Practice perspectives in CSCL

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Conference on Practices in CSCL

The theme of this year's CSCL conference is "CSCL Practices." It is concerned with practices relating to technology-based collaborative learning. According to the conference call, the CSCL community is not only concerned with studying and designing effective tools to support CSCL practices, but also with identifying specific educational and professional practices that are associated with their appropriate usages. In order to study practices in a reflective way, powerful theories and analytical approaches are required. The aim of CSCL research is to understand how learning emerges: on an individual level, on a group-cognition level, and at the community level. The articles in this issue of *ijCSCL* address this goal in specific ways.

The concept of *practice* is a complicated one. It comes from the Greek *praxis*—which may be why we are going to Rhodes this year, to connect to our philosophic roots—in contrast to *theoria*. Modern practice perspectives since Marx (1845/1967) argue for a unity of theory and practice. In common parlance, *practice* just refers to the things we do. Methodologically, *practice* indicates that we should be paying attention in our research to the ways in which people actually interact with one another, predominantly in dyads and small groups. According to Schatzki, Knorr Cetina, and Savigny (2001), for some researchers there has been a "practice turn" in contemporary theory, in which analytic focus has shifted from explicit knowledge and social structures to "practices as embodied, materially mediated arrays of human activity centrally organized around shared practical understanding" (p. 2).

The nascent CSCL field was influenced by Lave & Wenger's (1991) analysis of collaborative learning as social practices within communities of practice. A related inspiration, Scardamalia and Bereiter's (1996) proposal of CSCL technologies like their CSILE system, suggested introducing some of the practices of scientific research communities into classrooms as fledgling knowledge-building communities. As we shall see in this issue's articles, the practice perspective can be applied at the individual and group levels of description as well as at the community one. We shall also see investigations of how practices are embodied, mediated and shared within CSCL settings.

The proposal to adopt practice perspectives in CSCL is a substantive one. It contrasts starkly with the view of collaborative learning in terms of observing regularities based on pre-defined and controlled variables of interaction. While a regularity view of causation offers causal *descriptions* involving sets of manipulated variables, it is less suited to address finer *explanations* of how observed patterns of interaction unfold over time (Shadish, Cook, and Campbell 2002). Providing such explanations is the field where the study of practice comes into play. Practices are not commonly described in terms of regularity among controlled variables, nor are they usually measured with computations of statistical variance. This does not mean that studies from practice perspectives cannot

include quantitative measurements, hypotheses for investigation, specific research questions, rigorous analyses, and scientific results. Rather, the criteria for the most appropriate methods of research, analysis and reporting may be quite different from those for research efforts predicated upon statistical regularities among identifiable variables. For instance, contrast the studies in this issue with Kapur and Kinzer (2009) and Rummel, Spada, and Hauser (2009) in the previous issue.

Of course, *ijCSCL* is committed to publishing major contributions to CSCL from all scholarly perspectives. We plan to publish discussions of these methodological differences, their rationale and the possibilities for integration in future issues of the journal. At the CSCL 2009 conference, *ijCSCL* will sponsor a symposium on theory and practice approaches. In this issue, we present a set of papers analyzing the role of practices in CSCL.

Studying the group practices that support collaboration in CSCL

The first article in this issue, by *Murat Cakir, Alan Zemel, and Gerry Stahl*, investigates group practices: How does a small group of students organize its interaction within a particular CSCL online environment so that it can accomplish its knowledge-building and problem-solving goals? The paper identifies several characteristics of the group practices in a detailed case study and relates these to the design of the mediating software. The CSCL technology used was a dual-interaction environment combining text chat and a shared whiteboard. The multimodal nature of activity made salient for the students and for the researchers the need for coordination of meaning making. By focusing on coordination practices, the analysis reveals interactional methods that the student group used to organize its joint activity. Thereby, the researchers were able to make visible mechanisms of grounding, shedding theoretical light on issues of common ground and intersubjectivity that are fundamental to an understanding of collaborative learning from a practices perspective.

This work is part of the larger Virtual Math Teams (VMT) Project (Stahl, 2009). The analysis of group practices by the students using the VMT software provided the primary evaluation component of the project's design-based research process. The affordances (see below) of the technology were determined in terms of the ways in which the user groups enacted the designed features and adapted their interaction practices to the technical environment. The research project included development of pedagogy and problem design as much as of technology, and the analysis of student group practices provided feedback on the whole intervention.

Associate Editor Dan Suthers coordinated the review of this submission to maintain the journal's double-blind peer-review process.

Affordances of technology are enacted by user practices

Affordances are the features of an artifact or of a communication medium that determine what one can do with them. For instance, an important affordance analyzed in the VMT environment was persistence. Unlike most audio and video media, the text- and graphics-based VMT components retained inscriptions for later viewing and reference. This was

consequential for the ability of students to explain their postings and activities to each other, and thereby to establish a basis of collaborative activity. The chat, whiteboard, and wiki components each had subtly different forms of persistence, as the analysis pointed out by describing how the group took advantage of these affordances.

The second article, by *Nina Bonderup Dohn*, reconsiders the nature of affordances, a contested term in CSCL and within the broader human-computer interaction (HCI) literature. She builds on early *ijCSCL* papers by Dwyer and Suthers (2006), Jones, Dirckinck-Holmfeld, and Lindström (2006), and Suthers (2006), which emphasized the importance from a practice perspective of analyzing the affordances of CSCL technologies for group meaning making. She proposes that affordances not be considered objective properties of artifacts independent of the people who use them. Rather, affordances are relative to the "interaction potential" of the people who see and make use of the artifacts. The term "interaction potential" is not restricted to a person's current "knowledge in the head or in the world" (Norman, 1990). Rather, it is related to the analysis of "body schema" developed by the premier French phenomenologist, Merleau-Ponty (1945/2002).

The potential that someone—or some group or some community—has to interact with a given artifact is a function of their lifelong engaged being-in-the-world (Heidegger, 1927/1996). Here we note that these matters, which have traditionally been discussed in terms of individuals, apply as well to small groups or communities of practice. Interestingly, this article applies Merleau-Ponty's analysis of embodiment to the virtual world, in which actors are largely disembodied. For instance, students in a CSCL environment do not see each other as embodied presences and they do not touch or physically manipulate the objects that they share on their screens of pixels. Here the term "interaction potential" takes on a different sense. It is not a matter of Merleau-Ponty's embeddedness in the physical world, but of interaction in a new sense, whose affordances must now be analyzed. Space, time, and causation in the virtual world are designed affordances, different from those in the physical world of bodily being.

Genres of practice adapt to new technologies

When people, groups, and communities move from the familiar physical and cultural world to brave new virtual realms, they carry with them their body schemas and other baggage that have defined their physical existence. The fit is not usually perfect, and a little dance takes place between their practices and the affordances of their new surrounds. In his article, *Norm Friesen* draws out some of the steps in this dance as it took place with the diffusion of email and threaded-discussion forums.

CSCL practitioners—teachers of online courses—have often looked to online media such as threaded discussion boards to support progressive knowledge building or critical inquiry. For instance, the widely used Blackboard learning management system for distance education features threaded discussion. When CSCL researchers analyze the results of student discourse in these media, they are often disappointed, as the early studies of Hakkarainen (see below) illustrate. Students tend to engage in informal socializing, sharing of unsubstantiated personal opinions, joking, and posting statements of little intellectual depth. Why do students make such use of technology that was

designed by researchers to support collaborative knowledge building and intended by teachers to promote critical inquiry practices? According to this article, it is because the students enact the affordances of the new technology in accordance with the communication genres of the past.

If one looks carefully at the genre of the student communication in threaded discussion forums, one sees the characteristics of the epistle or personal letter, rather than that of scholarly argumentation. While email is formatted along the lines of a business memo, brief postings in threaded discussion or SMS chat tend to adopt the genre of informal social conversation and personal letters. This is what students are used to, based on our cultural heritage. To change the practices of computer-mediated interaction to a form more akin to genres of logical deduction and scientific conjectures or refutations, requires training the students in new practices, not merely providing digital media. The affordances of the technologies are to be found not in the plans of the programmers or instructors, but in the practices of the users.

Exploring the metaskills needed for new practices

A discussion of current practice perspectives within CSCL would not be complete without contributions from the K-P Labs Project, a large European Union effort led by Scandinavian researchers. In this issue, we include a pair of papers from the lab in Helsinki, which recently merged the labs directed by Hakkarainen and Engeström. In a recent issue of *ijCSCL*, we published another article from the discussions in the K-P Labs Project by Lund & Rasmussen (2008), which emphasized the theoretical notion of object orientation. Here we have a paper by *Hanni Muukkonen and Minna Lakkala* that takes another approach to object orientation in knowledge-creation practices.

In thinking about collaborative learning theories, I often distinguish analysis at the individual, small-group, and community levels of description (e.g., Stahl 2009, chap. 28). The "trialogical" framework of the K-P Labs Project instead distinguishes the individual, collaborative, and object-oriented aspects. This shifts the focus for the third aspect from the agents—in any configuration—to the knowledge object. This emphasis is familiar from activity theory, where the activity system in a workplace is strongly oriented toward the goals to be achieved and artifacts to be produced. In a classroom setting, it calls for a focus of students, project groups, and classes on the systematic improvement of ideas and other knowledge objects. Accordingly, collaborative learning pedagogies provide for student groups to engage in critical inquiry around open-ended questions so they will develop the skills needed to develop (locally) new knowledge about ill-structured problems.

Using a well-developed coding scheme for analyzing knowledge-creation practices (or the lack thereof), this article explores the kinds of problems that students have when faced with enacting their own knowledge-creation practices. Just as seen in the previous article, students tend to stick with their accustomed genres of practice, sharing opinions more than building on shared knowledge objects. Becoming knowledge-creating learners requires the development of specific metaskills, as detailed in the article.

Theory of the knowledge-practice perspective

According to the conventional notion of theory, a statement of the theory of practice perspectives would be expected to introduce this issue. However, from a practice perspective, practices have the priority and theory comes later, as a reflection on the experiences—after the owl of Minerva has already flown, in Hegel's (1807/1967) classical metaphor. In the final article of this issue, *Kai Hakkarainen* reflects on issues of his research, dating back more than a decade to the start of his dissertation.

He wants to understand why it is so hard to promote knowledge-creation processes in classrooms, even using CSCL technologies. It is not enough, he argues, to facilitate sharing and building on ideas. A classroom has to develop a culture of knowledge-creation practices. As analyzed in the first article in this issue, the technology has to be iteratively developed in response to enacted student practices to take advantage of the subtle ways in which knowledge creation is supported by the materiality of externalizing ideas—for example, through forms of persistence, visibility, and integration. This is a matter of how the affordances of the technology in the sense of the second article are related to the interaction potential of the students, which is itself a moving target. The genres of social practices in the classroom—to use the terminology of the third article—must also gradually evolve. The possibilities of new practical genres rely upon the development of appropriate metaskills for engaging in knowledge-creation processes. All these factors must move in a coordinated and coherent unity of design-based research driving change in group practices, technology affordances, interaction genres, community metaskills, and trialogical learning.

This defines a tall order for students, teachers, and researchers to attain the potential of CSCL practices. The CSCL 2009 conference should provide an opportunity for us to take a step or two forward in this direction.

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