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By Ph.d. student Susanne Justesen
Research Center for Business Development and Management
Copenhagen Business School

SUPERVISOR: Mette Mønsted
OPPONENT: Finn Hansson

Understanding the role of diversity among practitioners in innovation practices

ABSTRACT: This Ph.d. project explores the role of diversity among the actors in and around the innovation practice. The purpose of the research project is to apply and use this understanding of diversity in innovation to challenge and rethink corporate innovation management practice.

Project subject area

With innovation and innovative practice being an important challenge to most organizations in the decades to come, and diversity being a natural consequence of changing demographics and the increase in available knowledge disciplines; the relationship between innovation and diversity seems to be a highly relevant issue for most organizations. However, even though most of us would intuitively agree that diversity is important to innovation, most diversity scholars would still contradict this notion (Cox, 1993; Brewer, 1991; Tajfel, 1982; Basu, 1999; Armstrong & Cole, 1995; Northcraft et al, 1995; Schneider, 1987), based on the premise that diversity discourages personal relations and identification in groups.

The more empirically based studies have primarily aimed to establish whether diversity seems to enhance or reduce innovation performance or not, with the majority of them being American studies, conducted more than a decade ago – but who found that in many cases, diverse groups do seem to outperform more homogeneous groups. Noteworthy among these more quantitative studies are Ancona & Caldwell (1992), who studied diversity in 42 New Product Development (NPD) groups; Keller (2001) who studied diversity in 93 NPD groups, and Olsen, Walker & Reucket (1995), who studied diversity in 45 innovation groups. What these studies showed was, that diverse groups show significantly increased performance (compared to more homogenous groups) in terms of 1) the technologies and solutions they came up with, 2) their ability to maintain budgets and their ability to stick to and stay within the deadlines (faster deliveries). They did not explain why and how this came to be, as their research was mainly quantitative in approach. But what they did find was a certain causality stating that diverse NPD groups in their studies seemed (on average) to outperform their more homogenous counterparts, in terms of technologies/solutions, budgets and deadlines.

The focus of my research is not to establish such a rationale or causality, but rather to explore and understand how and under what circumstances the available diversity is constructed and used in innovation practice, and when it is not.

The ability to benefit from diversity in innovation becomes increasingly important, when innovation is defined as the practice of exchanging and combining existing knowledge from previously separated knowledge domains in new ways (Nahapiet & Ghoshal, 1998; Hargadon & Sutton, 2000; Justesen, 2001). I am using the term 'domain' in this context to describe the content of a particular field of knowledge, such as for instance 'protein design', 'fungal screening', 'Danish', 'Old' etc.

When innovation practice is described in this way, the ability for innovation practitioners, e.g. the people involved in innovation projects and initiatives, to connect with people from different knowledge domains, becomes increasingly important. However, among innovation scholars, the focus in most innovation studies however, takes primarily interest in the processes *prescribing* innovation (e.g. stage gate, TRIZ, Six Sigma

Innovation etc), rather than the actual practice and relations among the actors involved. Diversity among innovation practitioners – e.g. when they adhere to different knowledge domains - thereby becomes an embedded part of most innovation initiatives and projects.

Innovation practice relies very much on the existing knowledge networks in an organization, and how such networks of conversation allow for or prevent different domains of knowledge from being connected in new and meaningful ways. Drucker (1985) argues that it is exactly the organization, understood as the patterns of relationship between people in that organization (Stacey, 2001), which provides the most important premises for innovation. Innovation practice is however not merely about getting new ideas and generating new inventions, but equally about the successful exploitation and diffusion of that invention. Amidon (2002) further strengthens this perspective when she defines innovation as the practice of creation, conversion and commercialisation. Innovation practice can thereby be defined as what takes place in the ‘practice’ expected to lead to innovation, when such practice is constructed with the intention of it leading to the successful development and launch of a new product, service or process. The innovation practice studied in this project can accordingly be ‘categorised’ according to the innovation height (incremental or radical). This categorization is done by the practitioners involved, at the beginning of the project, (to identify the ambition/ intention) and closer to finish, to understand the outcome of that practice, and to see whether that practiced lived up to the initially defined intentions, as illustrated in fig. 2. below:

<p><i>New technologies In existing markets</i></p>	<p>RADICAL <i>New technologies In new markets</i></p>
<p>INCREMENTAL <i>Existing technologies in existing markets</i></p>	<p><i>Existing technologies In new markets</i></p>

Fig. 2, Illustrating different innovation heights, from incremental to radical innovation projects

In the field of knowledge management, one of the important aspects of innovation and new knowledge creation is cohesiveness and social capital, i.e. interaction and personal relations (Nahapiet & Ghoshal, 1998; Prusak & Lesser, 1999; Kogut & Zander, 1992; Nonaka & Takeuchi, 1995). Nahapiet & Ghoshal (1998) for instance describe social capital as a necessary condition for innovation; as necessary condition for combination and exchange to lead to innovation. Their theory is used to describe the organisation as conducive to the existence of social capital, and social capital as an important condition for innovation (Nahapiet & Ghoshal, 1998), thereby implying that innovation requires cohesiveness.

Diversity among innovation practitioners, therefore potentially forces a paradox, in that diversity and cohesiveness can be described as mutually contradictory elements, creating what I have chosen to define as the 'Innoversity (innovation-diversity) Paradox', as illustrated below. This paradox describes how both diversity and cohesiveness can be seen as important conditions for innovation (Justesen, 2001), while at the same time seem to oppose each other and thereby become mutually exclusive phenomenon.

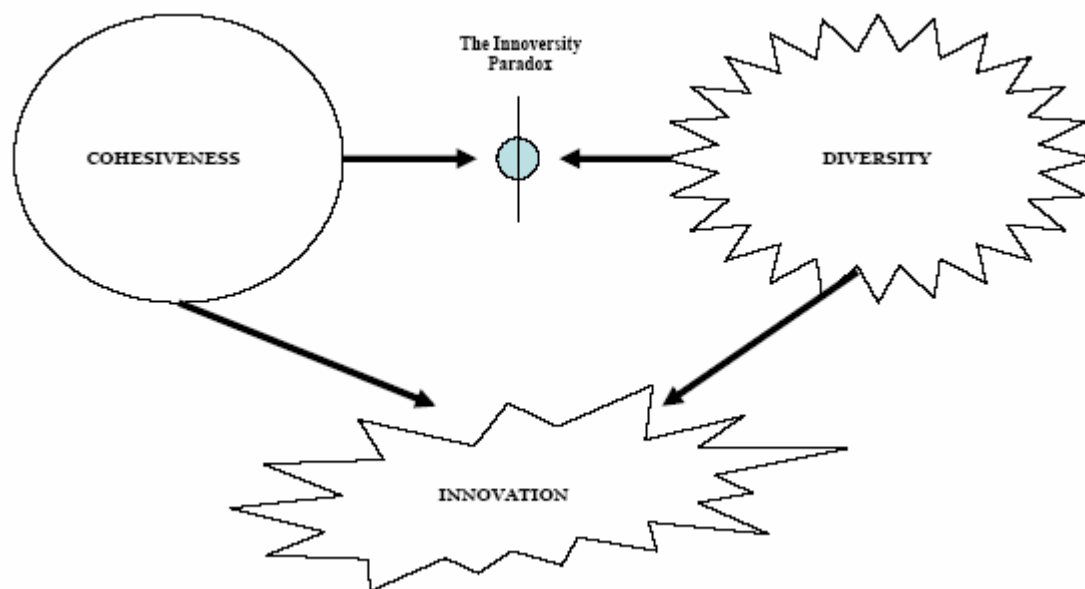


Fig. 1, Illustrating the mutually exclusiveness of diversity and cohesiveness, hence the Innoversity Paradox

The most important reason for this contrast between cohesiveness and diversity, is that people are attracted to others perceived to be similar to them selves, and seem to generate a bias and an negative 'us-them' categorization of dissimilar others, which discourages personal relations and identification, i.e. cohesiveness (Cox, 1993; Brewer, 1991; Tajfel, 1987; Basu, 1999; Armstrong & Cole, 1995; Northcraft et al., 1995; Schneider, 1987).

We do however have very little understanding of the *practice* that provides for diversity to be leveraged within a group; and how to benefit from diversity in innovation still remains very much a black box; and bearing the Innoversity Paradox in mind, it is a black box that seems worth while exploring further.

Research question(s)

(1) How is diversity [and homogeneity] constructed and deconstructed, activated and de-activated among the practitioners involved in corporate innovation practices; and (2) how can we use and apply this understanding of diversity in innovation to rethink corporate innovation management practices?

Research question (1) directs the first phase of the research, e.g. the explorative analysis which aims to direct my pre-understanding of the phenomenon of diversity, and serves to gain insight into the practice in which diversity is constructed and deconstructed, and how the constructed diversity [and homogeneity] affects the innovation practice in question. This initial explorative analysis therefore also serves to guide the final formulation of the second research question and its underpinnings.

Research question (2) directs the second part of the research, e.g. the action oriented part of the research, which serves the purpose of re-thinking existing innovation management practices to address the construction and deconstruction of diversity, and use these insights to become better at navigating between homogeneity and diversity in the innovation practice, guided by the contextual insights from the explorative analysis in the first part of the research.

Situating me, the researcher

As a gendered researcher, I of course, conduct my research from a particular class, racial, cultural and ethnic perspective, hence I will be approaching these research questions with a certain framework which specifies exactly that set of questions, which are then examined in a particular way (Denzin & Lincoln, 1998).

As a researcher I am “bound within a net of epistemological and ontological premises which – regardless of ultimate truth or falsity – become partially self-validating” (Bateson, 1972:314), and situates me as a multicultural subject, adhering to a certain framework or paradigm, described as “a basic set of beliefs that guides action” (Guba, 1990:17). According to Denzin & Lincoln (1998) there are four major interpretive paradigms within the qualitative research tradition, to which I adhere, e.g. positivist and post-positivist, constructivist-interpretive, critical, and feminist-post structural. The constructivist-interpretive is the natural (and given) choice in carrying out my research, as it assumes a relativist ontology with multiple realities, a subjectivist epistemology and therefore also a practice-based set of methodological procedures.

Cases and contexts for conducting my research

One of the primary challenges of this project is the relatively large amount of cases, which seems to be equally good and bad in conducting the research, as it provides for endless opportunities in the potential routes of inquiry, now that I am in the relatively rare position of actually having access to a series of very different innovation cases – which I as a researcher, feel compelled to explore. Studying innovation practice in itself is a rather difficult task, as only in hindsight, will I know whether this particular incidence proved critical in what happened next, which requires for me to limit my study to the incidents I see and experience in a practice constructed to lead to innovation. Therefore, the cases as such are in continuous flux, some of them are already over and done with, some of them have barely started, but as they are very much directing

my strategy of inquiry, as the practice itself is being defined along the way, I found it relevant to briefly define each of the innovation settings being studied in the project:

ARLA Foods - Within ARLA Foods I am studying the practice of re-inventing existing product categories, by studying this practice as it evolves in two different product categories, which have been turned into formal innovation projects. Each innovation project runs over a period of approximately 5 months, with full day meetings approximately every month, which in the first group resulted in a total of 40 meeting hours from beginning to end. Each group consists of people from Sweden and Denmark, from R&D and Marketing, with a professional project manager appointed by R&D to guide them through the process. The first innovation project was facilitated by a London-based consulting group and took place between January and June 2005, while the second innovation project is without such facilitation, and is expected to take place from January through April 2006.

Danish Broadcasting Corporation (DR) – At DR I am studying the practice of developing new TV programs, with the case in question being the development of a new documentary program, which is expected to experiment with, and transcend, the traditional borders of the documentary genre. The practice studied involves a group of five people, with rather different backgrounds, and their struggle to re-invent the documentary genre. They started working on this new program in August 2005, and the documentary series is expected to hit the national TV screens in September 2006. The program development practice involves an ideation phase, concept development, ideal-case development, research –phase (looking for the cases), scripting, planning, recording, editing, test-screening, and final cut.

Jyske Bank – Within Jyske Bank I am studying the practice of innovating new financial solutions, with the case in question being the development of new investment solutions. Jyske Bank is divided into four units: Domestic, Jyske Markets, Jyske Asset Management and Jyske Finance, and traditionally business development and innovation initiatives have been located within each of these divisions. The innovation practice studied at Jyske Bank is however a new innovation project spanning three divisions, e.g. Jyske Domestic, Jyske Markets and Jyske Asset Management, with the aim of developing new financial services that can be applied and used within all three of these traditionally separate business units. The project involves a large group of people at both higher and lower organizational levels within the three business units, with approximately 50 people being involved from the three divisions.

LEO Pharma – Within LEO Pharma I am studying the practice of innovating a new dermatological solution, expected to cure or at least minimize the sufferings of patients diagnosed with a particular form of dermatological allergy. The innovation project in question was launched in December 2004, and was finalized in October 2005, in which a group spanning different divisions within LEO was asked to present R&D Management with ideas as to how LEO could enter this new market. The process involved an initial screening of the existing dermatological solutions in this particular area, e.g. identifying existing treatments

and primary customer issues of concern, and to then come up with a list of ideas and targets. If any of their ideas or suggestions would then be accepted by R&D Management, these ideas would then be handed over to another group, who would then take on the process of discovery and development.

LEGO Vision Lab – Within Vision Lab I am studying the practice of innovating future scenarios, to be applied and used by LEGO Company when developing the toys of the future. The challenge of this particular case is that while conducting my research, the Vision Lab was almost closed down, or at least reduced to a very small percentage of the original idea – because the director of Vision Lab decided to leave LEGO after only two years with Vision Lab. I already have a series of very interesting interviews from Vision Lab, but am awaiting permission from top management, as to whether I can pursue this case any further.

Novozymes – Within Novozymes I am studying the practice of innovating a new enzymes, with the case in question being a project involving scientist from four different scientific disciplines, from five different countries of origin, and working in three different R&D sites in Denmark, Japan and the US. The idea, from which this high-profiled innovation project emerged in the spring of 2003, was initiated as an innovation project in the autumn of 2003, after cautious skunkwork in at least two different sites (US + Japan) and is expected to be launched by fall 2006. The project is very much of a high risk project, which can potentially – if unsuccessful – end up cannibalizing existing profitable enzymes products.

Research strategy

In order to gain insight into the role of diversity [and homogeneity] in the innovative practice and to understand how diversity is constructed and deconstructed among the involved innovation practitioners, I as a researcher, have to be situated in that particular innovation practice myself, initially for the explorative purpose of the study [research question (1)], and secondly for the more action-based part of the research [research question (2)]. To understand the practice, I have to situate myself into it, to gradually become a participant myself.

My research strategy for doing that originates from the field of situational learning, and requires me to do so in a process of legitimate peripheral participation in the innovation practice of that particular group (Lave & Wenger, 1991; Wenger, 1998), in order for me to understand the way in which that particular group would construct and deconstruct diversity and homogeneity. This process of gaining insight into the innovation practice of the group, would thereby – according to Wenger (1998) - require my exploration of these four components:

- ☞ Practice (learning how they do what they do by observing and engaging in their practice),
- ☞ Meaning (learning how they make sense of and talk about their world, by experiencing it),
- ☞ Community (learning as belonging, by participating and relating to each of the practitioners)
- ☞ Identity (learning how they negotiate their identities, by becoming a peripheral member myself).

Such strategy of inquiry would therefore put my constructivist-interpretive paradigm into action, in a process which would initially situate me in the periphery of the innovation practice and the group, from where I can then slowly familiarize myself with the practice of the group, and then gradually negotiate my own legitimacy in their practice.

The purpose of the legitimate peripheral participation (LPP) is to gain enough legitimacy to eventually become an active participant in their practice, thereby also transgressing from the explorative phase of the study into the action-based part of the research. The moving towards a certain legitimacy within the group, happens through my participation, e.g. through learning as experience, doing, becoming and belonging as described above, until I have obtained enough legitimacy within the group, to be allowed to challenge them on how they construct and deconstruct diversity within the group. This may, or may not lead to a re-negotiation of the innovation (management) practices within the group, e.g. the action part of the research, and result in a perturbation (Luhmann, 1984) of the innovation practice.

However, each of the four components defined in the research strategy, e.g. meaning, practice, community and identity require different strategies of inquiry, as described below.

Strategy for exploring the community – and its members

To explore the group and the larger community surrounding the innovation practice within that particular group requires me to explore what it is that defines the community AND the practice altogether; and none the least the boundaries of that community. One strategy for exploring this is to study what actually holds the community together. This 'glue' can, according to Wenger (1998) be described as the following three dimensions of the domain: joint enterprise, mutual engagement and shared repertoire, which is continually negotiated and re-negotiated within in the group. But in order to do so, I need to identify who the key practitioners are within this particular domain of practice, to be able to explore what holds it together, but also to explore what is inside and what is outside of that particular community. Only when I know who is at the center and who is in the periphery, who is a practitioner and who is not, will I be able to explore the joint enterprise, mutual engagement and the shared repertoire of this particular community (Wenger, 1998). I have therefore chosen to make use of *organisational network analysis* as the most appropriate strategy of inquiry in exploring the community defining and negotiating this particular innovation practice. This also provides for an interesting insight into how diversity is constructed and deconstructed, through the patterns of knowledge sharing and knowledge seeking, exhibited by both the individual members and the group as a whole.

Strategy for exploring the negotiation of identity within the group

Exploring the construction and deconstruction of diversity to a certain degree also involves the exploration of identity, as the construction of diversity rests at the foundation of the perception of the self, e.g. the identity

construct. Understanding the phenomenon of diversity requires me to consider the role of identity, as perceived, negotiated and constructed by the individual. This definition of diversity is partly based on theories of identity (Tajfel & Turner, 1986; Brewer, 1996), and partly on social psychology (Amabile 1983; Basu 1999; Sherif & Sherif 1969). Our identity and the way in which we define ourselves can, according to identity theories, thus become a social construction through which, in interaction with others, we derive our identity and feeling of self, based on our perceived membership of a certain identity category, which we assume to belong to (Basu, 1999). It is in the process of making different social categories become salient within the group, that diversity is constructed and deconstructed, in a dynamic process of negotiation and re-negotiation between the individual and the collective (Raghuram & Garud, 1996). However it is important to stress that the unit of analysis of identity should not be the community or the individual, but rather “must be the process of their mutual constitution” (Wenger, 1998:146). Thus exploring the negotiation of identity, also requires the exploration of ‘available’ social categories within the group, and thus both *quantitative measures of diversity characteristics* (age, gender, educational background, organisational affiliation, profession etc), and the participant observation of how these different categories are constructed and reconstructed within the group, together with interviews with each of the members to understand how they make sense of these differences within the group.

Thus, the research strategy and the research design requires quite a balancing act among these different strategies of inquiry, in order to be able to situate myself in each of the innovation practices, to explore how they construct and deconstruct diversity in each of these highly different practices. The process of legitimate peripheral participation serves both to explore and answer my very first research question, while at the same time it is about gaining the appropriate legitimacy to engage more actively in the practice of the group.

Strategy for exploring the practice of each group

To explore the practice and the domain of a particular group requires me to initially familiarize myself with their domain, before ‘entering into’ the practice field as such, usually through *studying relevant texts* about their practice, and through engaging in dialogue with people on the outside of the group to get a rough understanding of the basics and fundamentals of their practice. But the most important part, e.g. the social practice which connotes some kind of *doing*, involves entering into the practice field itself. This exploratory fieldwork is conducted primarily according to anthropological principles, e.g. as an open and circular approach, initially being highly exploratory, but progressing into becoming more and more focused. This provides for quite an open and grounded approach to the emerging practice. An important strategy of inquiry for exploring this part of the innovation practice therefore becomes *participant observations* within each of the groups.

Strategy for exploring meaning and sense making within each group

To explore the situated experience and the negotiated meaning within the group, requires me to experience the meaning of everyday life within the group, perceived as the continuous negotiation of meaning (Weick, 1995), enacted through the process of participation and reification within that particular group (Wenger, 1998; Bouwen & Steyaert, 1999, Steyaert et al, 1996). Problems, which are usually what direct our engagement in a practice field in the first place, are constructed from problematic situations, and “in order to convert a problematic situation to a problem, a practitioner must do a certain kind of work. He must make sense of an uncertain situation that initially makes no sense” (Weick, 1995).

Through participant observation I am able to explore how each of the members participate in the negotiation of meaning, and how that participation and construction of different meanings and artifacts may then be reified into artifacts and narratives, e.g. boundary objects within the group, to which they can ascribe both collective and individual meaning. A relevant strategy of inquiry for exploring how they each make sense of their practice is a combination of *participant observation*, through which I can derive artifacts, incidents and narratives; and interviews, through which I can then discuss these observations, both with each group members in *individual interviews*, and in the group meetings, through the use of *research workshops*.

As becomes evident from the description of each of the seven cases earlier in this paper, the cases in the project do have quite a lot in common, while at the same time being very different and situated in very different context. Therefore the strategy most effective for answering the research question will be different in each of the seven cases. They all do however draw on similar strategies and methodologies, but are combined, mixed and applied differently in each case. So for the purpose of this seminar-paper, I have decided to use just one of my cases, the Novozymes case, to describe what particular methods of collection I found appropriate and relevant in that particular context.

Methods of collection

“As management scholars have pointed out, espoused theory tells us little about real behaviour; we need to study theory in practice – i.e. view the actions that reflect managerial attitudes and values (Leonard, 1998:5). So to illustrate my method(s) of collection, I have chosen to describe how I am applying and using the different methods in the case of Novozymes (NZ). I need to stress however, that I below, am distinguishing between the analysis of community, identity, practice and meaning, just as above, for the purpose of clarity. These methods are carried out in parallel, and therefore do not as such describe a certain timeline, in terms of what method is applied first.

Exploring the practice: In February 2005 I was introduced to the Project Director (PD) of this particular R&D project, and gradually familiarized myself with the project, the history and none the least, the enzyme. This exploratory phase initially involved reading whatever written material I could find to familiarize myself just a little with the enzymes language, before entering into it directly. Several people within NZ were kind

enough to guide me through this process, just as I also had to draw upon a good friend of mine, a molecular biologist, who could explain some of the more complex aspects of the enzymes world. The group had approximately 10 members at this time, and because these members were located in Japan, US and Denmark, they did not meet very often. So I had a couple of months to familiarize myself with their practice, before the first opportunity to participate directly arose. In April 2005 the whole group met up for the very first time in Tokyo, and I was invited to join them for this meeting, to engage in participant observations with the group.

My method of collection for these participant observations was initially to be the quiet observer (at the periphery), and create my so-called *field text*, which consists of field notes (see example below in Illustration A), and other relevant artifacts such as pictures or documents (meeting agendas etc):

KW: "This is a big improvement from 6 months ago, ha?" (HvDA rubber smile)

JvDa taler stadig mejet til NE, men opê hl GC, og genet' bluer, der, nihket mejet midt i lokalit under ppt Cisar AB, KW, NE,

AV:27 HE "sorry guys, I will call you again later, I have a hard time hearing... I can hardly hear the ppt. I will call you again for the discussion..."

Figure 3: Example from raw field notes from meeting Japan, April 13th 2005

These texts are often written up as quick notes on my Tablet PC, where notes from dialogues among participants is written as either quotes, accounts, observations of actions, body language etc. Situations where I engage directly in conversation with informants will be written down as summaries of those conversations.

These field notes are then turned into *research text*, now also including different analytical notes and reflections, and keywords which will allow me to do keyword searches in my field texts on the PC afterwards. All of this is printed on top of the original field text. This is done as soon as possible after the participant observation. For instance, at the meeting in Japan on April 13th, I would then work my way through the field notes in the evening of the meeting, thereby turning them into research texts. See illustration of the converted text in Figure 4. below:

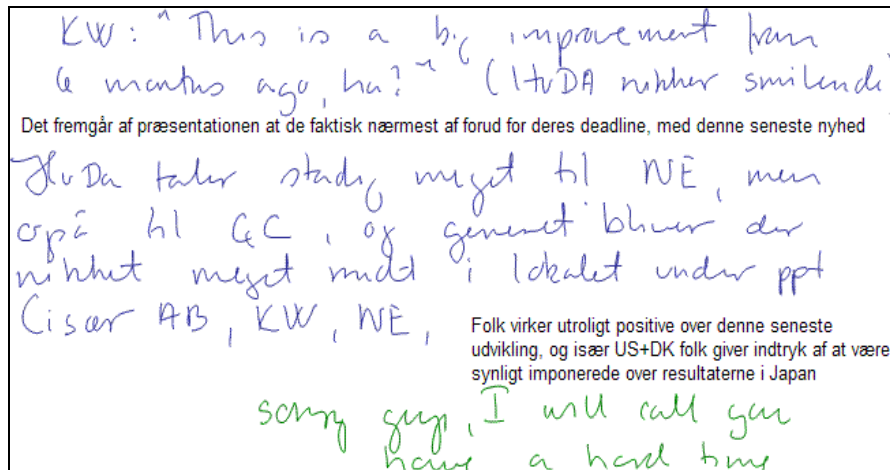


Figure 4: Illustrating how the field text from Figure 3, has now been turned into research text (which can be keyword searched)

This process of turning the field text into research text involves adding for instance, reflective notes and analytical remarks, and when working through the field text, also remembering additional conversations that I did not write down right away, either because they did not feel important at the time, or because I simply did not have the time to write everything down. The participant observations would therefore be documented using the following steps:

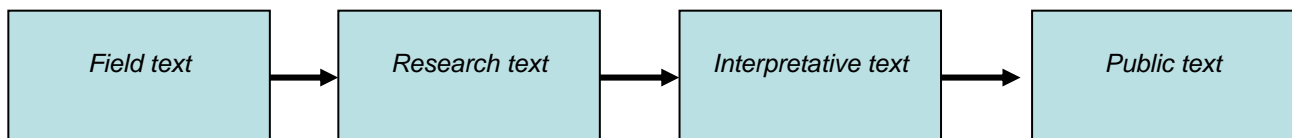


Figure 5: The use and interpretation of participant observation texts, where the text you are reading now is the public text

The group does of course not meet very often, but when they do, I am doing participant observation, and will gradually become more actively visible in the practice for every time we meet. Until now, I have been doing participant observations with the whole group for four days in Japan (April 2005), one day in Denmark (May 2005), and for two days in North Carolina, US (October 2005), which has resulted in approximately 90 pages of raw field notes, and about 120 pages of research text. With both the meetings, but also the relevant incidents during dinner or in the bar provide for important insights into their practice. This form of legitimate peripheral participation, where I have gradually been legitimized in the group, allowed for me to attempt the first research workshop with the group in North Carolina in October. This research workshop involved direct feedback (not just casual as is provided more often) on my meta-observations of their innovation practice, used to generate more data about the potential perturbation of their practice. The workshop lasted for approximately an hour, and resulted in new meta data about their practice.

Exploring meaning and sense-making – At the very first meeting with all of them in Japan in April 2005, I was able to identify several interesting incidents in which diversity was constructed in the group, and other incidents where diversity was deconstructed [homogeneity was constructed in its place], which gave me some interesting incidents of the group seeking to negotiate and re-negotiate meaning. Some of these incidents, I would then later (the following days) be discussing with some of the group members, to explore how they each made sense of what took place in that meeting. In Japan, I was pleased to be able to engage in active dialogue (open-ended 1½ hour interviews) where I would ask each of them to describe to me, in their own words, what the project was all about; the meetings the day before; and none the least I would ask them to explain to me how they would describe (make sense of) two separate critical incidents I had observed through the participant observations in the meetings. The methods of collection was therefore a circular process combining participant observations with constructive dialogue with the group members; through the individual interviews and through the research workshops with the whole group. I will be conducting a second round of interviews with each of them in the spring of 2006.

Exploring and identifying the members of this community – In order to define the community of practitioners within Novozymes R&D, who seem to play a key role in the practice of this particular community, I am conducting an organisational network analysis (ONA) within Novozymes. An initial pilot ONA was conducted in October 2005, with the full-scale ONA taking place in November 2005. The analysis serves the purpose of identifying who is connected to whom, and who is not connected to whom. There are app. 500 scientists in NZ R&D, located in Denmark, US East coast, US West coast, China and Japan. All of these scientists (not administrative personnel in R&D) are receiving a questionnaire with the following four questions, each identifying a network of its own – to frame the overall community of practitioners:

- ☞ Who did you talk to within Novozymes R&D during the past 6 month? (=> *the social network*)
- ☞ Who did you talk to about enzyme X within Novozymes R&D during the past 6 months? (=> *the enzyme 'X' community*)
- ☞ Who did you talk to about other enzyme related issues or technologies during the past 6 months? (=> *broader advisory network*)
- ☞ Who did you talk to about new potential NZ ideas, e.g. new applications and /or new technologies? (=> *innovation network*)

Such ONA provides for a thorough exploration of not only the boundaries of the community in question, but also of patterns of communication and connections between the inside of the community and the outside, and illustrates what diversity within NZ is activated and used, and what diversity is not.

KNOWLEDGE SHARING ABOUT █████ – ANNUALLY

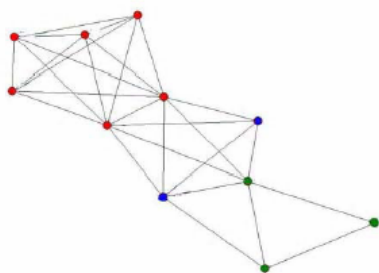


Fig. 2: Anonymous example illustrating knowledge sharing about █████ within the group on an annual basis, among the different R&D sites (Japan – Franklinton – NZAS)

WEEKLY KNOWLEDGE SHARING ABOUT █████

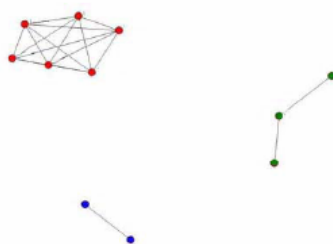


Fig. 3: Anonymous example illustrating knowledge sharing about █████ within the group on a weekly basis, among the different R&D sites (Japan – Franklinton – NZAS)

MONTHLY KNOWLEDGE SHARING ABOUT █████

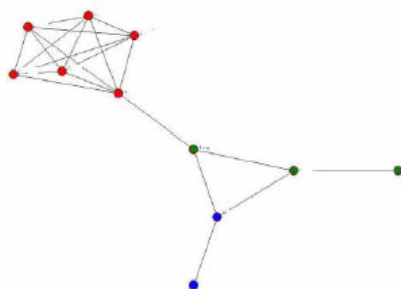


Fig. 4.: Anonymous example illustrating knowledge sharing about █████ within the group on a monthly basis, among the different R&D sites (Japan – Franklinton – NZAS)

DAILY KNOWLEDGE SHARING ABOUT █████

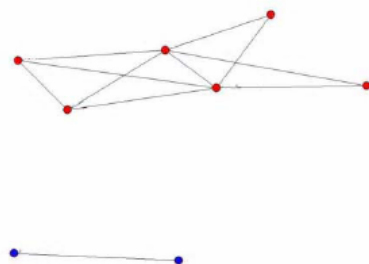


Fig. 5: Anonymous example illustrating knowledge sharing about AMG within the group on a weekly basis, among the different R&D sites (Japan – Franklinton). No daily knowledge sharing in NZAS about █████ among group members.

CONFIDENTIAL

Figure 5: Communication patterns within the group, to illustrate patterns of communication between the three R&D sites

In the research workshop conducted in North Carolina in October, when reporting back on the ONA, this ONA actually facilitated my own participation in the practice of the group (see Figure 5 above). Using a visual like this in guiding the discussion of their innovation practice, proved highly valuable, and it became quite clear that using a quantitative method of collection with this group of ‘hardcore’ scientists proved valuable in providing a certain degree of legitimacy to the research I am conducting with them.

Exploring the negotiation of identity – Since the construction of diversity is very closely related to the construction of identity, exploring identity and identity construction within the group provides for two very different methods of collection: quantitatively measuring the available diversity properties and observing how they negotiate diversity in practice (as described above). The measurable diversity consists of the different properties usually ascribed to different social categories. This data collection therefore involves identifying and collecting the social categories available within R&D at Novozymes at large, and within the group studied in particular. This method of collection therefore involved gathering data about each of the employees within R&D Novozymes (500 employees) using the following measures:

- 👉 Gender
- 👉 Nationality
- 👉 Age
- 👉 Educational background
- 👉 Tenure with Novozymes (in months)
- 👉 Tenure in current position (in months)
- 👉 Employment status (temporary or permanent)
- 👉 Department
- 👉 Hierarchical position
- 👉 Position

With this knowledge readily available, I know which diversity properties can potentially become salient within the group, and more importantly, in combining these properties with the ONA data, I will be able to explore, whether these different properties seem to be important in directing their individual patterns of communication throughout the organisation. At the same time, being able to again observe how each of these properties or social categories are made salient within the group, provides for interesting learnings regarding how such diversity is constructed and deconstructed within that particular practice field. These observations will then, together with the observed patterns of communication (are communication patterns demographically aligned?) be discussed in a constructive dialogue with each of the group members, to learn how they make sense of these observations, and to potentially enhance their innovation practice with the insights that these findings provide.

The research strategy and methods of collection described under the headings of Practice, meaning, Community and identity I use to study the construction and deconstruction of diversity in innovation practice, are mutually constituted and mutually inter-connected, and were only separated here for the purpose of clarity. In practice they are inseparable.

And just like those four components are actually inseparable, so is also the case of research questions (1) and (2), which are mutually constituted in a iterative and circular process of asking ever more focused and more precisely formulated questions, in a constructive dialogue with different communities of stakeholders

surrounding my research process. This is especially the case in seeking to answer research question (2): “how can we use and apply this understanding of diversity in innovation to improve corporate innovation management practices?”, which among other things involves: *re-thinking existing innovation management practices to address the construction and deconstruction of diversity, and use these insights to become better at navigating between homogeneity and diversity in the innovation practice, guided by the contextual insights from the explorative analysis in the first part of the research.*

Analytical perspectives

Smircich & Morgan (1982) describe leadership as management of meaning, just as Alvesson (1993) argues that leaders act within a given set of meanings. In this case, the set of meanings studied and described are the meanings derived from engaging in innovation practice, and the negotiation around constructing and deconstructing diversity. Exploring firstly innovation practice, and secondly, the implications of this innovation practice on innovation management, therefore involves a certain degree of dialectic, between the innovation practice in and of itself, and the innovation *management* practice, which can also be described as reduction and amplification (Latour, 1999).

Reduction and amplification is an important theme throughout my thesis work, which is in itself a matter of knowledge creation, whilst at the same time being a study of innovative practice, described as a series of reductions and amplifications (Latour, 1999). Reduction in this context therefore describes how I can only understand the nature of complex phenomenon, when reducing it into less complex parts, which are then amplified in their reference back to the ‘original’ complexity, whereby complexity becomes ‘understandable’ only when focusing on at a distance, what Latour (1999) describes as circulating reference.

In this paper I will not elaborate very much on the analytical perspectives applied, as I found it more important to discuss methods of collection. But in accordance with my constructivist-interpretive paradigm, I am applying Alvesson’s (2003) framework for analyzing interviews, which is centered around eight metaphors, e.g. local accomplishment, establishment and perpetuation of storyline, identity work, cultural script application, moral storytelling, political action, construction work and play of the powers of discourse. This framework is used not only for analyzing interviews, but also for analyzing the different sets of dialogue ‘collected’ during participant observations and in research workshops. Not only in agreement with Alvesson’s (2003) skepticism around the use of interviews as an instrument to dissect, but also in line with the poet William Blake, who claimed that science is all about “killing to dissect”, implicitly regretting that something as valuable as life is being lost to understand something of so little value (Fearn, 2002).

Social robustness and Mode-2 research

According to Nowotny, Scott & Gibbons (2001), the production of new knowledge can be accomplished in two different ways: the traditional, scientific research mode for knowledge production, which they have

labeled Mode-1 knowledge production, and a new way of thinking about science, which they have labeled Mode-2 knowledge production.

In establishing what Mode-2 implies in terms of research requirements, Nowotny, Scott & Gibbons (2001) have identified five characteristics, which together constitute the empirically evident Mode-2 knowledge production:

1. Problem definition (defined in the context of application, and in dialogue with stakeholders)
2. Heterogeneity (multiple stakeholders bring in very different skills and expertise)
3. Transdisciplinarity (knowledge is and should be evaluated and used within multiple disciplines)
4. Accountability (to different sets of stakeholders, both researchers and practitioners)
5. Quality control (not merely scientific excellence, no single criterion, does it add value?)

As these five *modus operandi* of Mode-2 knowledge production indicate, it is important for the researcher to identify the relevant stakeholders of one's research, and continuously interact and maintain a broader dialogue in order to obtain a certain degree of social robustness to the research findings. Such close contact with different stakeholder communities serves multiple purposes:

To continually discuss and challenge the findings, even from a very early stage in the research process, to allow for both a very open problem definition process, and none the least to benefit from the heterogeneity amongst the different stakeholders (*modus operandi characteristics 1-3*).

To be able to contextualize the knowledge produced throughout the research process/practice – and to eventually be able to aim for socially robust findings. This is done by actively engaging with, and establishing a broad network of stakeholders, with whom I can eventually engage in a critical dialogue around my different *claims*, thereby seeking to de-contextualize and re-contextualize my research around each particular community of stakeholders (*modus operandi characteristics 4-5*).

For this purpose I have identified four primary stakeholder communities, with whom I am actively and continuously seeking a constructive dialogue, continuously discussing my interpretations of the innovation practice – and thereby also seeking to add a certain degree of social robustness and de-contextualization of the findings, by engaging thoroughly in this continuous process of negotiation; as an active part of the research process itself. The four stakeholder communities identified are:

1. Innovation practitioners in partner companies (each of the innovation groups participating)
2. Innovation Management in partner companies (3 managers in each company – “the research lab”)
3. International corporate innovation practitioners (Innovation conferences in US, UK and DK)
4. Corporate innovation research community (research communities and relevant journals)

The process of interpretation and presentation therefore gradually involves engaging with each of the four stakeholder communities, as elaborated briefly below:

Stakeholder community #1: Innovation Practitioners involved

This stakeholder community exists in each of the cases described, and in the case of Novozymes, it consists of the innovation group studied, e.g. approximately 10 people. This number however differs from case to case. The constructive dialogue with innovation practitioners is a combination of formalized individual interviews, ad-hoc conversations one-on-one or in larger groups, and the research workshops conducted regularly with each group of innovation practitioners. Needless to say that this stakeholder community is the primary group of stakeholders.

Stakeholder community #2: Innovation Management involved

This stakeholder community consists of three representatives from each partner company, each representing innovation management within their company, with the group being 17 people in total. The constructive dialogue with this community takes place in two full-day seminars every year, one international conference and one half-day workshop following that conference, to create a 'research lab' in which I can discuss present the findings from one case, de-contextualize those findings in the presentation, and thereby re-think current innovation management practices, together with the very people *practicing* them!

Stakeholder community #3: International Corporate Innovation Community

Since very early on in the process I have been actively engaging with (what I have defined as) an International Corporate Innovation Community, by participating in three large innovation conferences:

☞ *InnovateEUROPE in London (November 2004 + October 2005 + Fall 2006)*

This conference draws people from all of the world, very focused on innovation in multinational corporations, but the setting is very small and intimate. I participated in the 2004 conference, and presented in the 2005 conference)

☞ *Innovating With Diversity in Copenhagen (June 2005 + June 2006 + June 2007)*

I am co-organizing this conference myself, together with Bettina von Stamm from London Innovation Leadership Forum, in order to engage in a constructive dialogue with the diversity community AND the innovation community at the very same time

☞ *FORTUNE Innovation Forum in New York (December 2005)*

This conference seems to be one of the largest corporate innovation events of the year, and I look very much forward to seeing what new perspectives this conference will bring about, and hope to engage in a constructive dialogue about my research with this group of practitioners as well.

Stakeholder community #4: Innovation Management Research Community

The constructive dialogue with this community has been very limited thus far, and was initially centered on the complexity and social dynamics people, from my very first academic conference in Italy in the summer of 2004. But I am getting increasingly involved in the Innovation Management research community, aiming at submitting my first article with International Journal of Innovation Management next year. This last stakeholder community therefore will become increasingly important as the project moves on, and as the research project enables me to present some of my first findings next year.

Summing up on what I am doing

With this seminar paper I have described how I am attempting to explore a rather large empirical field around innovation practice and how diversity is constructed and deconstructed within such practice. From this description it probably is evidenced that there are an incredible amount of different trajectories to pursue. As described in this paper, I am situating myself in a constructivist-interpretive paradigm, and am venturing into the difficult balancing of using both highly quantitative and highly qualitative methods of collection, while allowing myself to perceive quantitative 'texts' as merely constructs, which can be analysed using and applying a localist, constructivist interpretive approach.

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