

NAVIGATING IN ANALYTICAL AND INTERPRETATIVE RIFTIDES OF PRACTICE-BASED INNOVATION: A PARTICIPATIVE ACTION RESEARCH STUDY

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Abstract

The theme of this paper is the interplay of analytical and interpretative practice-based innovation processes in organizations. Their interface is discussed from a managerial point of view: how to integrate these essential but distinct modes of innovation. The interface and bridging actions are studied through a longitudinal action research process in an organization aiming to foster innovation activities between communities of practice first within the organization and then between the case organization and its customer organizations. The findings of this study support the assumption that the challenge of innovation management lies managing the interface of the two modes. Narrative boundary objects – textual, visual, and performative – are suggested to integrate the interpretative and analytical innovation processes.

Keywords: practice-based innovation, communities of practice, narratives

1. INTRODUCTION

Innovation generation in organizations is suggested to be dependent on two fundamental processes: analysis and interpretation (Lester and Piore 2004, 5-7). The analytical process is assumed to be easier and natural for business management, as it is based on rational and linear decision-making models that are taught in engineering and business schools. But innovation generation is more than just problem-solving. If the goal of innovation is to co-create something new in processes that enable unknown outcomes, interpretation, the roots of which are in cultural and communicational studies, is needed. Innovation processes are then affected by issues that cannot be ‘solved’ or unified in a logical, linear and analytical fashion. The process of co-creation is a fragmented, ongoing and open-ended, as well as multi-voiced process of dialogue which emphasizes interaction and communication. (Lester & Piore 2004, 6-8; 97-98) The analysis and interpretation processes are compared in Table 1. Harmaakorpi has defined this type of an innovation action as practice-based innovation. The practice-based innovation process aims to combine knowledge interests from theory and practice alike, as well as knowledge from different disciplines (Harmaakorpi & Mutanen 2008, 88).

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Table 1. Comparing analysis and interpretation (Lester & Piore 2004, 97-98)

ANALYSIS	INTERPRETATION
<ul style="list-style-type: none">• The focus is a project with a well-defined beginning and end• The thrust is to solve pre-defined problems• Managers set goals• Managers convene meetings and negotiate to resolve different viewpoints and eliminate ambiguity• Communication is the precise exchange of chunks of information	<ul style="list-style-type: none">• The focus is a process, which is ongoing and open-ended• The thrust is to discover new meanings• Managers set directions• Managers invite conversations and translate to encourage different viewpoints and explore ambiguity• Communication is fluid, context-dependent, undetermined

The challenge for management is how to flip between these two fundamentally different approaches. Organizations need to “look at the world simultaneously through both analytical and interpretative lenses and flip back and forth between them as conditions require.” (Lester & Piore 2004, 74). The transition between analytical and interpretative modes requires to make alterations in forms of knowledge, knowing and in their representational practices as well as in ways of communication and interaction. In literature the need to facilitate the switching between interpretative and analytical modes is noted (Schreyögg & Geiger 2006), and, e.g., boundary objects (Brown & Duguid 1998) or special broker roles (Ghearardi & Nicolini 2002) have been suggested as intermediaries.

This study focuses on investigating how to find a connecting surface between the interpretative and analytical approaches. We have summarised this problematic into the following research questions:

- What are the critical points for bridging actions in the interface of analytical and interpretative processes?
- What are the means and methods for bridging the interpretative and analytical modes?

We explore ways to enhance knowledge sharing and co-creation by using cultural studies as a basis for our exploration. Geertz (1973) introduced the concept of thick description as a lens for examining life. Thick description also offers lenses for examining innovation processes and communication in them, as well as ways to communicate and gain knowledge regarding organizational life. According to Martin (2002, 5), cultural studies tries to look beneath of surface to gain an in-depth understanding of how people interpret the inherent meanings of detailed accounts of a wide range of familiar and unfamiliar aspects of organizational life. Martin also outlines the importance of understanding the patterns of interpretation. Theoretically thick description can be tied to practice-based innovation study and the emerging artistic approaches. Barry (2008) remains that instead of being a reproduction of what we already know, art breaks with the known and materializes what we do not know yet. Art shifts rather than solves problems. So, our research attitude and working method leans upon Geertz’s idea of interpreting organizational life together with some members of the case organization: what they think they are for, how they are connected to each other and how they behave and communicate.

This paper contains a short theoretical discussion about analytical and interpretative approaches to innovation and discusses narrative methods (textual, performative and visual) as bridging elements in practice-based innovation. The empirical data used in this study is from a longitudinal participatory action research-based development

project in an organization. Building on the result of the action research interventions in the organization, our aim is to examine, from a managerial point of view, the usability of various intermediaries in the interfaces of analytical and interpretative processes.

2. THE EMERGENT STREAM OF PRACTICE-BASED INNOVATION

The traditional paradigm of science and technology-driven innovation considers the production of new knowledge to be the responsibility of nominated experts, namely, scientists and researchers in the academia or R&D-specialists in companies. This kind of knowledge production is usually a hierarchical process, during which knowledge tends to preserve its form and to depart from a homogeneous theoretical basis. (Gibbons et al. 1994) From this perspective, innovation is often regarded as an analytical and linear decision-making process, the roots of which are in engineering. Therefore its main challenge is to translate and diffuse new knowledge created by experts into exploitation by practitioners (Van de Ven & Johnson 2006).

Nowadays this science and technology-driven innovation is complemented by the idea of practice-based innovation. It is a collaborative form of creating knowledge in which academics and practitioners of various fields leverage their different perspectives, conceptions, ideas and competences to co-produce new knowledge (Berg-Jensen et al. 2007, Harmaakorpi & Melkas forthcoming). Knowledge production is thus diffuse and based on combining heterogeneous knowledge in a multidisciplinary manner (Gibbons et al. 1994). Typically the creation of knowledge is situated, context-specific and takes place in very practical environments. Organizations are seen as sites where practitioners and scholars co-produce knowledge. People and groups in organizations create knowledge by participating in and contributing to negotiations of meanings of actions and situations. (Gherardi 2006, Van de Ven & Johnson 2006, Pässilä, Oikarinen & Vince forthcoming)

In today's fragmented, complex and changing environments the attraction of practice-based innovation is obvious. Making sense of a complex phenomenon is more insightful when it is done by leveraging widely divergent knowledge and competencies. The traditional science and technology-driven approach to innovation and knowledge creation as a separate function from the use of knowledge is not sufficient any longer. The approaches of open (Chesbrough 2003), consumer and practice-based (Harmaakorpi & Melkas 2005, Harmaakorpi & Mutanen 2008, Ellström 2010), user-driven (von Hippel 2005) and employee-driven innovation (Bessant 2003) have thus gained much attention.

2.1 Creating discursive communities

Considering practice-based innovation in organizations, we see communities of practice (CoPs) i.e. groups working together as key sites of learning and knowledge formation (Brown & Duguid 1991, Wenger 1998, Lave & Wenger 1991, Amin & Cohendet 2004). In contemporary organizations work is mainly cooperative. Collective practices lead to forming collective knowledge, shared sensemaking, and distributed understanding. A group's shared understanding of what it does, how it is done, and how it relates to the organization is both produced and maintained collectively through daily working practices. (Brown & Duguid 1998)

CoPs act as an active entity of knowing, and reveal specific forms of knowledge through their daily practices. Communities embody the pragmatic, situated, interactive, and enacted knowledge routines (Amin & Cohendet 2004, 74). Leonard and Sensiper (1998) emphasize that the members of a CoP develop implicit ways of working and learning together, a kind of taken-for-granted collective tacit knowledge, and then they are easily trapped by the stickiness of that knowledge. By creating interaction between communities the limits of each community's knowledge base can be challenged and opportunities for co-creating innovations are enhanced. But this is not a straightforward operation.

Within a community, knowledge is embedded in practice and the members share it implicitly. Between the communities, practices are not shared any more. An organization as a community of interdependent CoPs has noteworthy possibilities for innovation, but it needs to foster co-creative interaction between communities. (Brown & Duguid 1998, Bechky 2003)

In literature, boundary objects have been suggested to facilitate the interaction. Boundary objects are issues of interest to each CoP involved but the CoPs have different views regarding them, or use them differently. For example, plans, business processes or operational problems can act as boundary objects around which interconnected CoPs with different organizational backgrounds can be gathered together. The boundary objects help both to make a community's own presuppositions apparent to it and to clarify the attitudes of other communities. By discussing and comparing their various perspectives on boundary objects, they can create a discursive community. (Gherardi & Nicolini 2002)

As discursive communities compare between perspectives, they generate polyphony, maybe even cacophony, and perhaps multi-voiced understanding. Sometimes new ideas for re-drawing boundaries between CoPs or shaping new practices together are proposed. But these fruits of discursive communities don't intrinsically generate outcomes that would be considered as applicable results from an analytical managerial point of view. (Gherardi & Nicolini 2001)

The challenge is how these outcomes of discursive communities can be of use to analytical management. The multiple voices and ideas generated in the interpretative mode need to be categorized, evaluated, prioritized and selected for implementation. The resources, responsibilities and timetables are to be set. The analytical viewpoint prefers to define clear development targets that are measurable and can be controlled. The question is how these thick descriptions of interpretation in discursive communities can be grasped from an analytical approach. We agree that there is much unused potential in organizations to encourage practice-based innovation between CoPs. But to utilize this innovation potential by using e.g. operational problems as boundary objects calls for the organizations to rethink their managerial practices: how the outcomes of interpretative polyphony and multi-voiced sketches of possibilities can be bonded to analytical processes.

3. BRIDGING INTERPRETATIVE AND ANALYTICAL WAVES

In the background of the tension between analytical and interpretative modes can be seen the political basis of the boundaries between different forms of knowledge and the role of power in the definition of 'truth'. As Phillips (1995) has emphasized, there is a

whole array of alternative representational practices – such as short stories, dance, film, sculpture, poetry, computerized hypertext – as legitimate approaches to study management and organizations, or knowledge in organizations. But the traditional ‘fact’ approach to knowledge and management in organizations which emphasizes rational behavior and explicit knowledge doesn’t cater for these alternative representational forms of knowledge. (Phillips 1995, Vickers 2008)

However, the innovation potential emerging through the interplay of different forms of heterogeneous knowledge has been noted widely (Nonaka & Takeuchi 1995, Cook & Brown 1999, Amin & Roberts 2008), which encourages us to study how the combination of interpretative and analytical mode could be fostered. We agree with Cook and Brown (1999) in that one form of knowledge cannot be converted into another, but it can be used as an aid in acquiring and creating new knowledge.

In the study of organizations and management, the most noticed alternative representational form to traditional ‘fact’ approach to knowledge is narratives. Stories, myths and conversations are noted as the principal means to frame new shared meanings, to change mindsets and to create change. (Abma 2003, Ford & Ford 1995, Marshak & Grant 2008, Reissner 2005, Simpson 2010) Storytelling and narratives are a natural human way to frame lived and experienced life. Narratives are constructed images of experienced and lived lives, narratives connote real life but are not images of reality. Storytelling is a process of interpretation and understanding of events in life. When people tell stories they contribute to meaning-making, because their interpretation creates reality for them. Bruner (1986, 1996) thinks that narratives have a significant role when meanings are structured on a cultural as well as individual level. Narratives transform singular situated experiences and events into a framework within causal linkages so that they make sense to tellers and listeners alike. It is characteristic to narratives to communicate a specific content and its evaluation at the same time, to be both descriptive and prescriptive. The narrative mode of communication and knowledge-sharing represents a process of acquiring know-how, norms, standards and assumptions and simultaneously justifying them as true and false (Schreyögg & Geiger 2006) Relating to the events in the story provides listeners with a vicarious experience. They convey a logical, intuitive and emotional understanding. (Jarnagin & Slocum 2007, 294)

In the context of this study it is especially interesting to explore potential ways of combining the traditional ‘fact’ discourse and knowledge of the analytical mode with the narrative knowledge of the interpretative mode. As Schreyögg and Geiger (2006, 89) state, in order to open the narrative world for knowledge management, narratives have to be re-worked in such a way that they can become the subjects of reflection. In this paper we examine how narratives of various forms can be used for sharing and generating knowledge in the context of practice-based innovation, i.e. to help organizations to swing from the analytical to the interpretative approach and back again (see Fig.1).

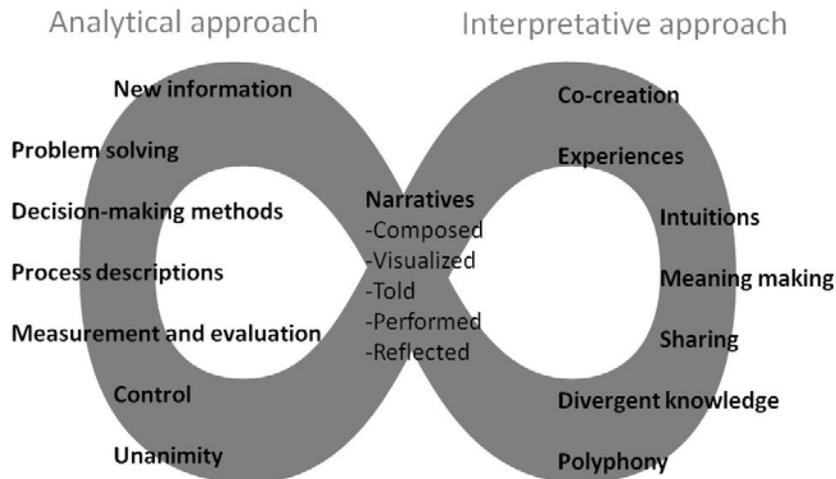


Figure 1. Narratives intermediating swinging between analytical and interpretative modes

4. THE CASE

Our conception to knowledge creation as a coproduction of researchers and practitioners has led us to follow the praxis-related research orientation of Mattson and Kemmis (2007). We as researchers have an active and participatory role in the course of social interaction in which knowledge, learning, and innovation all develop simultaneously.

This paper draws upon a long-term (ongoing after 3 years) participatory action research-based development project in a big industrial company. In 2008 - 2010 we organized, in close cooperation with the company's management, multiple workshops for the employees of the case company and some of the workshops were shared with the employees of customer organizations as well. There were over 100 participants in total from the case company – and most of them participated in multiple workshops. The researchers' diaries, workshop materials (including 9 h of videotape) and questionnaires for the participants are used as the data based on which the interface between the interpretative and analytical approaches is studied.

Between CoPs in case organization

The research and development project commenced in January 2008. The trigger for the project was the detected need in the company to develop collaboration between its production and sales departments. The focus of the development was very operational at first: to develop current practices so that the amount of reclaims (boundary object) from customers would decrease. We began with the sales department and one production site. Then another production site joined the project. Soon the need to increase customer-orientation was identified. The customer's voice was first included in the project as an object of innovation. Representatives from three customer organizations participated in the workshops organized on the premises of the case company. During this phase of the project (November 2007 - April 2009) we organized nine workshops for the personnel of the case organization and, in addition to it, seven meetings with the management team of the project in the company.

Between CoPs of the case and customer organizations

In the course of the project the case organization's management team felt the need to develop collaboration with their customer organizations. The focus of the development shifted into a more proactive form as the management team became convinced that if they only had joint forums of co-creation with their customers, they could innovate totally new ways of doing business together. So the role of customer was converted into the subject-role of an active participant. In 2009 - 2010 we facilitated two projects with customer organizations (subsequently referred to as client A and client B). The focus of the development was to jointly create co-operation practices that would help them to better serve their end-clients together. The concrete boundary object was one product and its production process. With both customer organizations we had separate development projects with 3 meetings with their managers, as well as a workshop for co-creating new products and practices together.

Facilitation methods

In the beginning of the project we as facilitators concentrated on different kinds of interactive participatory methods, e.g., narratives, pictures and theatrical methods aimed to reflect and interpret diverse views and experiences of CoPs together. We strove to build non-linear, open and dialogical innovation environments aiming towards a rich shared polyphonic understanding (more in Oikarinen, Pässilä & Konsti-Laakso 2011, Pässilä & Oikarinen forthcoming). The outcomes were rich multi-voiced sketches of possibilities and development options for the future. Soon we faced the challenge of how these outcomes could be recalled and approached afterwards by the participants and how they could be recounted to other peoples not present in the session.

During the research and development work we noticed that the interface from interpretative to analytical mode was challenging. How to present the outcomes of interpretation to analytical decision-making? How to summarize a rich multi-voiced dialogue or ideation? How to help the management team to lead the process in which the outcomes are unknown? And how the realms of analytic management could be integrated to interpretation? We started to experiment with different kinds of representational forms during the interpretation to present the outcomes and to bridge them with the analytical mode.

Table 2 below illustrates the phases of the project from the case organization's management team's point of view. The organization's management team varied slightly during the development work, but one director participated throughout the whole process. The management team participated in the workshops organized for the employees plus they had their own meetings.

Table 2. The workshops in chronological order

date	issue	aim	methods	mode	example	participants
Between CoPs in case organization						
Nov. 2007	discussing the identified problem	decide about the development project	discussion	analytical: problem identification	<i>We receive too many reclaims from our customers</i>	2: directors
Jan. 2008	agreement of the development project	agree on the proceeding of the project	discussion	analytical: problem formulation	<i>Cooperation between sales and production doesn't work. But how to improve it?</i>	2: directors
Jan. 2008 (1)	making practices of various CoPs visible / voicing various views	to reflect own experiences	CoPs' Work Stories i.e. (*) textual narratives with (***) pictures	interpretative: situations, events and experiences illustrating the problem	<i>Why we have to be in between sales managers and operators and explain to customers if something goes wrong</i>	15: sales assistants
Jan. 2008					<i>Why production doesn't produce what customers want</i>	28: sales managers
Jan. 2008					<i>Why we don't have enough time for planning and design</i>	15: product designers
Feb. 2008					<i>Why sales managers promise to customers things we can't produce</i>	9: operators
Feb. 2008					<i>Why we don't get product specifications correctly and in time</i>	10: operators
Feb. 2008	feedback of CoPs' Work Story sessions	management's approval to the themes of next intervention	discussion	analytical: categorization of themes of the problem	<i>Developing cooperation is a complex and many-sided issue, the actions have to be invented by the employees themselves</i>	2: directors
March 2008 (2)	discussion and interpretation of various viewpoints	reflect, nurture and understand different practices between various CoPs	Organizational Theatre i.e. (***) theatrical performances and facilitated group discussions	interpretative: collective polyphonic sensemaking	<i>Everyone does his best based on the information he has – we should know more about each other's work and the customers' demands</i>	65: sales assistants, sales managers, designers, operators and directors

date	issue	aim	methods	mode	example	participants
March 2008	feedback for the Organizational Theatre session	agreement of the next intervention	discussion	analytical: prioritisation	<i>We should focus on customer-oriented development activities</i>	2: directors
May 2008 (3)	customers' point of view	construct new practices together	Customer's Story with (**) visual aids, facilitated group discussions and planning new practices	interpretative: discovering new ways and practices that help us serve customers better	<i>If I had seen that picture of the customer's warehouse before I would have known that we should have designed our packages differently</i>	70: sales assistants, sales managers, designers, operators, directors and clients
Sept. 2008	another factory come in the project	agreement of the actions to interlink	discussion	analytical: identifying the benefits of wider project participation	<i>To gain all the potential benefits we also need the other production site to be involved</i>	4: directors and managers
Oct. 2008 (4)	voicing and understanding various viewpoints, and co-constructing new practices	reflect different practices between sales and two production sites and commit to changing them	broaden participation i.e. (**) visualizing, facilitated group discussions	interpretative: understanding the needs and ways to frame new shared practices	<i>There are many potential benefits to be gained if we improve cooperation between the two production sites</i>	50: sales assistants, sales managers, directors, designers, and operators of the other factory
Nov. 2008	feedback of the previous session	agreement of the needed development actions	plan of action	analytical: setting steps, schedule, responsibilities and barometers	<i>We need now a concrete plan of action and someone who monitors the actions</i>	4: directors and managers
Feb. 2009	follow-up meeting	agreement of the next steps	discussion	analytical: an implementation plan	<i>We need to pay more attention to the implementation of the plans</i>	5: directors and managers
April 2009 (5)	follow-up workshop	recognize what has been done and plan further actions together	(**) visual and (*) narrative report, analytical plan of action, group discussions	interpretative: illustration of the whole development process and analytical: implementation planning	<i>I work as an operator and I have now visited the customer whose products I mainly produce. Now I understand what the critical aspects of the product for the customer are . I also found ways in which the customer can exploit our products more efficiently</i>	74: sales assistants, sales managers, designers, operators, directors and clients

date	issue	aim	methods	mode	example	participants
Between CoPs from the case and its customer organizations						
June 2009	continuous development	customer-orientation	discussion	interpretative: identification of new potential	<i>In closer cooperation with our customers we could find out totally new ways of doing business together</i>	4: director and managers
June 2009	customer – supplier co-operation	co-operative innovation	discussion	interpretative: diverse views on innovation focus	<i>We need a concrete focus on which we can co-create new practices together</i>	4:director and managers from case and client A
Aug. 2009	common theme for co-operation	agreement of the development work	discussion	analytical: the theme approached from multiple viewpoints	<i>The client of the client company interests us all: how can we continuously produce innovative solutions to the end-client</i>	4: director and managers from case and client A
Oct. 2009 (6)	shared workshop with customer organizations	discover new ways to co-operate together	(**) visualizing, demonstrations, facilitated group works	interpretative: voicing various views, discovering new meanings, exploring new ways	<i>We have routines for continuous development but we need arenas and practices for innovative co-creation possibilities</i>	30: buyers, sellers, designers, managers, directors from case and client A
Feb. 2010	customer – supplier co-operation	co-operative innovation	discussion	interpretative: diverse views on innovation focus	<i>We need a concrete focus on which we can innovate together</i>	7: director and managers from case and client B
April & August 2010	common theme for co-operation	agreement of the development work	discussion	analytical: the theme divided into three sub-themes	<i>What kind of practices do we need to continuously produce innovative solutions together</i>	6: managers from case and client B
Sept. 2010 (7)	shared workshop with customer organizations	discover new ways to co-operate together	(**) visualizing, (***)demonstrations, facilitated group works	interpretative: ideation of new products and practices	<i>If not only buyer-seller -pairs but also designers, managers, assistants and operators from our companies could interact, the innovation potential would multiply</i>	45: buyers, sellers, designers, managers, directors from case and client B
Nov. 2010	feedback of the shared workshop	agreement on development actions	action plan	analytical: agreeing on the steps and procedures	<i>We should nominate each other to our strategic development partners</i>	7: director and managers from case and client B

The description of the empirical data concentrates on the narrative methods we constructed and tested. They are marked in Table 2 as (*) textual narratives, (**) visual aids and (***) performances. The phases in which they were used are numbered from 1 to 7 in Table 2.

Phase 1

The first interpretative phase was storytelling sessions for occupational groups. We used theatrical pictures (see Fig. 2) to assist in the storytelling. The participants interpreted the pictures as images of/from reality: “Imagine that these pictures are a description of what happens in your company”. The stories were told in three stages. Firstly, individual stories were told in writing. Secondly, the participants in each occupational group session were asked to group with 4 - 5 persons with whom they usually work together (i.e. CoPs). Then they compiled together their Work Story by organising the pictures and by telling what is being done, when and where it is done, who does it, how does s/he do it and why – to describe an episode that ends in a situation in which the client is dissatisfied. Thirdly, each group presented its story to the others. Through storytelling the members of the same work unit shared their experiences, attitudes, expectations, ideals and ideas related to the organisation and their work. This was followed by a discussion facilitated by the researchers. In the discussion the main themes i.e. the hopes and needs for development emerging from the stories were summed up. Later, based on these stories and summaries the management team made choices and decisions about the nature and focus of the next interpretative workshop.

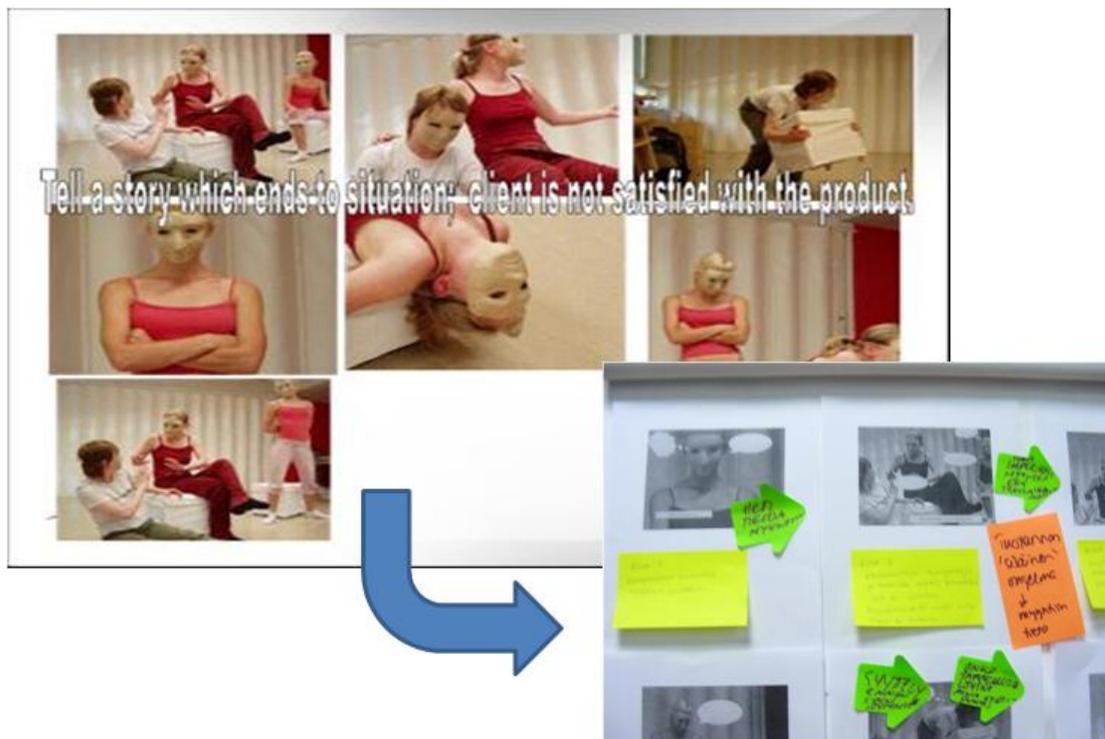


Figure 2. Theatrical pictures used to compose Work Stories

Phase 2

The second interpretative workshop focused on presenting the viewpoints and practices of other CoPs so that they could be discussed and reflected upon together. As a result of the first phase we had fourteen Work Stories illustrating the CoPs' experiences, revealing concrete events, feelings, fears, hopes and tensions. Those were translated into performances – into

as pictures and read aloud. The end of it was still incomplete. The participants discussed in mixed groups about alternative ends for the story and shaped the implementation plan. One representative from a customer organization was attending the workshop and triggered the potential for co-operative development work between the different organizations in the supply chain.

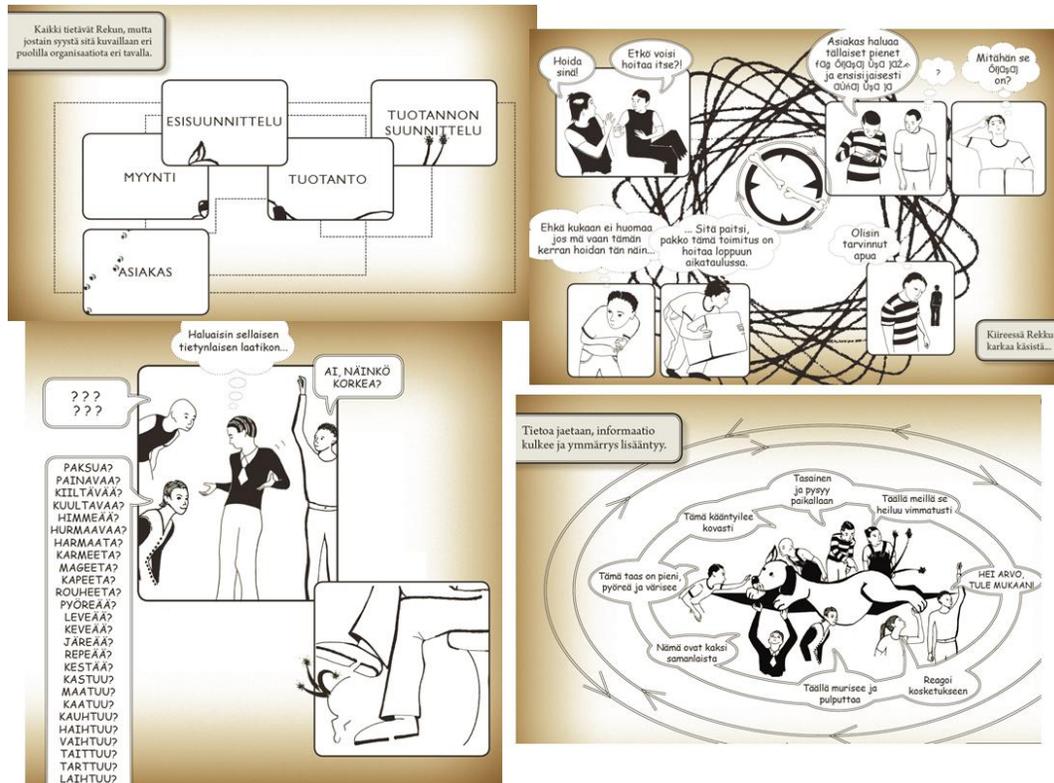


Figure 4. Examples of the recap of the development project as a narrative

Phase 6

Next, we organized a workshop for developing inter-organizational co-operation. In the workshop with the case organization and client company A the participants were facilitated to build mutual understanding of current co-operation practices and to ideate development possibilities. Once again we used narrative and visual elements to facilitate discussion and illustrate practices. The participants worked in mixed groups. First they mapped their current co-operation practices in new product development. Then they were asked to compose a map with a seafaring theme. They were told that they were explorers in the same boat heading to conquer a new paradise island called innovative value-adding network. To conquer that island they had to plan the journey at sea very well. They had to think about who is on the boat, what kind of crew and equipment are needed, what kind of a route is the best, what kind of rocks can come in their way, and what kind of a wind gives them a boost, and what the checkpoints are. The idea behind this was to help them to discuss where they want to go, what they are capable of doing together, how they should co-operate, what pushes them, what obstacles can occur etc. As they composed a game board, they mapped the practices, made a process description and identified the development needs. (See Fig. 5)

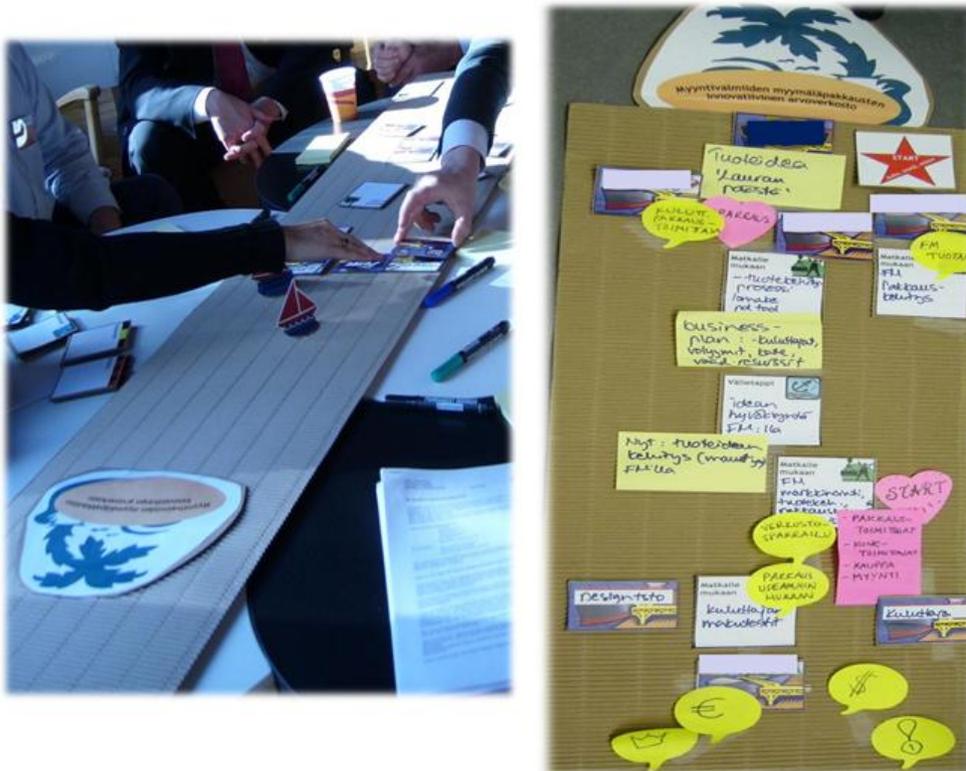


Figure 5. Composing co-operation practices with seafaring theme

Phase 7

In the workshop with the case organization and client company B, visualization was again the core facilitating method. This time we wanted to make the practices of the end-user visible with the help of interviews, films and photos taken in an authentic environment (Fig. 6). Then the participants were facilitated to reflect their practices in relation to the end-users wishes, needs and practices.



Figure 6. End-user's practices

5. DISCUSSION

Narratives were the main representational form of knowledge we focused on. In the beginning of the process (phases 1 and 3), composing narratives aimed to make own practices and presuppositions visible and discussable, and thus changeable. The participants composed stories in writing, told them to each other, and discussed and reflected upon them. As the stories were made with pictures as a series of events, like strip cartoons, they facilitated the reflection and identification of critical points in the chain of events. This kind of a visual process description seemed to be easily accessible to business people who were familiar with mapping business processes. The descriptions of the situations were thick, loaded with details. Using theatrical pictures which illustrated feelings, tensions between people and power relations made emotions and attitudes visible and discussable as well. But using pictures had its risks as well. We as researchers could affect the story through the selection of pictures. For example, if there are only happy-and-harmony pictures or quarrel-and-fight pictures available, the stories are guided correspondingly. In the selection of the pictures we tried to avoid this by picking out ones that could be open to many kinds of interpretations.

Visual aids were used for other purposes than composing stories (phase 1) as well. It was natural that the real life photos illustrated the viewpoints of the customer organizations (phase 3) and the end-users (phase 7). But mainly we appreciated visualization aimed at sketching complex issues, chains of events (phases 1, 5 and 6) and illuminating relationships between elements (phase 4). As Osterwalder and Pigneur (2010, 148) have stated, capture of the big picture of systems in which one element influences the other is easier by visualization. Visualizing the process helps to transform it into a conceptual anchor to which discussion can be attached. So the discussion is shifted from the abstract toward the concrete. We agree that visual depiction helps one to notice logical gaps and to discuss different options. It makes the issues tangible and allows for clearer discussions and changes. In addition to this, visualisation makes the outcomes of the interpretative process memorable in themselves. Of course, visual representations are not always extracted by non-participants without explanation, but they make the sharing easier.

To present the narratives to a large audience for discussion and reflection, we turned to theatre and performative actions (phase 2). We wanted to offer a shared space and place to reconstruct, and presented narratives as dramatized frames. We followed Boal's ideas of "making thought visible" (Boal 1995, 137). Performative actions do not bring something out in an organization, rather, it is more like "making representations visible". The use of performative actions was considered as mirror-like reflections of realities, window-like showing of hidden aspects, and the active-audience moved from mere reflection to doing (Meisiek and Barry 2007). By presenting narratives as scenes, the narratives can embrace many kinds of expressions: actions, gestures, feelings, attitudes, fears etc. This kind of rich and lively expression of different world views and practices between various CoPs fosters the reflection, nurturing and sharing of a rich multi-voiced understanding. However, it is essential to recognize the power of this kind of interventions. Performative actions might be dangerous manipulation tools for management (Nissley, Taylor & Houden 2004). Keeping this in mind, it was our aim that the participants became aware of their practices and regained the authorship of their professional conduct. This in turns requires to alternate cycles of thoughts and representations around the current work practices (becoming aware of their own practices and meanings at work) with cycles of action and changes (becoming "authors" of

their own workplaces) (Gorli, Scaratti & Nicolini 2010, 14) We noticed that the outcomes of this workshop were the most difficult to report and describe to others. We made a videotape (10 minutes) and wrote down the presented ideas but the richness and thickness of the discussions were hard to articulate.

The findings of our study support the assumption that the challenge of innovation management lies in the interface, especially how to open the interpretative world to the analytical world. Although we have mainly concentrated on methods and tools, we want to emphasize the coherence of the whole process design. There is no single tool for managing practice-based innovation processes. The process is continuous, swinging between interpretation and analysis, and the phases presented in our case as either or, are not categorical. Each workshop and meeting had both analytical and interpretative aspects. But those interpretative aspects are not automatically appreciated from the managerial point of view. Our aim was to explore alternative representational forms to the outcomes of interpretation. We emphasize that making practices and sequences visible and voicing various views is essential if organizations want to exploit the innovation potential hidden in the everyday working life and use operational problems as boundary objects.

6. CONCLUSIONS

To manage practice-based innovation as swinging between interpretative and analytical approaches rests on reconciling between them. This reconciliation is a source of new knowledge generation through dialectical form. Naturally it is filled with tensions if different perspectives and different kinds of knowledge are to be combined in a multidisciplinary manner. To manage this as a generative source of innovation requires that bridging actions in the interface of analysis and interpretation be studied.

In this study we discussed narrative methods as bridging actions. The focus was on communities of practice (CoPs) as key sites of working and knowing in organizations. Our process advanced from fostering individual reflection to reflection in CoPs, then between CoPs, first in the case organization and finally between CoPs in the case and customer organizations.

We tested for example individual and collective storytelling, theatrical pictures, the enactment of plays, visual reports, game-like methods and other narrative approaches. Often we used a mixture of different methods. Combining representational forms aimed at creating something that none of the forms is capable of creating alone.

Table 3 below presents a summary of the results of our study up from a managerial point of view. The critical points for bridging actions are suggested, and the intermediary methods used in the interfaces of analytical and interpretative processes are identified.

Table 3. Phases and methods to bridge interpretative and analytical modes of practice-based innovation

Critical Phase	Method	Bridging interpretation and analysis
Felt development need (operational problem) as a boundary object: making conceptions (practices, routines, views, attitudes) of each CoP concerned visible and voicing their needs, hopes and fears	<ul style="list-style-type: none"> - Composing stories (individual stories and stories of CoPs) - Sketching current practices 	Identifying <ul style="list-style-type: none"> - critical points - gaps - focus and themes of development → multiple viewpoints of the roots of the operational problem
Understanding that own conception of the operational problem is only partial: becoming aware of others' conceptions, views and practices and thus understanding their needs, hopes and fears	<ul style="list-style-type: none"> - Telling - Visualizing - Performing of the stories 	Sharing <ul style="list-style-type: none"> - knowledge - feelings - attitudes - actions → understanding complexity of the operational problem
Co-creating new knowledge about the operational problem: sharing, nurturing, reflecting and reinterpreting together to reach multi-voiced shared understanding	<ul style="list-style-type: none"> - Mapping practices - Sketching sequences - Visualizing nature and color of relationships 	Proposing <ul style="list-style-type: none"> - actions - procedures - tools - roles → framing new collaboration practices
Evaluating the progress and outcomes of new knowledge creation concerning the operational problem together: discussing the development of new collaborative practices	<ul style="list-style-type: none"> - Composing and sharing stories - Mapping practices - Sketching sequences - Visualizing nature and color of relationships 	Assessing <ul style="list-style-type: none"> - changes - needs for further development → redirecting implementation

We consider the practice-based innovation process as constant swinging between interpretation and analysis. Knowledge leveraging, sharing, meaning-making and co-constructing as well as making decisions about resources, timetables, responsibilities, targets and evaluations, are constant processes. There is no comprehensive management method or approach to link them. We agree with Van de Ven and Johnson (2006, 808) in that 'Once different perspectives and kinds of knowledge are recognized as partial, incomplete, and involving inherent bias with respect to any complex problem, then it is easy to see the need for a pluralistic approach to knowledge coproduction among scholars and practitioners.' And among analytical control-oriented management and interpretative shared leadership, we may add.

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