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Knowledge structuring-Knowledge domination

Two interrelated concepts

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“Sociology for me is not only about the big institutions, such as governments, organizations, business firms or societies as a whole. It is very much about the individual and our individual experiences. We come to understand ourselves much better through grasping the wider social forces that influence our lives.” (Anthony Giddens, published at www.polity.co.uk, a leading social science and humanities publisher.)

This quotation helps identify one reason for integrating ideas about knowledge management with concepts from Anthony Giddens structuration theory in the theoretical framework that I use as an analytical tool in this research. Structuration theory concerns itself with the “social forces that influence our lives” and these forces interest me. In the same article Giddens continues: “We live in a world of quite dramatic change... There are three major sets of changes happening in contemporary societies and it is the task of sociology to analyze what they mean for our lives today. First there is globalisation.... The second big influence is that of technological change. Information technology is altering many of the ways in which we work and in which we live. The nature of the jobs people do, for example, has been transformed.... The third fundamental set of changes is in our everyday lives. Our lives are structured less by the past than by our anticipated future”.

In this paper I argue that there is a continuous structuring going on in society. I therefore concern myself with a pair of twin concepts that are interrelated. The first one is knowledge structuring; the second is knowledge domination. These two concepts are of vital importance when trying to understand, assess and monitor implications of transformations of work processes and tools at work.

Keywords: knowledge structuring, knowledge domination, knowledge management, structuration theory, cognitive theories, transformations, information technology, globalisation.

Introduction

The idea behind the practice of managing knowledge is based on us supposedly having left “the information society” and now living in “the knowledge society”. (Lane, 1966, Bell, 1974, Böhme, Stehr, 1986, Drucker, 1993, Castells, 1996, OECD, 1996) OECD has used the expression “the knowledge-based economies” instead of “the knowledge society” and characterised them as “those which are directly based on the production, distribution and use of knowledge and information”. One important difference between “the information society” and “the knowledge society” is that the first one is characterised by low-cost information and general use of information and communication technology while the key factor in the second is mainly investments in people, utilising new information and communication technology.

In my research I argue that there is a continuous structuring of knowledge going on in society due to implementing new information-and communication technology at many workplaces. These ICT-projects are transforming established work processes and influence the mental schemas and resources a knowledge worker uses. They structure and re-structure what is going on. I conclude that how knowledge is structured depends on who dominates over the knowledge exercised. I also conclude that if transformations are the ordinary and routine the unusual state in today's world then management have to reflect over questions such as: How does transformations influence sense-making? What happens with the tacit part of knowledge when routines are transformed so often? Maybe the professional lose perspective and time to reflect when having to work in real-time. Also people react differently to transformations. I believe that a transformed view of the influence transformations have on people's work life makes it possible to research this phenomenon further and then deal with it.

The overall question I have posed in the research I have performed is what happens when we intervene into a knowledge workers daily life. I wanted to know what happened when an anesthesia patient record was upgraded and computerised. I used interviews, observations and reading of documents at four different hospitals, three in Europe and one in USA, to investigate the dynamics in a specific work situation which involved constructing and computerizing an anesthesia patient record.

The research I have performed, that have produced the concepts that this paper discusses, takes place within a framework consisting of knowledge management, cognitive theories and structuration theory, as I describe in the section that follows. Then I will continue describing how I have conceptualised knowledge structuring and knowledge domination. I will also discuss transformation, routinisation and duality of structure. Finally I discuss and summarise this paper in the last two sections.

Knowledge management, cognitive theories, structuration theories

Knowledge used to be personal (Polanyi, 1958/1962), a private good and applied to being. The aim in the knowledge society is to make knowledge a public good, applied to doing and productive. (Drucker, 1993) In this paper I view knowledge as localised and embedded in practice. It is an ongoing social process of construction and collective action in organisations and a cognitive capability that empowers its possessors with the capacity for physical or intellectual action. I want to emphasise that the idea that knowledge is embedded in practice means that it cannot be separated from an individual's engagement in exercising his or her practice.

Structuration theory (Giddens, 1979, 1984) explains in an interesting and illuminating way how daily life in an organisational setting is structured. But one very important criticism of structuration theory is that it is not dealing with knowledge. Knowledge is defined only as "memory traces" of "how things are to be done". (Giddens,1979:64) But more than that it is not discussed as a resource and a structuring phenomenon, or a phenomenon that becomes structured. Inspired by this I believe that integrating knowledge management with structuration theory and theories about sense-making, representations and schema-use fits well with the purpose in this paper which is to discuss concepts and relations between concepts about how the exercise of knowledge of a knowledge worker might be influenced by and influence knowledge management activities. The development of ideas about "knowledge management" is based on the view of knowledge as an economic resource in the knowledge society.(Swan, Scarbrough, 2001) Knowledge management has grown out of earlier research about information management and organisational learning. Information management can be described as the management of information resources, the information of management tools and technologies, or the management of information policies and standards. (Choo, 1998:260) Organisational learning used to focus on people and human resource management while knowledge management is supposed to be something more. It is supposed to improve "factors that lead to superior performance: organisational creativity, operational effectiveness, and quality of products and services". (Wiig,1993)

Different cognitive styles are common for different knowledge workers. (Dervin, 1992, Taylor, 1991, Wilson, 1997) A cognitive style is the same as information processing habits that represents how a knowledge worker thinks, remembers, perceives and solves problems. In addition to the above, a knowledge worker uses a sound, gesture or symbol that stands for or refers to objects, things and concepts in his or her working or private life: It represents it. A representational system has two essential ingredients. (1)The represented world: that which is to be represented, (2)The representing world: a set of symbols, each standing for something representing something in the represented world. To orient him or herself among all information a knowledge worker also uses mental schemas developed in a specific organizational setting.(Giddens, 1984, Fiske and Taylor, 1991) A schema influences the encoding (interpreting and taking in) of new information, memory for old information and inferences about missing information. (Fiske and Taylor, 1991:117) It is a way of organising information about the world relevant to a particular task and can be described as a filtering mechanism. Mental schemas are difficult to change. People often ignore exceptions to the schema, they even interpret the exception as proving the schema. Many of the information-processing advantages of schemas would be lost if they changed at each encounter with slightly discrepant information. But having an incorrect schema is also costly since it can make people insufficient problem solvers. The wrong mental schema can lead one to be inaccurate, biasing encoding, memory, and inference. But still schemas are supposed to be cognitively more efficient than understanding each instance afresh. (Fiske and Taylor, 1991:176)

The structuring of a specific social setting takes place as actors draw on and make sense of institutional patterns of signification, domination, and legitimation to construct roles and interpret persons, objects, and events in their environment. (Giddens, 1984) Thus, as human actors communicate, they draw on interpretative schemes to help make sense of interactions; at the same time those interactions reproduce and modify those interpretative schemes which are embedded in social structure as meaning or signification. Similarly the facility to allocate resources is enacted in the exercise of power, and produces and reproduces social structures of

domination, and finally moral codes (norms) help determine what can be sanctioned in human interaction, which iteratively produce structures of legitimation.

Giddens treat regularised acts as situated practices. Any action that is repeated frequently by a knowledge worker in an organisational setting, like for example performing anesthesia work in the operating room, becomes cast into a pattern, which can be reproduced with an economy of effort. A social order is created. To create a social order around a way to work is an ongoing human production and a way to save energy. It is a way to establish a structure.

Giddens defines structure as rules and resources, recursively implicated in the reproduction of social systems. Structure exists only as virtual memory traces, the organic basis of human knowledgeability, and as instantiated in action. (1984:377) William Sewell (1992) criticises Giddens definition of structure and writes that some resources can not be virtual. Instead Sewall defines structure as “schemas with a purely virtual existence and resources are media and outcomes of the operation of structure”. I use his definition since as an example material resources such as blood cannot be considered virtual since material things by definition exist in space and time. Schemas are defined by Sewell as “generalisable procedures applied in the enactment/reproduction of social life”. Structure is dynamic, not static, it is the continually evolving outcome and matrix of a process of social interaction. If resources are effects of schemas, schemas are effects of resources. Sets of schemas and resources may be said to constitute structures only when they mutually imply and sustain each other over time. (Sewell, 1992)

Signification has to do with what theory of coding that exists. Theory of coding is decided by symbolic orders or modes of discourse. The signification structure is linked to organisational interaction by different kinds of interpretative scheme. Domination has to do with what theory of resource authorisation, and theory of resource allocation that exists. Resource allocation and authorisation is decided by economic institution and political institution. The domination structure deals with various ways of exercising power using different types of resources.

Legitimation has to do with what theory of normative regulation that exists and what legal institution that constitutes the institutional order.

Resources are of two kinds: authoritative resources which derive from the co-ordination of the activity of human agents, and allocative resources, which stem from control of material products or of aspects of the material world. Authoritative resources refer to types of transformative capacity generating command over persons and actors. Allocative resources refer to capabilities and to forms of transformative capacity generating command over objects, goods or material phenomenon. Resources are the media whereby transformative capacity is employed as power in the routine course of social interaction; but they are at the same time structural elements of social systems as systems, reconstituted through their utilisation in social interaction.

Routinisation is the habitual taken for granted character of many of the activities of day-to-day social life. Routine psychologically linked to the minimising of unconscious sources of anxiety is the predominant form of day-to-day social activity. The repetitiveness of activities which are undertaken in like manner day after day is the material grounding of what Giddens call the recursive nature of social life.

Professional and specialist knowledge which is in focus in this paper is a matter of both formal education based on scientific knowledge and skills. (Abbott,1988, Janik, 1994) A

professional has the same education as others in the same field but there are better and less good professionals. The difference lies in their capacity to learn from their experience, of acquiring “tacit” knowledge. Tacit knowledge consists, among other things, of search rules, or heuristics, that identify the problem and the elements consisting of the solution. (Polanyi, 1966:23-24) The key to innovation in the knowledge society is in unlocking the personal, tacit knowledge of the organisations members. But many cognitive capabilities are not easy to articulate explicitly or transfer to others. Codification that involves the exteriorisation of memory might be a solution to this problem. Codification consists in translating knowledge into symbolic representations so that it can be stored on a particular medium. Here advances in information technology-based recording methods are crucial, for they allow representations of knowledge to progress from a “preliterate” stage with gestures and words, to the “literate” with writing and drawing, and then to “post-literate” stages of modeling structured interactions.

A “technology” can be physical objects or artifacts, activities or processes, what people know or what they do; one example is the “know-how” that goes into operating a device in the operating room. (Bijker, Hughes and Pinch, 2001) Implementing technology right into a knowledge workers daily life influences established patterns of action. Tools like for example computerized patient records might confuse employees, alter social relations and manipulate with cognitive abilities. They might even change the ease of solving a problem. (Norman, 1993). Inspired by structuration theory (Giddens 1979; Giddens 1984) and social constructionism (Berger & Luckmann, 1966) technologies can be seen as human artifacts, produced and reproduced through human action, which both constrain and enable human action.

Conceptualising Knowledge Structuring

In our heads we always make plans for what to do, how to do it and what to do next. There is even a specific place in the frontal lobe of the brain that is vital for planning. Exercising knowledge is a structured activity. When an organisational setting is structured the knowledge that is exercised in this setting also becomes structured. In my research I have showed how an anesthetist exercises the practice of anesthesia in a structured order at a certain space. (Beckerman, 2006) When upgrading and computerising the anesthesia patient record an additional structuring of how knowledge is exercised takes place. Then I point out that the next question is how this structuring influences the practice of performing anesthesia. In the knowledge society the aim is to get access to the knowledge of a specialist, not making it person-dependent. Codifying knowledge, trying to make it explicit and store it on a medium to make it available to others, is considered a core activity. This is based on a view of knowledge as something accessible for everybody. *“Now we can study and discuss what happened if there was a problem during surgery even if the person who did it isn’t here”*, says one of the anesthetists I interviewed in Austria. *“Computerised documentation makes it possible to go back and study the course of an anesthesia minute by minute”*. But to me it is obvious that codifying knowledge also implies a structuring of knowledge. To codify knowledge means to make the different elements of an act of knowledge visible and organised in a certain order.

As an example employees are forced to define work routines for one element of performing anesthesia, such as dilution of medication. In anesthesia there are many problems that might appear when you work. One of them has to do with giving the wrong medication. To produce routines for how to dilute medication is therefore seen as something good. But this is at the

same time a way to structure how dilution of medication takes place.

Another element of performing anesthesia, such as how to give anesthesia, also becomes more structured. The project-leader at the hospital in US says that computerising the patient record decreases flexibility in how to give anesthesia but increases flexibility in what takes place around the operating table. The same is true for how to document. With increased demand on how and what to document, documenting becomes a more and more structured activity. One can say that a technology like a computerised patient record removes from a profession one of the symbols or "signature skills" that distinguishes it, in this case manually recording pulse and blood-pressure. It introduces a different structure in what takes place. There are many advantages with this structuring. But not writing with a pen might also make the physician loose concentration, and forget to check the pulse or the blood-pressure and intervene when necessary. A computerised patient record free hands and eyes of an anesthetist but at the same time he or she has to follow a structure in a patient record when taking care of the patient. This also influences how an evaluation of a patient takes place. How the patient record looks influences how work is performed, and how work is performed influences how the patient record is designed.

There is a tacit dimension to all knowledge, according to Polanyi. We know more than we can tell. (Polanyi, 1966) Tacit knowledge is learned through experiencing and doing a task, during which the individual develops a feel for and capacity to make intuitive judgments about the successful execution of the activity. You have to get "it" into your hands, as one of the employees describes the existence of tacit knowledge within anesthesia.

It is an art characterized by a significant tacit dimension to diagnose in what state a patient is. Polanyi (1966) writes about the merits of tacit knowledge when it comes to diagnosing: "This is particularly clear in the art of diagnosing, which intimately combines skillful testing with expert observation". Expert observation is what I call face-reading. Face-reading is an activity that I think is based mainly on tacit knowledge achieved through experience, combined with intuition and a personal gift for understanding people. The existence of tacit knowledge can be made explicit through modes of discourse that include the use of analogies, metaphors or models, and through telling stories. In my thesis (Beckerman, 2006) "the clinical eye" is a metaphor for how an anesthetist takes in information and exercises his or her knowledge. It is a concept that can be used to get insight into how an anesthetist exercises his or her work. But what an anesthetist sees or feel can never completely be made explicit and recorded on a medium.

"I think I can show that the process of formalizing all knowledge to the exclusion of any tacit knowing is self-defeating. (Polanyi, 1966)

I think it is evident that in most cases the codified knowledge provides only partial assistance. Knowledge reproduction will then occur through training, practice and simulation techniques. Another example of this is a recipe in a cook-book. All the ingredients are listed and instructions for how to do it. But to be a successful chef demands something more, it demands a "feeling" for how to make a meal delicious. It is the same with performing surgery or anesthesia. Some people have this gift others don't. As a response to the somewhat naïve aim to formalize and make knowledge explicit one can read Polanyi:

"But suppose that tacit thought forms an indispensable part of all knowledge, then the ideal of eliminating all personal elements of knowledge would, in effect, aim at the destruction of all

knowledge”.(1966)

I apply the concept knowledge structuring to a phenomenon that I think needs to be explored further. In this case there are many advantages with implementing a computerized patient record. But at the same time it seems to me that there is a risk for conformism when a knowledge worker is forced to act and communicate by means of “correct rules”. One important question is if more structured also means more rigid. Another question is how to find a balance between control and creativity when implementing computerized tools into the act of exercising knowledge.

Conceptualising Knowledge Domination

Giddens writes that an administered society is one in which centralized control of “knowledge” or “information” is a medium of domination. (1979:162) But in my research I want to emphasise that it is not self-evident that the outcome of knowledge management activities depend on management or some kind of central force, but rather on who dominates over knowledge, the most important resource when creating values in professional organisations and society. Giddens treats resources as the vehicles of power. He writes that political and economic domination of resources is underlying the structuring of a setting. (1984) I want to add emotional domination as important when it comes to an idiosyncratic resource such as knowledge.

One underlying assumption of the concept knowledge management is that knowledge is a resource that can be managed. (Swan, Scarbrough, 2001) But some also point at the contradiction between the words knowledge and management. If knowledge is “an ambiguous phenomenon, intrinsically related to meaning, understanding and process”, then it is not possible to manage. (Alvesson and Kärreman, 2001)

Others also think that the value of knowledge management is limited since it implies control of processes that may be uncontrollable or stifled by heavy-handed direction. (Von Krogh, et al, 2000) At least there are both individual and organisational barriers to managing knowledge. Typical obstacles are “knowledge as power” and when there are few rewards for sharing knowledge. Sometimes individuals feel threatened and do not want to share their experiences and knowledge. Trust is an important element when trying to communicate and share knowledge within organizations.

Von Krogh (2000) also argues that care is one of the key enabling conditions for knowledge creation processes. He identified five dimensions of behavior in relationships that emphasised care: mutual trust, active empathy, access to help, lenience in judgment and courage. He believed that low care organisations would have trouble in knowledge integration/creation processes especially with respect to tacit knowledge. In such organisations individuals are likely to try to capture as much knowledge to themselves as possible and the common form of knowledge exchange will be transactional. In high care knowledge creation processes individuals will be bestowing their knowledge and the common form of knowledge exchange will be indwelling which involves joint commitment.

One assumption underlying the concept “knowledge domination” is that knowledge is localized and embedded in practice. Someone govern over knowledge, the mental schemas that are enacted and the resources used, when exercising knowledge. “Who governs”, is also what the project-leader at the hospital in the north of Sweden asks her self.

How a knowledge worker exercises his or her knowledge is influenced by emotions, feelings and thoughts. Management might try to target the minds of the knowledge worker through influencing values and norms. But authority can be problematic. The essential characteristic of authority is the general approval and acceptance of those over whom it is exercised. If they don't accept the authority of management they might negatively influence what takes place in this organisational setting. Today the individual often experiences feelings of powerlessness in relation to a diverse and large-scale social universe. Time-space distancing and the deskilling effects of abstract systems are the two most important influences. (Giddens, 1991)

Then the individual's sense of ontological security can be achieved through a fantasy of dominance. Since knowledge is embedded in practice it is the person who exercises the knowledge that dominates over how the knowledge is exercised. Also making tacit knowledge explicit takes place during collective reflection, but during reflection someone dominates over the course of the negotiations that takes place. I therefore propose the concept knowledge domination as a perspective to think about and further investigate and analyze the outcome of efforts of trying to manage knowledge.

The research I have performed shows that the person that dominates over knowledge influences what and how transformations take place. In Austria it was the two heads of the clinic that decided on implementing a new information system. They governed over what happened. If someone didn't want to use the system they had to leave the clinic. In Sweden it was a political decision to implement a computerised information systems but when it was time to do something nobody took responsibility. Both the head of the clinic and the politicians had changed and new people occupied these posts. Different stakeholder groups negatively influenced the outcome of the project and caused it to fail.

Domination occurs as the structured asymmetries of resources are drawn upon and reconstituted in power relations. When it comes to a resource such as knowledge this is an extra sensitive issue. An employee might know more about something than management but keep it to himself if he doesn't gain something from contributing his knowledge.

Giddens writes that information storage is a fundamental phenomenon permitting time-space distancing and a thread that ties together various sorts of allocative and authoritative resources in reproduced structures of domination. (1984:262) To me it seems that how information is stored in a setting depends on how this setting is structured, and how a setting is structured is decided by someone who dominates over a resource such as information that in the end influence how knowledge is exercised in this environment.

Transforming knowledge refers to a process of altering current knowledge creating new knowledge, validating it within each function and collectively across functions. Changing his or her knowledge means that an individual will have to face the cost of altering what he or she does to develop new ways of dealing with the problems he or she faces. I have already concluded that it costs energy to transform a mental schema for how to perform an act of knowledge. It means that to spend this energy people have to gain something to make this effort.

Today knowledge management systems have expanded the distribution of specialist knowledge and made it more transparent. It means that professional groups have become more exposed to market forces and control by a management hierarchy compared to earlier.

Also the influences of professional institutions have become weakened by deregulation and globalisation, and by IT systems that “threaten professional autonomy with surveillance and remote control”. (Scarborough, 1999) Some professionals don’t like that and resist as an example to implement a computerised patient record. They don’t want most of the things they do to be visible in detail to others. Also some knowledge workers don’t like to be forced to formalize and structure how they perform so that it can be stored on a medium like a computer. It might even be considered degrading. If a knowledge worker doesn’t like what is happening at his work place, or feels uncomfortable with a new tool, he might exercise his knowledge less well. An example of this is that if a mental schema for how to perform anesthesia is disturbed by a poorly designed anesthesia curve in the patient record, the balance in how to perform anesthesia is also disturbed.

To exercise knowledge costs energy, and a knowledge worker stops producing or produce less if he sees that it doesn’t pay to make an effort. In a knowledge organization the one that exercises the knowledge and the one that have the ideas must be rewarded, otherwise he or she stops trying. Therefore it is important to involve the users in how transformations takes place. It is characterized as “*doing things the native way*”, according to the technician in Austria.

I think that the other side of domination might be resistance. Relatively powerless persons might accommodate to power while at the same time protecting their interests and identities with acts of resistance. To resist power, authority and norms might be a way to exercise domination in a sensitive situation. In Sweden the anesthesists used “patient security” as an excuse to protest against implementing a new information system. In Austria the two professors in anesthesia used “patient security” as a reason for implementing a computerized patient record. This is an example of how a norm might be used differently in the same type of situation related to personal interest of the group it may concern. The same norm sanctions different behaviours at different places.

How effective integration mechanisms are in an organizational setting such as an anesthesia and intensive care unit depends on the existence of a common language. In this case the clinic in Sweden adjust the language they use according to a nationally accepted data base of search-words. Also nurses and physicians find a common base on how to express themselves when performing anesthesia. Then there is a local discourse that influences the outcome of what takes place. The attitude to the project is expressed through language and signification such as in Austria they wanted “*the best*” but in Sweden they wanted the “*cheapest possible*” solution. I view this as an attempt by people who dominate the local discourse to direct the efforts of members in their community, by controlling or exercising domination over some of the underlying thoughts and feelings that guide their actions.

Transformation, Routinisation and Duality of Structure

My intention in this paper has been to show that it is something of an adventure to interfere into how a knowledge workers exercises his or her knowledge. The outcome of knowledge management activities are never certain and sometimes more radical than we perceive from the beginning. In my research I show that when a patient record is re-constructed and computerised the life of a knowledge worker, such as an anesthesist, exercising his or her knowledge, is transformed then replaced by routine and after a time-period once again transformed. Today knowledge workers are exposed to transformations, they develop mental schemas and resist temporarily that these are transformed. That is

because it costs energy to transform mental schemas. But knowledge workers are forced to accept to transform the schemas they use otherwise the practice a knowledge worker performs declines. It seems to me that a knowledge workers resistance to transformations can only be temporary since demands on people being flexible increase all the time.

"The clinical eye" is a cognitive style and it is important both for the anesthetist and the anesthesia nurse and something they have trained themselves to get. If the document demands too much time it will disrupt the harmony in how the patient is taken care of. This recursive relationship between the patient record and the anesthetist is an example of "the duality of structure". (Giddens, 1984) It is also an example of the dynamic relationship between schemas and resources, schemas depend on resources and the resources depends on schemas. (Sewell, 1992)

One of the mental schemas that is transformed by constructing a new patient record is how to evaluate the patient at the anesthesia reception desk. How to evaluate the patient is mediated through resources such as time and eyes, but also data and information that is included in the patient record. Demands to answer and fill in certain spots in the patient journal influences what questions are asked during the evaluation of the patient and how an evaluation takes place, but these spots to fill in also exist because of the way anesthesia is performed. Another mental schema that is transformed is how to give anesthesia. It is expressed through the use of resources such as eyes, hands, time, anesthetics and blood. How to dilute medication is also transformed and mediated through the use of drugs, hands and time. How to document is expressed through the use of resources such as eyes, hands, time and how the patient record looks like and that schema is obviously transformed. An anesthetist is used to using a pen when recording data. It becomes a routine. When the patient record becomes computerized it increases anxiety, in the beginning. The anesthetist is afraid of losing control over what happens to the patient when vital signs are recorded automatically. If recording vital signs becomes automatic maybe the anesthetist forgets to intervene when necessary.

One example of a place-schema (Fiske & Taylor, 1991) is the way an anesthetist gets used to moving around the operating table close to the patients head in the OR during surgery. How to move around among all the devices and among the other people working in the OR, is also influenced and transformed by if the patient record is computerized or not. It is obvious that there are also ergonomic consequences of computerizing a patient record.

Discussion

It seems to me that in the knowledge society transformations become the ordinary while routine is only temporary. *"There is always a pressure to upgrade"*, says the head technician at Allgemeine Krankenhaus in Vienna. Because of this there is a continuous structuring and restructuring going on in the society. This pressure to upgrade and transform what is taking place is experienced all around. One question then is what this force does with a knowledge worker, how it effects his or her life and how he or she exercises his or her knowledge. In his study about the engineering-culture in an American company Gideon Kunda writes about burn-out, a phenomenon that has become common all over the western world during the 1990ies: "Burn-out is an extreme condition, a drastic outcome that exposes the often hidden or tacit meanings associated with constructing of an organizational self in everyday work life. On the face of it, burnout is a failure of self-management: a loss of control over role responses and the boundaries that separate and protect the self from the demands of the organization, and an inability to sustain the facade of controlled ambiguity characteristic of

the successful self". (1992: 204)

Giddens thinks that routine is related to ontological security. I assume that a condition such as "burn-out" might be related to transformations, insecurity and lack of routine in modern organizations.

Another important question is who or whom dominates over how knowledge is structured and re-structured in a setting. Often it is not the person or group we expect but somebody else. To monitor implications of transformations of worktools and workprocesses it is of vital interest to identify and monitor this person, group or institution.

A Summary

This paper has focused on two concepts, knowledge structuring and knowledge domination, that I have found important and possible to use when performing research in connection with transformations of work processes and work tools. There is a continuous structuring and re-structuring going on in society and it influences how knowledge is exercised. How this structuring takes place is also influenced by who dominates over a resource such as knowledge. Who dominates over how knowledge is exercised have implications for the success of change projects and even peoples health in companies and organizations in which re-structuring and re-organizations take place.

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