

Summary of COOP'04 Workshop on Interaction and Knowledge Management

Myriam Lewkowicz,
Technology University of Troyes, France

INTRODUCTION

Knowledge management is often studied from the point of view of knowledge as an object which has to be clarified, archived, spread, shared. But there is another point of view in which we want to focus during this workshop, which is knowledge in action, or “knowing”, instead of “knowledge”, as (Cook, Brown, 1999) or (Pfeffer, Sutton, 1999) make the distinction. We thus fit in a historical current initiated by (Bannon, Kuutti, 1996), who used to distinguish a passive and an active or constructive view of Organizational Memory. We could then say that we adopt a social approach of Knowledge Management (Erickson, Kellogg, 2001; Ackerman et al. 2003), contrary to other works which deal with information problems. In other words we could claim stopping to think in terms of knowledge management, and starting to think in terms of supporting the larger social context in which knowledge management is embedded.

In this pragmatic knowing perspective, we are interested in knowledge used in action, or knowledge as a part of action. Conversations take an important role in knowledge sharing (Fitzpatrick, 1996), and could be analyzed as a source for sense-making, or a means for apprenticeship. Results of interaction have also to be analyzed and classified. We then propose to deal with interaction and knowledge management by interesting in three kinds of problematics:

1. Interaction as a means for sense-making: storytelling, language structuring, social distribution across a network, taxonomy of interaction acts...
2. Interaction as a learning process, as Lave and Wenger noted in communities of practice (Lave, Wenger, 1991): knowledge elaboration in a community, knowledge reuse from a community to an other, ...
3. Boundary objects of interaction: shared binders which structure apprenticeship,

Computer-Mediated-Communication tools, role of online multi-users environments within which users can engage socially with one another, structuring level of these environments, social functions of documents as mediators of social activity (Brown, Duguid, 1995), text indexation, ontologies, Socio-Semantic Web, annotation tools, ...

Workshop progress

Eight papers were accepted by the scientific committee, but five were presented during the workshop. We present below the positioning which were defined in these papers.

Béatrice Vacher, from the LGI2P-URC Research Center (Ecole des Mines d'Alès, France) presented: CSCW: Taking into account the materiality of knowledge. In this paper, the author uses sense making theory from K. Weick, and stresses that cooperation does not depend on a shared knowledge, or a common goal. For her, cooperation depends on a collective mind, which means that cooperation can appear when every people act as if he/she is part of a group. This collective mind has to be constantly rebuilt through interaction with new comers, for instance by the way of telling him/her stories of the group.

John T. Nosek, from Temple University (Philadelphia, USA) presented: Collaborative Action Theory (CoAcT). Collaborative Action Theory (CoAcT) is a model of single collaborative acts or actions, which can be applied to understand and improve the actions of a group in knowledge creation and sharing. CoAcT extends Gibson's notions of affordance and does not rely on the problematic assumption of individual, idiosyncratic internal representations that are invoked to filter sense-data. After having presenting this theory, the author made two acknowledgements: on one hand when trying to have someone who does not share your background take your perspective, storytelling can be more powerful than just facts, which may not be

understandable by the receiving agent. And on the other hand, there is little understanding of what constitutes a powerful story, how people can be trained to create them, and how technology may be used to augment their construction and reuse. The author then proposed a Theory of Powerful Stories (TOPS) based on CoAcT. TOPS could be used to develop and test training methods to build powerful stories, and investigate how technology might be used to augment their construction and reuse.

Jean-Pierre Cahier and Manuel Zacklad, from the ISTIT Lab (Technology University of Troyes, France) presented: Socio-Sémantic Web applications: towards a methodology based on Communities of Action. The authors first presented “Socio-Semantic Web” (2SW) applications. They aim to support communities, taking in account not only formal knowledge representation as in Semantic Web applications, but also cognitive and social modeling. For this modeling, members of a community need to collectively elicit, in a continuous manner, a crucial part of the knowledge, especially of the “local” semantic structure underlying both the business objects and the collective work. For the business objects it can arise through artifacts such as thesauri, “topic maps”, semi-formal ontologies, yellow pages or catalog directories. The authors present an example of 2SW application: “Knowledge-Based MarketPlaces” (KBM). In a KBM, a “local” semantic is collectively and continuously “auto-constructed”, often tacitly, by and for the actors in their activity. In such a process, “users” are not only consumers of externally-designed semantic resources, but they are users and creators in a constructive manner of “local” semantic Resources managed in the community. As a consequence, in the cases where there is a strong need to make explicit a part of the underlying semantic, it is a better solution – in many cases it is the only one – for semantic to be managed by the concerned people. In presenting and comparing examples of KBMs, the authors noted that the creation and the whole lifecycle of such 2SW applications mobilize the actors at an epistemic level, but also at socio-organizational and inter-personal levels. A methodology to design 2SW applications must then take in account all these aspects, and the authors suggested to base it on the Theory of Symbolic Communicational Transactions and Communities of Action from Zacklad.

Joachim Hinrichs, from the University of Bremen, Center for Computing Technology (Germany) presented Boundary objects - the meaning of use contexts in document management. The author

focused on problems and approaches of document management. He showed that, in the technical sector, inadequate document administration often results in profound loss of information. The preparation and classification of documents is a central approach to make the technical documents traceable and accessible. He discussed surveys on classification and existing gaps in research concerning the use of context in document management. He examined how documents were documented and administrated in distributed and boundless processes. This examination revealed that the use context of documents plays an important role concerning document access. Based on this examination, a concept was presented in which use contexts can be efficiently captured. As captured meta-data, the contexts enable the search for documents by means of original process coherence. The concept of context indexing as a constructive approach for the capture of use contexts is shown by the description of the tools developed for the saving and inquiring of use contexts. The paper concluded with a description of the initial experiences made when applying these tools.

Igor Rivera, Astrid Jaime, Dominique Vinck, from GILCO and CRISTO laboratories (Grenoble, France) presented Knowledge Elucidation in new technologies introduction projects: an industrial case. The authors firstly claimed that even if nowadays, the possibilities offered by information technology are well recognized and if enterprises of all sizes are trying to incorporate these technologies into their activities, on the other hand, mid and small-size companies undertake this kind of projects with limited resources. Therefore, even if those projects arrive to their objectives, the activities linked to the capitalization of the knowledge acquired through the development of the project are rarely realized. The authors presented an industrial case, where a project for introducing an ERP (Enterprise Resource Planning) is being developed. They showed how the introduction of an ERP promotes the analyse that go beyond the limits of the ERP project to include the process’ configuration and the organization of activities. Additionally, the project promotes the acquisition of knowledge of various types: technical, organizational and managerial. This knowledge has various origins and repercussions. Some of this knowledge was used to choose the ERP, some is being used to think ways of improving the organization, others, perhaps, will help develop others subprojects, like the learned facts library project that has already been defined and will be started soon. The authors have seen similar processes

in other kind of projects, for instance, in projects aiming the implementation of a quality management system, the actors wonder about possible improvements of the organization and the possibility of using knowledge management as a means to reach better results. In conclusion, the authors proposed that the acquisition of tacit and explicit knowledge does not imply an improvement of the organization by themselves. These are only tools that must be well managed so that they produce real benefits to the company. What is important is not to have knowledge, what matters is putting it into action. That is why the authors think it is necessary to continue to follow the actions of the company to analyse the use of the acquired knowledge.

After the presentation of these papers, some questions arise which were discussed. The principal topics were:

- What does it mean to participatory develop classification schemes (semi-formal ontologies)? Cahier and Zacklad claim that it is important to co-construct knowledge classification presented in a community application, but “participatory” means that users are involved in the design process ... We could rather speak about negotiation on the indexes. Scenarios could perhaps be a basis for semi-formal ontology development
- What is the role of classification schemes in social processes? Classification could be seen as boundary object of interaction
- The role of failure/breakdowns seems to be important in knowledge co-construction, as it was stressed in the last presentation. It could be good to memorize also these failures and not only the best practices.
- We stressed on the importance of memorizing context, but how could we do that? Through index? Through stories?
- What sort of systems (technical and organizational) supporting the pragmatic knowing perspective?
- Need for an evolution of management culture to take into account this perspective?
- What kind of modelling for the design of cooperative systems supporting knowledge as a part of action?

After discussing all these topics, we came to the conclusion that, in order to improve researches in this field we need:

- More real world case studies and interdisciplinary analysis
- Context-specific integration of the different KM approaches
- Flexible knowledge-representing artefacts
- Basis for negotiation
- Context-specific expertise indicators
- Functionality to support the creation of social ties
- Integrated personal, organization, and technology development
- Evaluation in real world settings.

REFERENCES

- Ackerman, M.; Pipek, V.; Wulf, V.: *Sharing Expertise: Beyond Knowledge Management*, MIT Press, Cambridge 2003
- Bannon, L. and Kuutti, K. (1996). *Shifting Perspectives on Organizational Memory: From Storage to Active Remembering*. Proc. of the 29th IEEE HICSS, vol. III, Information Systems - Collaboration Systems and Technology. IEEE Computer Society Press, Washington 1996, pages 156-167.
- Brown, J.S., Duguid, P. (1995) *The Social Life of Documents*. In *Release 1.0* (ed. E. Dyson), October 1995. New York: EDventure Holdings Inc., pp. 1-18. Also at: www.parc.xerox.com/ops/members/brown/papers/socialife.html
- Cook, S. Brown, J. (1999). *Bridging Epistemologies: The Generative Dance Between Organizational Knowledge and Organization Knowing*, *Organization Science*, Vol.10, n°4, 1999, pp. 381-400.
- Erickson, T., Kellogg, W.A. (2003). *Knowledge Communities: Online Environments for Supporting Knowledge Management and its Social Context*, in: *Beyond Knowledge Management: Sharing Expertise*.(eds. Ackerman, Mark, Volkmar Pipek, and Volker Wulf). Cambridge, MA, MIT, Press, 2001.

Fitzpatrick, G. , Kaplan, S., Mansfield, T.(1996). Physical spaces, virtual places and social worlds : A study of work in the virtual, Proceedings of the ACM conference of Computer Supported Cooperative Work, Boston, MA, 1996, pp. 334-343.

Lave, J., Wenger, E. (1991). Situated Learning: Legitimate Peripheral Participation. Cambridge: Cambridge University Press, 1991.

Pfeffer, J., Sutton, R. (1999). Knowing “what” to do is not enough: Turning Knowledge into Action, California Management Review, vol.42, n°1, Fall, 1999, pp.83-108.

WORKSHOP CHAIR

Myriam Lewkowicz, CNRS lab ISTIT/Tech-CICO Team, Technology University of Troyes, France, myriam.lewkowicz@utt.fr

Volker Wulf, University of Siegen and Fraunhofer Institute for Applied Information Technology FIT, Sankt Augustin Germany, volker.wulf@fit.fraunhofer.de

SCIENTIFIC COMMITTEE

M. Baker, Universite de Lyon2 (Lyon, France), C. Brassac, Université Nancy2 (Nancy, France), A. Giboin, INRIA (Sophia-Antipolis, France), R. Klamma, RWTH (Aachen, Deutschland), M. Klann, Fraunhofer FIT (Sankt Augustin, Deutschland), M. Marcoccia, UTT (Troyes, France), V. Pipek, University of Oulu (Finland), E. Soulier, UTT (Troyes, France), M. Rohde, International Institute for Socio-Informatics (Bonn, Deutschland), M. Zacklad, UTT (Troyes, France).