidence based medicine, or "scientific" knowledge,

has a strong position, at least formally (Malterud, 2001), but tacit knowledge has long traditions within nursing (Heggen, 1997). This constitutes an inherent paradox in an organization where practice knowledge plays a dominant role; knowledge that is shared and developed through “show and tell” (Styhre, Josephson, & Knauseder, 2006).

Replacing interaction and collective reflection with individual studies of classified knowledge and information arises as a pattern in the data. There is less focus on the dimension of knowledge that is partly tacit, the practice knowledge which is also context specific. When learning is taken out of context, the knowledge sticks to the persons that hold it (Brown & Duguid, 2000) and the experiences that build this knowledge are not further built on. For example, when the nurse prefers to wait until the doctor has read the report, and then directly enter the patient’s room without a pre-round meeting, the interaction and collective reflection is skipped and what remains is the transfer of knowledge as an object (Eisenhardt & Santos, 2002), written down in the report. There is an assumption that this classified piece of knowledge, which is often reduced to fit the columns on a form, is sufficient as a knowledge sharing mechanism, and illustrates the underlying assumptions on what characteristics knowledge has and how knowledge is shared and created. This demonstrates the different underpinnings and the paradox that is created when these two approaches are brought together in the same system of the hospital organization.

Case 2 – A clear cut technology development project?

In the second case we follow a complex development- and implementation project at the Norwegian National Rail Administration. As the technology project was started it was highly embedded in a managerial discourse of functionality and rationality. The technical task was in focus while relational activities were not much considered and thus technical competencies were emphasized in the recruiting process. At this point the task specification was regarded as relatively clear and the involved parties operated from a belief in a shared understanding of what the task was all about: to build and implement the emergency communication system (Project manager, hereafter PM. 19.02.04). The base organization worked hard to recruit project members with the right competencies and seemed to succeed in doing so, as the project manager expressed that ‘these are very good people – the best around’ (PM. 08.03.04).

Despite the high and situated competency level of the staff, the first year of the project was characterized by numerous indications of trial and error when it came to the operational task solving. ‘We just had to act and see what happened’ (PM. 10.11.03). According to the project manager, in its very early days the project management team, hereafter PM team, did neither place much emphasis on relational activities nor was it very efficient in such. However, the project work quite soon evolved to be highly relational. The PM team experienced that a great number of interfaces with various stakeholders constituted its task work, however the members expressed uncertainty regarding how to act in the position they seemed to find themselves (Meeting observation 08.03.04).

From highly technical focus and operating from a functional logic, the project over time became highly relational. The PM team expressed that the projects’ destiny

was fragile and contested and that the space for making mistakes was limited. That is, if mistakes were made the project funding could be at stake. The combination of this belief and the acknowledgement of things not working out as planned, made the project gradually place more emphasis on developing relations with other actors – convincing them that the project was delivering as expected. In their effort to convince and align other actors a range of stories of adventures and crises were presented. Slowly the project shifted its focus from a strict focus on plans and apparently rational tools to more display of emotions and uses of various senses.

Moreover, as the task seemed to develop in unexpected directions and seemed to require extensive innovation the competencies of the team became a problem. They lacked necessary competencies to complete the task. Not only did the team try to develop these competences itself, but it also sought out sources where knowledge could be embedded. They developed knowledge relations to extend their knowledge base.

Both the effort to align actors and to develop knowledge relations can be understood as a development towards more relational focus. The lack of technical knowledge triggered behavior and this behavior in turn triggered competency in relational acting, relational competency (Ref. to be added after blind review). Following the PM team we saw they engaged in analytical exercises trying to determine the aspects of a given situation and what parties that would probably be involved and had to be considered. Moreover, the PM team worked to find out the most likely expectations these parties were holding and also reflected on what they could do to meet these. At the bases of these exercises the PM team approached various stakeholders. Analytical exercises followed by interaction with stakeholders, were reoccurring in the PM team's activity pattern. There are two issues worth noting here. One is that that the PM team seemed to consider the project as coalition of stakeholders that needed to be kept happy in order to enable the project to stay afloat.

We observed how the project seemed to work to vary its activities as in the self-same relation over time as it challenges and scope of the other evolved. The project team seemed to stay tuned to changes in the others needs, scope, challenged met 'the other' differently as the daily life and context of 'the other' changed. Very interestingly, the project team also developed an ability to act in differentiated manners when relating with various stakeholders at the same time. For example, in a situation where the project was not able to make its deliveries and its funding and further existence was at stake the project produced stories. We identified five co-existing stories. They seemed to be developed partly to make other actors act in certain manners that the PM team assumed to facilitate task solving and partly for maintaining the stakeholders' belief in the project. The content of the stories were differentiated depending on with whom the project interacted and what kind of actions it wanted the other actors to undertake. For example, it was important for the PM team to enable system implementation by motivating the users (train operators) to educate their people. The story it communicated to the train operator expresses belief in completed deliveries and the importance of efficient training, for facilitating safe system operation. Speaking with the sub-contractor, Alfa, the project wanted to facilitate dedicated effort at the sub-contractors as no time could be spared. It assumed that if Alfa got to know about the possible delay they would prioritize their effort elsewhere, at the cost of the project. It communicated that, if they all stood together

and worked day and night, they would probably make it (PM. 15.02.04). Interacting with the head director of the base organization yet another story was produced. This one was aimed at maintaining the head directors' trust in the project. Meeting the neutral control organ that was to verify the system the project expressed sensational stories about the unexpected situations they had encountered, tackled, and learnt from and how the deliveries were almost completed and under control.

Above we indicated that an emerging feature of the project competencies was the ability to fine-tune the communication of a situation, contingent of the presumed interests of various stakeholders at a point in time. We found it noteworthy that the PM team also developed an acknowledgement of how the actors, with whom it related, were also related and considered this as it developed stories and displayed emotions – all to maintain the overreaching picture of the project as a project working according to the plans. The team developed sensitivity regarding what to say and how to say things, and not the least the timing of messages. More specifically, the team became increasingly aware of how to frame a message to materialize it to its full extent and aimed for achievement. Gradually, the team learnt to differentiate between *how* messages could be framed differently depending on *whom* it communicated with. When about to approach a certain actor the team members often went on elaborating on their own history of working with this actor.

DISCUSSION

In a hospital setting a variety of senses are used, and are necessary, in order to accomplish the complex tasks of nursing and healing. We have observed that learning and knowing in practice includes a collective reflection on practice with low degree of consciousness. Cognition is combined with hearing, smelling, looking and touching. This is paradoxical in an organizational context where theoretical and evidence based knowledge has a high standing. In the study we learn that the value estimation of different categories of knowledge, tied to senses used for learning and knowing, form impediments to learning and knowing.

In the railway setting we learnt that the practitioners in the project and the stakeholders highly believe in codified knowledge and rational work procedures. These are the valued practices of the focal setting. As the project team worked with the task, it experienced ambiguity and less rationality than expected at the outset of the task work. Still, they work to maintain the picture of being rational and on top of things according to functionalistic line of thinking. That was in order to keep salient stakeholders aligned.

The stakeholders expected the project to operate in accordance with the rationalistic and functionalistic logic. They would lose faith – and thereby possibly represent trouble for the project – if the project operated in unexpected manners. So, when delivering as expected was difficult for the project, the project played out other senses than mere cognition. Management of stakeholders is essential for carrying out projects and creating project success (Oleander and Landin 2005). Planning and executing technical tasks should therefore involve careful considerations of stakeholders that can represent different and even divergent interests. In this project it did not, but the project over time evolved into being much about stakeholder management. Through trial and error this was developed as more tacit knowledge and

skills, a gradually emerging feeling i.e. intuition of how it needed to act and interact to align the others. It became important to listen to the others needs and the act of ‘feeling the situation’ to meet the others in fine tuned manners.

As the project is forced to have a more relational focus, we see how the knowledge base of the project moves from mere emphasis on codified knowledge (the technical task related knowledge) to equally placing emphasis on more tacit knowledge (the knowledge related to handling the stakeholders). Over time the knowledge experience accumulation and knowledge articulation related to the stakeholder work seems salient to the project. Here sensing and intuition seems equally important to cognition. This knowledge is highly situated in the context and lies in the relations between the team members, as well as in the interaction of the project team and the stakeholders. We saw how it is highly dynamic in character (the project acting variably depending on with whom it interacts) and evolves over time (the project inter acting variably in the self same relation over time).

In a setting where codification and rational process lies at the heart’ of the project and their stakeholders, sensing became a way to appear rational when ambiguity prevails rationality.

The most striking feature of the second case was the development of stories, for example the five stories connected with the failed delivery. The stories seemed to be means to align stakeholders – as they could be highly situation dependent versions of reality contingent of the stakeholders’ perspective and needs. The story also seemed to be a way of integrating and storing this tacit and more process based knowledge gradually accumulated by the project. The stories acted as storage devices of knowledge (Patriotta 2003) that could not be spoken of. The codified knowledge still remains what counts in this focal setting.

The observations from these two cases highlight the reflection patterns and the countermeasures within a practice when different knowledge logics meet. In the first case, from a hospital, the rational way of organizing work seems to hamper the knowledge sharing and development. In the other case under study, from a development- and implementation project in the National Rail administration the project work finds ways to sense practice that contrasts with the dominating assumptions on knowledge and learning in this setting.

Ambiguity calls for sensing in order to develop and share knowledge. Efforts to rationalize practices involve a demand to codify knowledge. This does not reduce ambiguity, but enforces behavior that undermines sensing. Action in accordance with predefined rules is difficult under ambiguous and changing conditions and the implications might be increased use of sensing as a shadow to rationalization.

REFERENCE LIST

- Blackler, F. 1995. Knowledge, Knowledge Work and Organizations: An Overview and Interpretation. *Organization Studies (Walter de Gruyter GmbH & Co. KG)*, 16(6): 1020.
- Brown, J. S., & Duguid, P. 2000. Balancing Act: How to Capture Knowledge Without Killing It. *Harvard Business Review*(May-June): 73-80.
- Duguid, P. 2006. What Talking About Machines Tells Us. *Organization Studies (01708406)*, 27(12): 1794-1804.
- Eisenhardt, K. M., & Santos, F. M. 2002. Knowledge-based view: A new theory of strategy? In A. Pettigrew, H. Thomas, & R. Whittington (Eds.), *Handbook of Strategy and Management*: 139-164. London: Sage.
- Gherardi, S., & Nicolini, D. 2000. To transfer is to Transform: the Cirulation of Safety Knowledge. *Organization*(2): 329-348.
- Hammersley, M., & Atkinson, P. 1995. *Ethnography: principles in practice*. London: Routledge.
- Hartley, J. 2004. Case Study Research. In C. Cassel, & G. Symon (Eds.), *Qualitative methods in organizational research. A practical guide*. London: Sage.
- Heggen, K. 1997. Taus kunnskap. Klargjøring, kritikk og didaktikk. *Nordisk pedagogik*, 17(1): 2-7.
- Kvale, S. 1995. The social construction of validity. *Qualitative Inquiry*, 1(1): 19-40.
- Kvale, S. 1996. *Interviews. An Introduction to Qualitative Research Interviewing*. Thousand Oaks: Sage Publications.
- Lincoln, Y. S., & Guba, E. G. 1985. *Naturalistic inquiry*. Beverly Hills, Calif.: Sage.
- Malterud, K. 2001. The art and science of clinical knowledge: evidence beyond measures and numbers. *The Lancet*, 358: 397-400.
- Nicolini, D., Gherardi, S., & Yanow, D. (Eds.). 2003. *Knowing in Organizations. A Practice-Based Approach*. New York: M.E. Sharpe.
- Nonaka, I. 1994. A Dynamic Theory of Organizational Knowledge Creation. *Organization Science*, 5(1).
- Scarbrough, H., Bresnen, M., Edelman, L. F., Laurent, S., Newell, S., & Swan, J. 2004. The Processes of Project-based Learning. An Exploratory Study. *Management Learning*, 35(4): 491-506.
- Schön, D. A. 1983. *The Reflective Practitioner*: Basic Books.
- Spender, J.-C. 1996. Making knowledge the basis of a dynamic theory of the firm. *Strategic Management Journal*, 17(Special Winter issue): 45-62.
- Styhre, A., Josephson, P.-E., & Knauseder, I. 2006. Organization Learning in Non-writing Communities. *Management Learning*, 37(1): 83-100.
- Weick, K. E., & Westley, F. 1996. Organizational learning: Affirming an oxymoron. In S. Clegg, C. Hardy, & W. R. Nord (Eds.), *Handbook of Organization Studies*. London: Sage.
- Wenger, E. 1998. *Communities of Practice. Learning, Meaning, and Identity*. Cambridge: Cambridge University Press.
- Yanow, D., & Tsoukas, H. 2007. What is reflection-in-action? Revisioning Schön, phenomenologically. Department of Culture, Organization, and Management, Faculty of Social Sciences, Vrije Universiteit, Amsterdam, The Netherlands.: Department of Culture, Organization, and Management, Faculty of Social Sciences, Vrije Universiteit, Amsterdam, The Netherlands.
- Yin, R. K. 2003. *Case Study Research. Design and Methods. Third Edition*. Thousand Oaks: Sage.

Zollo, M., & Winter, S. G. 2002. Deliberate Learning and the Evolution of Dynamic Capabilities. *ORGANIZATION SCIENCE*, 13(3): 339-351.