

Facilitating Knowledge Sharing through Inter-action Research

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Abstract

The significance of knowledge in organizations is evident. There is considerable effort in theory as well as in practice on how to foster knowledge as a resource in organizations (see for example Grant, 1996, Tsoukas, 1996). In comparison with traditional resources, knowledge, especially the tacit dimension, differs because of its immaterial characteristics (concerning the concept of tacit knowledge see Polanyi, 1983, Krogh and Venzin, 1995 or Baumard, 1999). Knowledge cannot be transferred like a package of materials, but it is shared among individuals. According to the *Theory of Organizational Knowledge Creation* (see Nonaka, 1992, Nonaka and Takeuchi, 1995, Krogh et. al., 2000), knowledge is generated through a process of interaction of tacit and explicit knowledge. Knowledge is either transformed within one single person or among a group of people. What matters is, knowledge is neither given nor pre-defined, but created through a process of individual interpretation and personal construction.

Both the generation of new knowledge as well as the deployment of already existing knowledge are based on processes of interaction (see Schneider, 1996, 19 or more generally at Argyris et. al., 1985, Argyris, 1993), which, in turn, are built on the interplay among the individuals within a knowledge network (see also the concept of *Communities of Practice* Brown and Duguid, 1999 or Lave and Wenger, 1991). The crucial interplay depends on the communication process within those people, for example how they can explain their ideas to each other. It is about the way in which people are putting information together to make sense of situations. In fact, it is about perceptions and personal or collective constructs of the individuals involved on a specific knowledge field. Thus, knowledge is highly dependant upon people's perceptions (see Krogh et. al., 1994, 55). Perceptions, which are guiding the information selection process, are not necessarily conscious (see Sparrow, 1998, 10f). They are often embedded in cultural values, norms and beliefs within organizations (see for example Sackmann, 2000).

Apart from the theoretical framework the paper reports an empirical research on knowledge sharing and the underlying processes of interaction. An action research approach was applied in order to be able to explore the prevalent interaction processes in situ. Thus, besides theoretical insights the research also supports participants in their business context. The unit of analysis was a group of five people, a consulting team, which is part of a large manufacturing corporation. Research concentrated on how team members were sharing and knowledge while carrying out their consulting projects. Considering the above mentioned on mental models and perceptions the study focused on what factors are influencing people's interaction in organizations in a particular field and how are these factors related to each other. After identifying the most important elements in the field a cognitive mapping procedure was conducted to structure the data generated and visualize prevalent processes. The maps symbolized a starting point for discussion and enabled processes of reflection on the status quo, how people perceived the prevailing situation. However, discussion and reflection affected participants' mental models and constructs in the field researched in turn.

Introduction

The significance of knowledge in organizations is evident. There is considerable effort in theory as well as in practice on how to foster knowledge as a resource in organizations (see for example Grant, 1996, Tsoukas, 1996). Here, it is important to take the notion of knowledge and its typical immaterial characteristics into account. Knowledge cannot be transferred like a package of materials and it is not used up when transferred but shared among a group of people. Knowledge consists of both an explicit and an implicit dimension, of which the latter is rather difficult to manage; because implicit knowledge is highly personal, non-articulated, tacit, hidden, experience-based and skill-type bodily knowledge (see Polanyi, 1983, 4f, Baumard, 1999). It is slow, costly and uncertain to transfer implicit knowledge due to its context-based character (see Kogut and Zander, 1992, 388). However, a constant flow of knowledge through the firm - both of its explicit as well as its implicit dimension - is crucial to organizations and its performance (see Nonaka, 1991; Krogh et. al., 1994; Schreyögg and Conrad, 1996). In order to be able to provide optimal support to organizations, it is necessary to find out more about knowledge sharing and creation within firms and the processes involved.

The aim of this paper is to explore knowledge sharing and creation based on the processes of interaction among the people involved. First, the paper clarifies this statement from a theoretical point of view. Then, findings of an action research on knowledge-based interaction illustrate the reasoning empirically.

The notion of (tacit) knowledge and knowledge sharing

Tacit knowledge is highly personal and thus depending on the person knowing and his or her contribution on what is being known (see Polanyi, 1962, viii). Again it has to be emphasized, as Polanyi puts it, that “this coefficient is no mere imperfection but a vital component of his knowledge” (Polanyi, 1962, viii). The contribution of a person on what is being known, i.e. how an individual perceives various issues also involves *judgment*. Knowledge essentially *is* judgment of the significance of issues at hand, which is derived from a particular context and/or theory (Bell, 1999; for an extended discussion see Tsoukas and Vladimirou, 2001, 976) or as Tsoukas/Vladimirou express it: “*knowledge is the individual ability to draw distinctions within a collective domain of action, based on an appreciation of context or theory, or both.*” (Tsoukas and Vladimirou, 2001, 979, Italics in the original)

It is this idiosyncratic personal part, which constitutes exceptionality of knowledge compared with other resources of the firm. “It [tacit knowledge] consists of beliefs, perceptions, ideals, values, emotions and mental models so ingrained in us that we take them for granted.” (Takeuchi, 1998) Verbalization and transfer of knowledge especially its tacit dimension is challenging, since it also includes this *cognitive* dimension. Thus, tacit knowledge cannot be articulated very easily. It is not possible to transfer the underlying conception an individual has of an issue directly to another person (see Sparrow, 1998, 51). There needs to be a more subtle communication process, which takes this notion of knowledge into consideration.

Knowledge-based interaction

According to the *Theory of organizational knowledge creation* (see Nonaka, 1992, Nonaka and Takeuchi, 1995, Krogh et. al., 2000), knowledge is shared and generated through interaction among the people involved and their knowledge. Both the generation of new knowledge as well as the deployment of already existing knowledge are based on processes of interaction (see Schneider, 1996, 19 or more generally at Argyris et. al., 1985, Argyris, 1993), which, in turn, are built on the interplay among the individuals within a knowledge network. The crucial interplay depends on the communication processes among the people involved, for example how they can explain their ideas to each other.

The concept of *Communities of Practice* introduced by Lave and Wenger, 1991 and Brown and Duguid, 1991, for example, illustrates that people are able to share and generate knowledge based on shared experiences, practice and interests. “Through practice, a Community of Practice develops a shared understanding of what it does, of how to do it, and how it relates to other communities and their practices – in all, a ‘world view’.” (Brown and Duguid, 1998, 96). Again, in the concept of knowledge sharing through common practice and experience there is this notion of *interaction*. People exchange their ideas, theory, and way of doing things through joint action. They are able to share and create knowledge based on the common grounds they established while working together. Thus, in order to be able to communicate tacit knowledge, people have to be able gain insight into the others’ way of perceiving things.

Similar to *Communities of Practice* Nonaka et. al. introduced the concept of “*ba*”, which can be translated with something like “shared spaces” (Nonaka and Konno, 1998, Nonaka et. al., 2000). “While a community of practice is a living place where the members learn knowledge that is embedded in the community, *ba* is a living place where new knowledge is created. ...

Instead of being constrained by history, *ba* has a ‘here and now’ quality. It is constantly moving; it is created, functions and disappears according to need.” (Nonaka et. al., 2000, 15)

In *Communities of Practice* as well as in *ba* people are sharing a common action framework – ways of perceiving things, thus are able to share and create knowledge. As outlined above, knowledge and knowledge sharing is essentially linked to action and inter-action among the people involved respectively. Knowledge-based interaction is about the way in which people are putting information together to make sense of situations. In fact, it is about perceptions and personal or collective constructs of the individuals involved on a particular knowledge field.

Action research on knowledge-based interaction

Research methodology

In order to find out more about knowledge-based interaction, a study was conducted to explore what factors are influencing people’s interaction in organizations. An action research approach was applied in order to be able to explore processes of interaction in situ. Accordingly, the study aimed at gaining better insights into the theoretical framework as well as supporting the participants in their business context. Research concentrated on how team members were sharing knowledge while carrying out their consulting projects. Considering the above mentioned on mental models and perceptions the study focused on what factors are influencing people’s interaction in organizations in a particular field and how are these factors related to each other. If these constructs are influencing people’s behaviour, they have to be part of cognitive maps (see for instance Lehner, 1996, 85).

Cognitive maps provide graphics describing unique individual ways of seeing things in a particular area (see Axelrod, 1976, Bougon et. al., 1977, Eden et. al., 1983). The most referenced approach towards mapping interrelationships between elements in management settings is the ‘cause map’ (also known as ‘cognitive map’). For example, Eden and his colleagues have developed an action research approach to support senior managers in combining perceptions of strategic options. In brief, the visual technique is useful to elicit causal relationships between constructs. Additionally, as Weick points it out, “in a socially constructed world, the map creates the territory, labels the territory, prefigures self-confirming perception and action.” (Weick, 1994, 3)

Here, it is presumed that depicting a map of the most important elements and constructs underlying the processes of interaction enables discussion and reflection on the topic

requested. The snapshot of the current situation facilitates communication about it. In discussing the varying topics people explain their ideas among each other. As a consequence, mental models and constructs are questioned. However, the questioning of prevalent models symbolizes the first step towards change.

The unit of analysis was a group of five people, a consulting team, which is part of a corporation producing pneumatic devices. The consulting team offered their services within the firm and to external organizations focusing on business processes reengineering, continuous improvement, implementation of group work, goal achievement etc. Processes of interaction were analysed primarily regarding how the team members were sharing and creating knowledge, especially within the context of the “continuous-improvement-projects” they were supervising and facilitating. The research was essentially exploratory and designed to be carried out in three steps, see *figure 1* below.

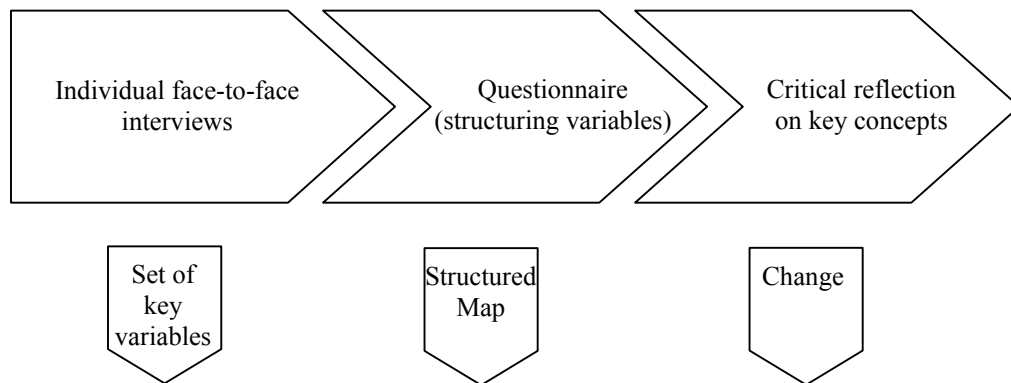


Fig. 1: Research procedure

In order to be able to identify the most important elements in the field individual semi-structured interviews were carried out and a set of variables within the knowledge field was identified. Since the set of variables represented a rather heterogeneous collection of elements, in the next step participants outlined in a questionnaire how these variables were related to each other. The questionnaires elicited causal relationships among the variables and resulted in cause/effect-maps of the variables and their underlying concepts. The variables depicted in the map showed each element’s position concerning its influence on the other elements within the knowledge network based on the participant’s rating. Then the team members discussed the outcome depicted in the maps and initiated critical reflection on the prevalent key concepts. The visualization through the maps enabled discussion about the status quo and possible changes. Four months later, after a major change occurred in the team,

prevalent cognitions of the team members have been studied again. The findings illustrated the changes clearly. The research will be outlined in detail below.

Individual face-to-face interviews

In the first step, the current status concerning knowledge management was surveyed through face-to-face interviews with each team member. The interviews were open and non-standard following an interview guideline. The interviewees had the chance to speak freely about topics they considered relevant in the field. On average the interviews lasted for one and a half hour. The interviewees portrayed their way of perceiving knowledge sharing and creation within the team. Formal measures as well as informal activities aiming at facilitating knowledge sharing and knowledge generation were explained in detail, for instance technical facilities supporting information and document sharing and examples of spontaneous face-to-face contacts. People reported their experiences and illuminated success stories. Additionally; each of them explained his position in the team and how he/she perceived the colleagues.

The data gained through the interviews were then transcribed and processed. For example, a point all interviewees emphasised was the key position of the team leader, who influenced the team in many respects. This was the case because he was the one who founded the team a few years ago in order to offer internal consulting in the field of business process reengineering, for example as a facilitator in meetings with respect to “continuous improvement processes”. Internal consulting succeeded. As a consequence external projects arose and additional employees were hired. The new consultants were introduced into business through intensive coaching by the team leader during realisation of consulting projects at issue. Hence, the team leader dominated with regard to procedural and professional expertise and the knowledge sharing respectively.

When the study was carried out the team consisted of five consultants with varying professional expertise. At that time the team was at a crucial point concerning their future development. The participants explained that there were uncertainties about basic strategic outlines like further expansion of the team, overall business goals, further product development and diversification etc. Some of the interviewees regretted that the products offered were restricted to the narrow field of business process reengineering.

The topic specified in advance – continuous improvement processes as a field of application in regard with knowledge sharing within the team – was not accepted as predominant issue. Participants preferred to describe basic strategic outline and other more basic contents. Thus,

knowledge sharing and creation within the team was discussed in a broad and unspecified manner. Prior to the study people rarely dealt with the topic of knowledge management. However, they had a clear notion considering the question on the definition of knowledge management and knowledge itself. Most of the participants differentiated between various dimensions of knowledge, that is, knowledge traditionally obtained through education in school compared to knowledge gained through practical experiences. Two of the team members linked personal knowledge acquisition strongly to development of personality and character, which is in their opinion a prerequisite for solid and serious consulting in the field of process improvement. In the interviews, the focus laid clearly on this experience driven part of knowledge and knowledge sharing. The more technical dimension of knowledge sharing through document management was of minor importance.

The material gained through the interviews revealed important points of the current situation in question. However, the elements mentioned differed concerning attributes like degrees of importance, concern for the team/business goals, relationships among each others, etc. Therefore, the most important elements were picked and queried again (following the theory of *Cognitions in Organizations* in Bougon et. al., 1977, who investigated success factors of a Jazz Orchester). Considering the interview material the elements most influencing the process of knowledge transformation at that point of time have been extracted and depicted in the following list, see *table 1* (original in German). The elements mentioned are considered as *variables* in the knowledge field influencing interaction upon knowledge sharing and creation in the team. In formulating these variables, language usage and team vocabulary were considered in order to use the labels of the team and transmit the meaning of each element accordingly.

A.	Quality of the current coaching process
B.	High degree of maturity of the individual consultant
C.	Degree of expansion of the team (recruitment of new employees)
D.	Quality of “self”-reflection of prior projects
E.	Efficiency of institutionalised meetings
F.	Quality of the firms learning environment
G.	Presence of (professionally) diverse knowledge fields
H.	Successful communication of knowledge about methods and procedures etc.
I.	Quality of project work, project success
J.	Effectiveness of spontaneous knowledge and experience sharing within the team
K.	Quality of documentation of current/past project and their procedures
L.	Degree of new product/business development
M.	My influence on A – L

Table 1: Set of variables influencing knowledge-based interaction

The elements generated varied considerably regarding the degree of structuring, for example fixed meetings in general as a variable influencing knowledge exchange as well as the coaching of new employees as a very specific activity of the team leader. The picture about the current situation was diverse and heterogeneous. A lot of rather loose elements were collected which did not show much coherence or clear relationships.

Structuring the variables

In order to structure the data generated, the variables were analysed concerning their relationship among each other according to the analysis of *Cognitions in Organizations* (Bougon et. al., 1977). Therefore a questionnaire was designed to query cause and effect relationships within the elements gathered, thus systematizing the interview material and obtaining cognitive maps.

As illustrated in *figure 1* below, the participants had to indicate in which respect variable A influences variable B. If there was an influence but rather weak, “1” should be assigned. If there was a strong influence, “2” should be assigned; whereas “0” delineated no influence at all. Positive or negative algebraic signs indicated the direction of the influence like if an increase in variable A produces an increase in variable B, a positive sign (“+”) was inserted (direct relationship) and if an increase in variable A produces an decrease in variable B, a negative sign (“-“ for inverse relationship) was inserted respectively.

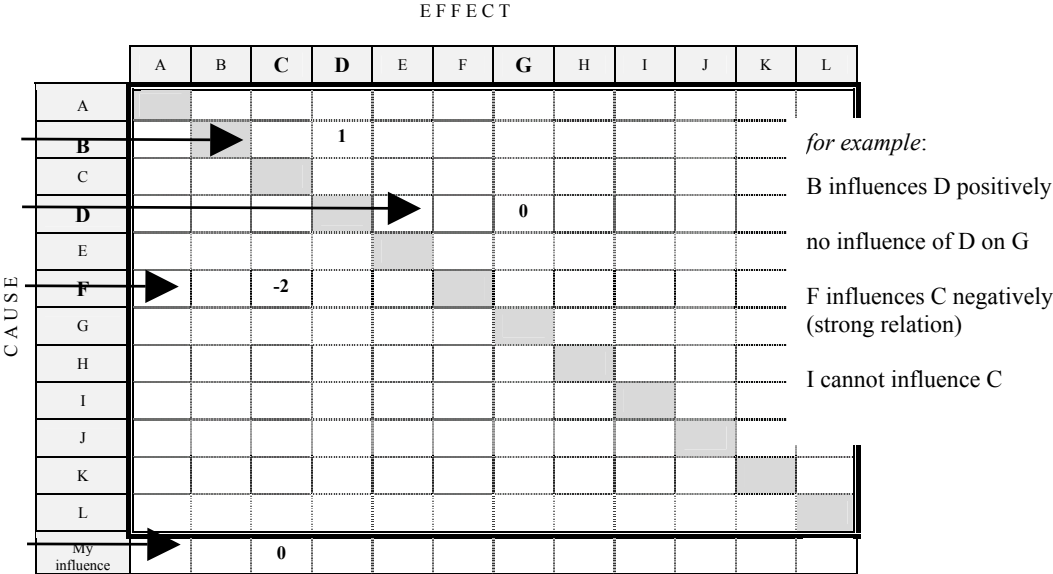


Fig. 1: Matrix about cognitions on elements generated

This procedure was continued with all variables resulting in a matrix, which symbolized the participant's individual perception of relationships among the set of variables. Additionally, individual maps were aggregated and a map of the team on average was constructed. The results were depicted graphically in order to illustrate the status quo – perceptions of each participant and the team on average. A picture of the current situation was drawn.

Critical reflection on key concepts

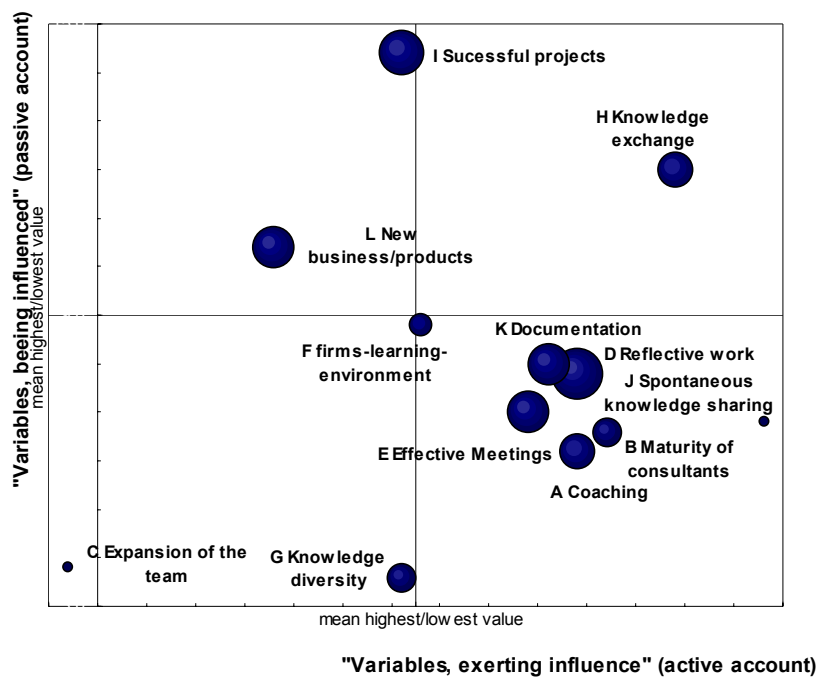


Fig.2: Positioning of the variables in the active-passive-field and individual influence

Figure 1 delineates each variable concerning their active (influence on the other variables) and passive account (influenced by the other variables). The size of the bubble indicates how people assess their personal influence on the variable. The means of the highest and lowest active and passive account respectively assist in delineating the four quadrants.

Variables positioned in the upper left quadrant with a low active account and a high passive account are elements which are highly influenced by the other variables, symbolizing goals within the field. Not surprisingly, variable I, Quality of project work/project success is perceived to be rather a goal.

Those variables, which are on the lower right quadrant and thus have a great influence on the topic and additionally show a high degree of personal influence are those elements, where measures should be taken first. Here, intervention have a high impact and are accomplished easily. For example, the team on average perceived that variable B, High degree of maturity of the individual consultant, is clearly influencing the process of knowledge transformation within the team; but participants perceived their individual influence to change this variable very low (small size of the bubble).

Looking into more detail at variable B, for instance, the map reveals a rather heterogeneous picture. The perception of the individual participants varies considerably. Participants do not agree on where to position this variable within the field. There is high uncertainty within the team about how this variable is related to the others. Thus, it is necessary to clarify how this heterogeneity arose. Otherwise, miscommunication and misunderstandings are very likely to occur.

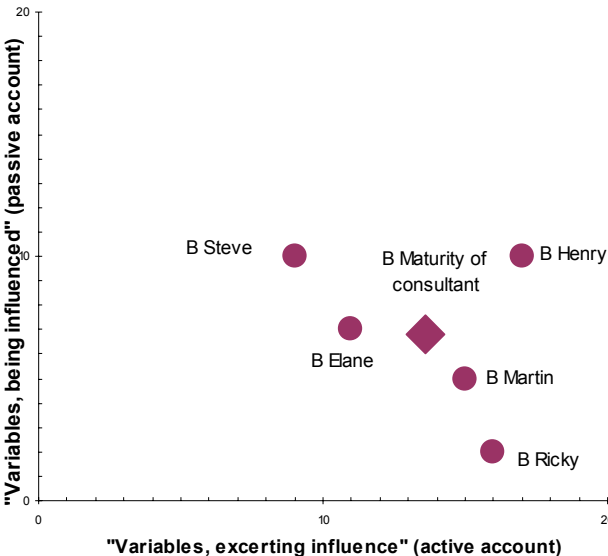


Fig. 3: Positioning of each participant around average on variable B

The resulting maps have been discussed within the teams extensively and measures to be taken have been formulated. Subsequently a major change occurred within the team. The predominant team leader and another team member decided to leave the company and thus the team. The group of people was strongly dependant upon the team leader, who founded the team, thus heavily influenced their strategic orientation in the consulting business and of

course built up sound competence. A reorientation of the total team became necessary. Basic assumptions about the business were questioned again.

In this stage the study on the relationships among the variables was repeated four months after the initial research; this time without the two individuals who already left, but with two new team members instead. The map which resulted out of this second study is depicted in *figure 3*. Variables with the greatest changes from the first to the second study are shown in *figure 4*, where the bubbles in dark colour represent the data gathered from the first study and the bubbles in light colour the second.

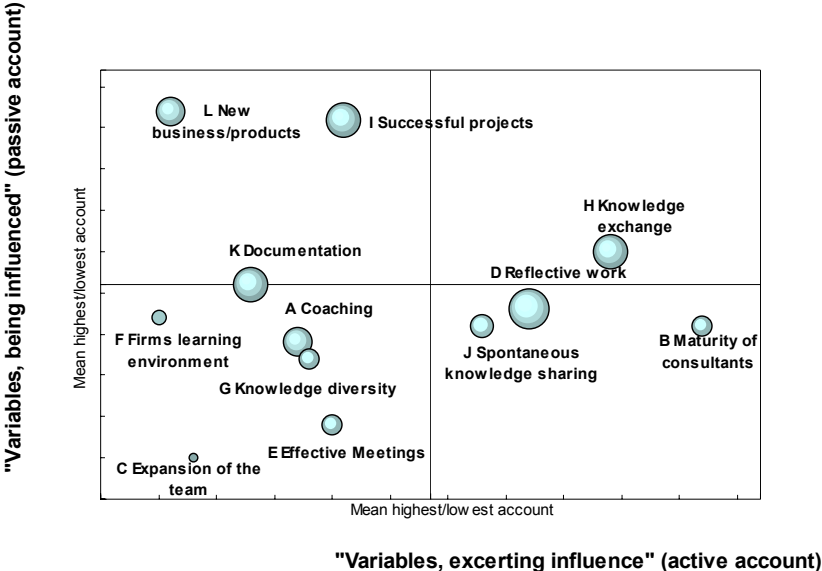


Fig. 4: Positioning of the variables in the active-passive-field – four months later

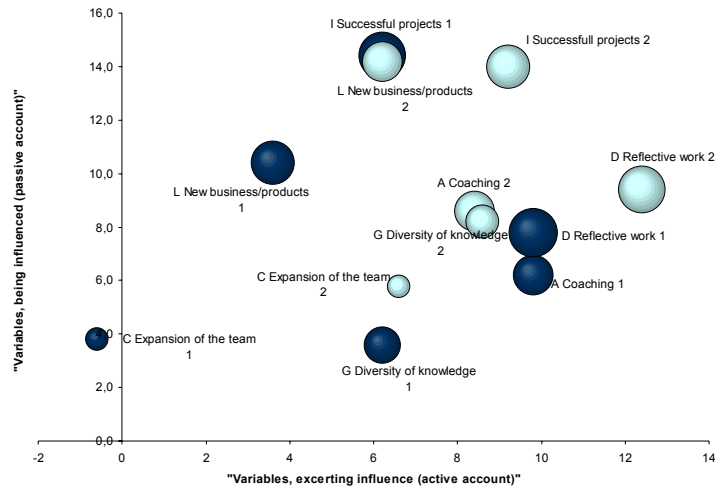


Fig. 5: Change of positioning of selected variables (from 1st to 2nd study)

Considering the variables with the biggest change in the positioning within these two points of times, some issues are clearly revealed. For example, variable C, Expansion of team, and variable, L, New business/products obviously gained in influence within the field in question. After the former team-leader left, there was a clear shift towards extension of the team in regard with new businesses as well as people with additional consulting capabilities. Furthermore, the influence of variable A, Coaching, which was strongly tied to the form team-leader slightly decreased.

In short, considerable changes occurred within the team and this could also be seen in the maps constructed. However, the maps delineating the current situation first and foremost served as a starting point to address particular issues at hand and discuss them within the team.

Discussions and limitations

To summarise, in this paper it is argued that knowledge sharing is based on the process of interaction between the individuals involved. Since individuals' behaviour in the process of interaction depends on the way they are perceiving the elements involved, underlying cognitive structures about the topic in question are relevant for the analysis. Cognitive mapping symbolises one method to visualise cognitive structures, that is, the main elements and their relationships among each other in regard to a topic chosen at a certain point of time.

Based on the revealed cognition of the group of people involved further discussion is facilitated. Hence, through discussion and communication the knowledge base increases.

Major shortcomings of the research presented in the paper are seen in the following points. First of all the topic analysed in the study extended enormously, that is knowledge sharing in general encompasses too many sub-themes. Thus, the broader a topic gets, the less specific are the results of the whole procedure. It would have been necessary to intervene to narrow the area investigated and stick to a topic chosen in advance. The next point is the way of dealing with the data generated through the mapping procedure. The procedure aims at gaining a rough picture of the most important factors influencing the field and their relationship. Thus, interpretation should avoid sticking too much on the exact data and numbers.

Further discussion should be raised concerning the correlation of interventions like those mentioned above, that is between visualising underlying cognitive structures and changes in respect with knowledge sharing in particular and knowledge management in general. At this point I would like to quote Tsoukas and Vladimirou:

“Knowledge management then is primarily the dynamic process of turning an unreflective practice into a reflective one by elucidating the rules guiding the activities of the practice, by helping give a particular shape to collective understandings, and by facilitating the emergence of heuristic knowledge.” (Tsoukas and Vladimirou, 2001, 990)

References

- Argyris, Chris, 1993: Knowledge for Action - A Guide to Overcoming Barriers to Organizational Change, Jossey-Bass: San Francisco
- Argyris, Chris, Putnam, Robert, McLain Smith, Diana, 1985: Action Science, Jossey-Bass: San Francisco, London
- Axelrod, Robert, 1976: Structure of Decision - The Cognitive Maps of Political Elites, Princeton University Press: Princeton
- Baumard, Philippe, 1999: Tacit Knowledge in Organizations, Sage: London, Thousand Oaks, New Delhi
- Bell, Daniel, 1999: "The axial age of technology foreword: 1999", (Eds.), The Coming of the Post-Industrial Society., Basic Books: New York, p ix-xxxv
- Bougon, Michel, Weick, Karl, Binkhorst, Din, 1977: "Cognition in Organizations: An Analysis of the Utrecht Jazz Orchestra", Administrative Science Quarterly 22, p 606-639
- Brown, John Seeley, Duguid, Paul, 1991: "Organizational Learning and Communities-of-Practice - Toward a Unified View of Working, Learning and Innovation", Organization Science 2, 1, p 40-57
- Brown, John Seely, Duguid, Paul, 1998: "Organizing Knowledge", California Management Review 40, 3, p 90-111
- Brown, John Seely, Duguid, Paul, 1999: "Dem Unternehmen das Wissen seiner Menschen erschließen", Harvard Business Manager 3, p 76-88
- Eden, Colin, Jones, Sue, Sims, David, 1983: Messing About in Problems - An Informal Structured Approach to their Identification and Management, Pergamon: Oxford
- Grant, Robert M., 1996: "Toward a Knowledge-Based Theory of the Firm", Strategic Management Journal 17, Winter Special Issue, p 109-122
- Kogut, Bruce, Zander, Udo, 1992: "Knowledge of the Firm, Combinative Capabilities and the Replication of Technology", Organization Science, 3, p
- Krogh, Georg von, Ichijo, Kazuo, Nonaka, Ikujiro, 2000: Enabling Knowledge Creation - How to Unlock the Mystery of Tacit Knowledge and Release the Power of Innovation, Oxford University Press: New York et al
- Krogh, Georg von, Roos, Johan, Slocum, Ken, 1994: "An Essay on Corporate Epistemology", Strategic Management Journal 15, p 53-71
- Krogh, Georg von, Venzin, Markus, 1995: "Anhaltende Wettbewerbsvorteile durch Wissensmanagement", Die Unternehmung, 6, p 417-436
- Lave, Jean, Wenger, Etienne, 1991: Situated Learning - Legitimate Peripheral Participation, Cambridge University Press: Cambridge [u.a.]
- Lehner, Johannes M., 1996: "'Cognitive Mapping': Kognitive Karten vom Management", in: Schreyögg, Georg and Conrad, Peter (Eds.), Managementforschung, de Gruyter: Berlin/New York, p 83-132
- Nonaka, Ikujiro, 1991: "The Knowledge-Creating Company", Harvard Business Review 69, 6, p 96-104
- Nonaka, Ikujiro, 1992: "Wie japanische Konzerne Wissen erzeugen", Harvard Manager, 2, p 95-103
- Nonaka, Ikujiro, Konno, Noboru, 1998: "The Concept of "Ba" - Building a Foundation for Knowledge Creation", California Management Review 40, 3, p 40-54

- Nonaka, Ikujiro, Takeuchi, Hirotaka, 1995: *The Knowledge-Creating Company - How Japanese Companies Create the Dynamics of Innovation*, Oxford University Press: New York/Oxford
- Nonaka, Ikujiro, Toyama, Ryoko, Konno, Noboru, 2000: "SECI, *Ba* and Leadership - a Unified Model of Dynamic Knowledge Creation", *Long Range Planning* 33, 4, p 5-34
- Polanyi, Michael, 1962: *Personal Knowledge - Towards a Post-Critical Philosophy*, Routledge: London
- Polanyi, Michael, 1983: *The Tacit Dimension*, Peter Smith: Gloucester, Mass.
- Sackmann, Sonja A., 2000: "Unternehmenskultur - Konstruktivistische Betrachtungen und deren Implikationen für die Unternehmenspraxis", in: Hejl, Peter M. and Stahl, Heinz K. (Eds.), *Management und Wirklichkeit - Das Konstruieren von Unternehmen, Märkten und Zukünften*, Carl-Auer-Systeme Verlag: Heidelberg, p 141-158
- Schneider, Ursula, 1996: "Management in der wissensbasierten Unternehmung - Das Wissensnetz in und zwischen Unternehmen knüpfen", in: Schneider, Ursula (Eds.), *Wissensmanagement - Die Aktivierung des intellektuellen Kapitals*, Frankfurter Allgemeine Zeitung, Verlg.-Bereich Wirtschaftsbücher: Frankfurt am Main, p 13-48
- Schreyögg, Georg, Conrad, Peter (Eds.), 1996: "Wissensmanagement", *Managementforschung* 6, de Gruyter: Berlin/New York,
- Sparrow, John, 1998: *Knowledge in Organizations - Access to Thinking at Work*, Sage: London, Thousand Oaks (CA), New Delhi
- Takeuchi, Hirotaka, 1998: "Beyond Knowledge Management - Lessons from Japan", in:
- Tsoukas, Haridimos, 1996: "The Firm as a Distributed Knowledge System - A Constructionist Approach", *Strategic Management Journal* 17, Winter Special Issue, p 11-25
- Tsoukas, Haridimos, Vladimirov, Efi, 2001: "What is Organizational Knowledge", *Journal of Management Studies* 38, 7, p 973-993
- Weick, Karl E., 1994: "Introduction: Cartographic Myths in Organizations", in: Huff, Anne (Ed.), *Mapping Strategic Thought*, Wiley: Chichester et al