

## Reflections on representations for infrastructural studies in the field of DCP

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### VISION: AUTHOR'S VISION OF DCP

Coming from the CSCW field where we are concerned in the design of cooperative systems, the Distributed Collective Practices lead us to some questions that, even if we were interested about them, were not so present when we designed systems for organizational groups involved in a task.

Actually, we think that techniques used in CSCW are limited when we consider DCP, because the point is not more on the optimization of a work process, or on knowledge capitalization, or management, but on how to provide infrastructures to permit a lot of people who have no other ways to communicate, to socialize, to coordinate themselves.

Before going on, we have to make clear our vision of infrastructure, which is larger than a classical technology focused definition, as for example:

"An infrastructure is a well-established, pervasive, reliable, and publicly accessible set of technologies that act as a foundation for other systems." (Hong, Landay, 2001).

In contrary, we prefer to adopt the definition from Star and Bowker:

"Information infrastructures provide the tools—words, categories, information processing procedures—with which we can generate and manipulate knowledge. They also reify particular configurations of work practice by shaping the world within which tools can be used. Both the silences and the explicit categories are important for linking work and infrastructure— infrastructure development is both social and informatic." (Star, Bowker, 1995)

Following our position in which the focus is not the same in CSCW studies than in DCP studies, we could roughly say that a lot of work in the design of CSCW is centered on

work *processes*, and that DCP lead us to focus on work *practices*. We define these practices as activities, in the sense of (Clancey, 2002):

"An activity is therefore not just something we do, but a manner of interacting. Viewing activities as a form of engagement emphasizes that the conception of activity constitutes a means of coordinating action, a manner of being engaged with other people and things in the environment, what we call a choreography. Every human actor is in some state of participation within a society, a business, a community"

Another difference between building cooperative systems and defining infrastructures for DCP is the fact that the end users are not known, and that we then cannot make them participate in the design of the system, we cannot interview them to find the requirements.

Finally, with DCP we are no more facing tasks, related to problem-solving situations with goals and operators. We have then to describe human activities as social means, and we have to be aware that tools and materials we use, and what we are doing, are culturally constructed (Clancey et al., 2003).

### WORKSHOP ISSUES: KEY ISSUES THAT SHOULD BE DISCUSSED/BRAINSTORMED AT THE WORKSHOP;

Considering the vision which we have described above, the key issue that we would want to discuss in this workshop is double.

Firstly we would want to discuss the role of practices representation to define infrastructures for DCP; is it necessary to build models of distributed practices, and with what purpose: designing infrastructures, evaluating them, or simulating practices to analyse them. In a work practice and situated cognition perspective, focusing on human

activity system, practice simulation is a way to observe it better than practice modeling.

Secondly we would want to discuss how to represent the practices, with what sort of models, following what sort of methodologies. Are existing techniques from knowledge engineering, as cognitive modelling, useful? Do we have to mix different techniques, or do we have to propose new ones?

Concerning this second issue, our opinion is that, on one hand we have workflow or process analyses which are interesting to build systems which help to fit a schedule, or a temporal organization of work, and on the other hand we have cognitive analyses which are useful to build systems for assisting people solving problems. But for facilitating conversations, participating in social practices that give meaning to the behaviour of the participants, we do not have a lot of techniques.

We then would want to discuss about representations which could not only be information-oriented, goal oriented, or process oriented systems, but also participation-oriented (Clancey, 1997), helping commitment, identity ... In particular, representation of activities as scripts emphasizes that most behaviours are cultural, and that member's storytelling practice is an important form of accountability, which play a major role in coordination processes (Soulier, Caussanel, 2004).

#### **CURRENT RESEARCH DIRECTION: AUTHOR'S ONGOING WORK RELATED TO DCP;**

We are currently engaged in two projects which are related to the topics above; in both of them, the aim is to computer-assist an interaction, which leads us to think about methodological statements for designing this system. In the first one, the end users are not a large population, as in DCP researches, but the methodology is interesting for infrastructural studies. The aim is to build a system to assist both activity and sense-making during the course of action (Lewkowicz et al., 2004). In order to do that, we propose to start from an activity model to go to a design model of the groupware which could assist the activity. The activity in which we are interested in is the co-construction of a common sense from an individual experience. We first analyse this activity, and choose a theory which permits us to represent it, and then we propose a design model which takes in account the activity model and permits us to develop a groupware supporting the activity. We are now looking deep at evaluation procedures.

In the second on going research project (Lewkowicz, Marcoccia, 2004), the aim is more strictly related to DCP, because we try to design a new kind of newsgroup which could fill the lacks of existing newsgroup, and improve

discussion management and organizational dynamics. We adopt the Participative Framework Model, in which audience roles are distinguished and ranked, according to whether or not the participants are known, ratified or addressed by the speaker. Then we adapt it into a participative-role oriented model (which we named PartRoOM), and we try to prove that it could be a guideline for designing an innovative kind of newsgroup. We have implemented this model in a system, which permits a user to choose the primary or secondary recipients of his/her message, and to choose if he (she) wants to let his message visible to the ones which are not addressed, or in contrary if he/she wants to have a real private conversation. We have also defined a profiled interface which permits users to visualize threads sorted by his/her participative role.

#### **BIO: PARTICIPANT'S BACKGROUND AND MOTIVATION FOR TAKING PART IN THIS WORKSHOP**

Myriam Lewkowicz is an assistant professor in computer science, especially interested in transdisciplinary researches, and the link between social sciences and information or technology sciences. She passed her PhD in 2000, on the design of groupware for cooperative knowledge management. She was involved in several projects during and after her PhD, which lead her to have several papers published in French (CITE) or international (COOP) CSCW conferences. She was co-chair with Volker Wulf in the last COOP conference of a Workshop on Interaction and Knowledge Management. She followed the work of the CNRS specific action on DCP and cooperative work, in order to enlarge her reflections on cooperative work to cooperative practices.

Eddie Soulier is a researcher on computer science and management of information system. He has a PhD in computer science, and a master on political science, and another one on economy. His interests are on story-telling, theory of communities, caring models for communities' infrastructures and social computing. He is scientific editor of the recent special thematic volume dedicated to communities of practice in the main Management of Information System review in France (SIM), and editor of book on story-telling to appear in December 2004 (Hermes Science Publishing).

#### **REFERENCES**

(Clancey et al., 2003) Clancey W. J., Sierhuis, M., Kaskiris, C. and Hoof, R. v., Advantages of Brahms for Specifying and Implementing a Multiagent Human-Robotic Exploration System, presented at The 16th International FLAIRS Conference 2003, St. Augustine, FL, 2003.

*"Distributed Collective Practice: Building new Directions for Infrastructural Studies" Workshop of the CSCW 2004 conference*

(Clancey, 2002) Clancey, W. J., Simulating Activities: Relating Motives, Deliberation, and Attentive Coordination, *Cognitive Systems Research*, vol. 3, pp. 471-499, 2002.

(Clancey, 1997) Clancey, W.J., The conceptual nature of knowledge, situations, and activity. In: P. Feltovich, R. Hoffman & K. Ford. (eds). *Human and Machine Expertise in Context*, Menlo Park, CA: The AAAI Press. 247-291.

(Hong, Landay, 2001) Hong, J.I. and J.A. Landay, An Infrastructure Approach to Context-Aware Computing. *Human-Computer Interaction (HCI) Journal*, 2001. 16(2-3).

(Lewkowicz, Marcoccia, 2004). Lewkowicz, M., Marcoccia, M. . The Participative Framework as a design model of newsgroups : PartRoOM, in (Eds.) *Designing Cooperative Systems The Use of Theories and Models Proceedings of the 6th Int. Conference on the Design of*

*Cooperative Systems COOP'2004*, Hyères, France, May 10-14, 2004, IOS Press, 2004.

(Lewkowicz et al. 2004). Lewkowicz, M., Soulier, E., et Gauducheau, N. D'un modèle de l'activité de co-construction de sens à un modèle de conception d'un collectifiel, In *Actes des quinzièmes journées francophones en ingénierie des connaissances (IC'2004)*, Presses Universitaires de Grenoble.

(Soulier, Caussanel, 2004), Soulier E., Caussanel J., (2004) HyperStoria: Acquire, represent, understand and share experiences by the way of narration, in (Eds.) Georg Schreyögg and Jochen Koch, *Narratives and Knowledge Management. Exploring the links between organizational storytelling and knowledge management*, IOS Press, 2004.

(Star, Bowker, 1995) Star, S.L., Bowker, G.C., (1995) Work and Infrastructure, *Communications of the ACM*, September 1995, Volume 38, Issue 9, P. 41, ACM Press