Reflective Practice on Online Collaborative Learning and Knowledge Building in Campus-based Teacher Education Courses

Thérèse Laferrière, Christine Hamel, Laval University, Québec, QC, Canada,
Email: tlaf@fse.ulaval.ca, christine.hamel@fse.ulaval.ca
Stéphane Allaire, Université du Québec à Chicoutimi, Saguenay, QC, Canada, stephane_allaire@uqac.ca

Abstract: The teacher's role in computer-supported collaborative learning is examined from a meso-level perspective using cultural-historical activity theory (CHAT), and in two different contexts. Teachers' goals were online collaborative learning and knowledge building. Over a three-year period these teachers were also researchers and they reflected on their practice in undergraduate and graduate classrooms. Such reflective practice led to more effectiveness as students engaged in new roles and routines in their classroom-based networked communities.

Problem

Online collaborative learning (OCL) and knowledge building (KB) are often thought too complex for students to engage in such activity. We know that electronic forums can bring to OCL or KB relevant support (Scardamalia and Bereiter, 2004; Chickering & Ehrmann, 1996; Stahl, 2006; Weinberger & Fisher, 2006). But the role of the teacher who successfully engages students in OCL and/or KB is still not properly understood.

Theoretical Perspective

Laferrière, Murphy & Campos (2005) argued that reflective analysis was key for CL- or KB-oriented teachers to improve their practice. A reflective practitioner needs data, and micro-analyzes of classroom interaction provide critical information. Meso-level analyzes are also important (Wasson, Ludvigsen, & Hoppe, 2003), thus requiring systemic theoretical perspectives. Engeström (1987, 2001) proposed a framework (CHAT) applicable to the study of activity through computer networks inspired by the cultural, historical tradition. The activity constituents are the following ones: subject(s), object, community, mediating tools (or artefacts), roles, rules and routines. Tensions or contradictions arising within and/or between constituents are to be identified and worked out for innovation to occur.

Methodology

Through reflective practice, two teacher researchers analyzed their roles in large (N > 100 students) and small size (N < 12 students) classrooms. Content related to the design of learning environments. They taught one of the undergraduate courses together. They taught a new class three years in a row (six courses). Following Schön (1983), they approached effectiveness as the adequacy between pedagogical intents and results. Expected results were defined in terms of students' engagement in the online discourse of their networked community. The choice of the collaborative online space (Knowledge Forum) was negotiated at the onset of each course. Using Knowledge forum analytical tools in their teaching and Engeström's framework in their research they conducted a three-year study.

Results

Context One: Large Undergraduate Classrooms

Most students engaged in onsite/online collaborative learning. They worked in small groups on a problem chosen from a list of problems that the teacher had identified in previous analysis of online classroom discourse. Student participation was scripted. Most students met the expectations as manifested by the scripted roles, and exercised their reflective capacities that demonstrated students' acceptance of "scripted" new roles and "prescribed" routines. The teacher encouraged students to build on one another's ideas. Some small groups engaged in idea improvement.

Context Two: Small Graduate Classrooms

Less structuring was required in small classrooms as more meaning making could take place and participants could develop shared problem spaces. To improve ideas became a lengthy process at times, one full of opportunities for scaffolding and genuine inquiry into the problem space. New norms arose regarding students' online presence, traces of participation and the valuing of participants' contributions to the classroom discourse. In best instances, teacher and students became knowledge builders. The networked communities produced collective artefacts that demonstrated students' acceptance of more open-ended collective inquiry (new routine).

Use of New Tools (Artefacts), Emerging Roles and Related Contradictions

In each undergraduate and graduate classrooms teachers had to engage into negotiation of meaning regarding the relevance of idea improvement (knowledge building) and of collaboration for learning and knowledge building purposes. Teachers' expectations conflicted with most students' previous classroom experience: roles and rules were subject to change. In small graduate classrooms it was easier to achieve onsite/online seamless classroom discourse than in large undergraduate classrooms. Previous online discourse included mediating artefacts that helped provide incoming participants (years two and three) a sense of what could result from their collaboration (e.g., definitions, views that presented issues and challenges, virtual tours of the learning/knowledge building processes). However, to interact online outside the weekly onsite meeting or to leave syntheses of their understanding of a specific design problem in the "semi-public problem space" were not practices students were used to and tensions had to be addressed and lessened. Onsite classroom discussions helped distribute thinking among participants as they worked on the same aspects of a problem at the same time. In the large undergraduate classrooms there was also continuity between onsite and online participation as small group work followed by online interaction occurred also during onsite meetings. Because of the large number of contributions a new database was introduced each year, and a few artefacts from previous years were carried over and some were shown during onsite meetings. Over the years, and through the mediating effect of artefacts and former students' testimonies, students came to class with expectations that contributed to reduce tension. Here are some striking comments made by students after their course/seminar: - *I didn't know this could exist. - It is a resource I helped developed, and one I will go back to. - Not knowing what we were doing at first, we came a long way.* Course evaluations were indicative that students appreciated the opportunity to collaborate. However, only a few undergraduates manifested a clear interest in using collaborative tools with their own students later on. Nonetheless, a number of undergraduate and graduate students continued to refer to the database to which they contributed when they had to design and manage their own learning environments.

Discussion

The two university teachers used new conceptual and technical tools, ones capable of affording authentic collaborative learning/knowledge building through online discourse. As students began to read peers' contributions and to build on one another's ideas, tensions (or contradictions) diminished and a new division of labor/effort emerged (roles), one prompted as well as reflected by classroom norms (community). Graduate students appeared more spontaneously than undergraduate students but it is our contention that, regarding the need to structure (or script) participation, classroom size made more of a difference than course level.

CHAT provided a humblesome perspective on what we could accomplish in a concrete setting as we could not loose sight of the roles, rules, and routines that prevailed or emerged in each classroom-based learning community. While micro-analyses of collaborative learning and knowledge building provided us with fine-grained data, this meso-level analysis led to context-bound observations that also informed our uses of Knowledge Forum. Reflective practice shed light on our role as teachers when it comes to computer-supported collaborative learning and knowledge building. As researchers, we developed a more holistic understanding of the role of the teacher in classroom-based networked communities.

References

Chickering, A. W., & Ehrmann, S. C. (1996). Implementing the seven principles: Technology as lever, *American Association for Higher Education Bulletin, 49(2)*, 3-6.

Engeström, Y. (1987). Learning by expanding. An activity-theoretical approach to developmental research. Helsinki: Orienta-Konsultit.

Engeström, Y. (2001) Expansive Learning at Work: toward an activity theoretical reconceptualization. *Journal of Education and Work, 14*(1), 133-156.

Laferrière, T., Murphy, E., & Campos, M. (2005). *Effective Practices in Online Collaborative Learning In Campus-based Courses. In P. Kommers, & Richard, G. (Eds.),* Proceedings of ED-MEDIA 2005 *(pp. 1878-1885). Norfolk, VA: Association for the Advancement of Computing in Education.*

Scardamalia, M., & Bereiter, C. (2004). Knowledge Building. In *Encyclopedia of Education Second Edition*. New York: Macmillan Reference.

Schön, D. A. (1983). *The reflective practitioner: How professionals think in action.* New York: Basic Books.

Stahl, G. (2006). Group cognition: Computer support for building collaborative knowledge. MIT Press.

Wasson, B. B., Ludvigsen, S., & Hoppe, U. (2003). Designing for change in networked learning environments: Proceedings of the International Conference on CSCL 2003. Boston: Kluwer Academic Publishers.

Weinberger, A., & Fischer, F. (2006). A framework to analyze argumentative knowledge construction in computer-supported collaborative learning. *Computers & Education, 46*, 71-95.

Acknowledgments