CollabU: A design for reflective, collaborative university teaching and learning

Alain Breuleux

TeleLearning NCE, McGill University

Ron Owston

York University

Thérèse Laferrière

Laval University

Nolan Estes, Paul Resta

University of Texas (Austin)

William Hunter

University of Calgary

Carolyn Awalt

University of Texas (Austin)

Abstract. This paper describes a collaborative university seminar, CollabU, involving five North-American universities in its first implementation in the Winter of 1999. In this report we emphasize the design process, the role of reflective practice, and the implications of the seminar for understanding emerging transformations in university learning, teaching, and scholarship.

Keywords: computer-mediated communication, discussion forum, shared knowledge

The purpose of this paper is to share an innovative and productive design for collaborative university teaching and learning (CollabU), and to illustrate how the design led to explorations and investigations of computer-supported collaboration.

CollabU is a multi-site, international, distributed, collaborative graduate seminar that was designed by the authors of this paper starting in November 1997 and was offered in the Winter 1999 academic term to students enrolled in our respective institutions. The broad topic of the seminar is "Technology in Education". We targeted five specific themes based on our distinctive areas of interest and expertise: a) professional development of teachers in technology (Breuleux), b) societal issues (Owston), c) collaborative project-based learning (Laferrière), d) virtual communities (Hunter) and, e) technology leadership (Resta, Estes, & Awalt). Therefore, we all acted as collaborative course designers and co-instructors, using a variety of means described later in this paper, over an extended period of time. It is important to underline that CollabU is a graduate seminar, NOT a course (this distinction is further articulated later in the paper).

The paper is divided into four major sections: a) *emergence and design*, describing how the CollabU emerged from opportunities and also resulted from careful design activities, b) *teaching*, describing the design activities of the authors to bring about the CollabU over a period of 18 months; c) *learning*, describing the learning activities that took place during the 3 months of the CollabU seminar, in particular the nine weeks of multi-site online activities, and d) *understanding*, describing research issues related to making sense of such complex enterprises as the CollabU seminar.

Emergence and Design

CollabU is both a product emerging from naturally occurring circumstances in our practices and the result of deliberate design activities on our part as "instructors." The emergence results from the community of practice among the seminar leaders (the co-authors of this paper).

The emergence of the CollabU seminar, as a concept and as a specific project, was made possible by the active participation of the seminar leaders in joint research networks such as the TeleLearning Network of

Centers of Excellence in Canada (TL•NCE), the International Society for Technology in Education (ISTE, sponsoring at the time such conferences as TelEd), and other important scholarly meetings such as CSCL. The design principles for the seminar included: a) a conception of graduate student participants as active, responsible, collaborative learners and knowledge builders; b) an emphasis on hybrid modes of participation (both face to face and online); c) expanded access to experts; d) the exposure of participants to multiple software environments to support collaborative learning and intellectual work (Virtual-U and FirstClass); and, e) the use of the web as a means of providing student access to instructional and information resources.

It is important to underscore how CollabU is anchored in existing relationships and shared practices, and that progressive discussions to shape the seminar at every step of the process are dependent on a joint language to describe and interpret the activities and tools that we are setting up. In other words, an important aspect of the work we describe here can be looked at from the perspective of a joint problem space for design (see for example Teasley & Roschelle, 1993).

It was important to enable the students from the five institutions to have a sense of place and structure for the collaborative learning activities while reaching out beyond their respective campus (see Brown & Duguid, 1995). This was accomplished by developing a common website called CollabU that enabled students to access the instructional resources and links related to each of the five major themes (illustrated in the next section).

Another design principle is the clustering of participants' interests. It enables students to undertake inquiries of sepcific intersts and find other participants with whom to collaborate.

Finally, one important aspect of the design is the distributed expertise of the course instructors and how it supported similar approaches to complementarity on the part of students.

Means of collaborating. CollabU employed a mix of online and face-to-face interactions in design. At different stages of our course design activities, we met in person (although there was never a meeting of the entire team), held telephone conferences, exchanged email, and held videoconferences. One face-to-face meeting took place between two of the Canadian instructors and the students in Austin, Texas, in the context of attending the SITE99 Conference in San Antonio. Although it may seem difficult to include such meetings into the design of a multi-institutional seminar, it is not unrealistic, given the increased opportunities for face-to-face meetings as telelearning dissolves boundaries between regions and countries, that University researchers use national or international research conferences increasingly as contexts for designing and reflecting upon their teaching practices. This is another illustration from our experience of how it is possible to bridge the gap between research and teaching. The collaboration in teaching is a *reason* to attend some common conferences or to arrange visits en route. But the conferences also serve as opportunities to *create* the collaboration and to report on it.

Teaching

This section examines the instructors' activities in the design and conduct of the seminar, as well as some of the major administrative issues related, in particular, to the way we organized the cross-institutional component of the seminar.

In the first weeks of the seminar, locally, each instructor lead a number of activities to prepare students on the use of technologies required for the seminar (FirstClass and Virtual-U) and, in some cases, to situate the topics of the seminar (for example having discussions in face-to-face situations on the role of ICT in education, the transformations of teaching and learning supported by ICT, the combination of face-to-face and online activities, etc).

One of the major challenges encountered in planning and implementing the collaborative program were the differences in academic calendars between the U.S. and Canadian universities. The classes at the Canadian universities started almost three weeks before and ended almost a month earlier than the U.S. university. Through careful planning, the instructors were able to make maximal use of the common time available to initiate and support the cross-institutional collaborative learning activities. The non-overlapping calendar periods were used by instructors to introduce content and discussions unique to their classes and students. Starting in early February 1999, the five groups of students participated in on-line discussions according to the procedure described in the next section. During the period of these discussion forums, the role of the instructors was mainly: to pose initial questions relating to knowledge of the discipline, invite participation, foster knowledge building discussions, point out relations between different productions by the participants, initiate synthesis and closure, and redirect the discussion toward the next topic. Further discussion of how this was accomplished in different groups appears in the section on understanding.

The collaborative design approach to CollabU preparation created unique opportunities to articulate and render more explicit our own personal beliefs and assumptions about learning, teaching, scholarship, and the place of ICT in our practice.
Our CollabU exploration contributes to current efforts to reconceptualize university courses and programs; from this perspective, the CollabU corresponds to a "sticky, expeditionary learning product" (Norris, 1997): prototypes of new learning programs that are built rapidly, that allow to collect information from learners, and that can be tested, modified and improved continuously. From this perspective, an important accomplishment of the CollabU is the demonstration of one way that collaborative university teaching can overcome "territorial" issues such as enrolment fees, participation costs, FTEs and the like.
We are characterizing CollabU as a *seminar*, because we were making the assumption that participants would be actively engaged in discussions and that they would bring knowledge of value to the other participants, as opposed to a *course* in which students are assumed to be more receptive and less engaged in exchanges (see also Brown & Duguid, 1995).

Learning

Our main goal in developing CollabU was to provide a rich, stimulating learning experience for students that builds upon the diverse expertise of each instructor. Another of our goals was to shape viable telelearning models and to explore methods of enhancing learning via electronic networks. This section describes the learning activities that took place during the 3 months of the CollabU seminar, in particular the nine weeks of multi-site online activities. The entire course description, including the team work produced by students is available at: <http://www.edu.yorku.ca/collabu/>.
The course description presented to interested students included the following information:

> This course provides students an opportunity to investigate various dimensions of the use of technology in education by participating in online seminars led by faculty from five major universities in North America. Students participating in the course are registered in master's or doctoral level programs at their home universities, where they will receive credit for the course under a local course name and number. At each host university, students will regularly meet face-to-face, however the bulk of the course activity will take place online. In addition to the online seminars students will have an opportunity to meet twice during the course via video conference.

CollabU required students to participate in the following ways:

> This course requires full participation in and contribution to both the face-to-face meetings on campus and the online seminars. Your local instructor will set the schedule for the campus meetings.
>
> The online seminars will run for a nine-week period beginning January 25, 1999. You are required to select one main seminar in which to participate fully for the duration of the course, including completing a group assignment described elsewhere. The expectation is that you will contribute to your seminar at least several times per week.
>
> In addition to your major seminar, you are to select two other seminars which you are to monitor and contribute to from time-to-time.

Three assignments were required:

Assignment One

> Your online seminar group is required to collaborative develop a Web site that demonstrates your group's collective knowledge and understanding of your seminar theme. A possible approach to constructing this site is for the group to divide the theme up into key sub themes and have one or two individuals work on developing pages for these sub-themes. One or two individuals may also want to assume responsibility for developing a theme home page. The home page should be constructed early-on during your seminar discussions. The sub-theme pages can be constructed as new knowledge about the sub theme is gained. This assignment is due no later than March 25.

Assignments Two and Three

> You are to write a paper on each of the two seminar themes that you monitor. These papers should clearly demonstrate your understanding of the themes and be properly referenced to the online and print resources that you cite. They should be approximately 2500 words in length and should be posted in a public space

where other course participants can read and provide feedback before the final draft is submitted to your home instructor. These assignments are due the last day of your class.

The seminar offers students renewed opportunities for creating their network of reference: they are exposed to individuals from different localities with shared interests, so this network is not limited to the local affinity groups on campus. Because of the expanded network of students, there is a possibility for "cross-cultural" validation of ideas and thoughts: one of the seminar leaders translated a text for students to be able to read it in another language, and more generally students were able to appreciate the slightly different scholarly and cultural perspectives across the Canadian and US border, or across the English and French North American cultures.

Students have the opportunity to participate in a larger community of inquiry, accessing a wider network of collegial scholars. This legitimate peripheral participation works well when faculty invites graduate students to meaningful discussions. In addition, students can formulate more extensive learning plans as a result of participating in this seminar.

The FCL framework (fostering communities of learners) can serve to identify the major transformations that we see in the CollabU for university circumstances. For instance looking at the four major characteristics of FCL (see Brown, 1997), we can contrast traditional graduate seminars and CollabU (see Table 1).

Table 1. FCL attributes for traditional university seminars and for CollabU.

FCL attribute	**Traditional U**	**CollabU**
Agency	Pervasive assumption that the instructor is the sole driver of activities; graduate students are still perplexed by the demands of high agency (low discourse engagement).	Agency is distributed among instructors (because of the collaborative teaching), and students must perform high discourse engagement (because of the importance of online discussion).
Reflection	A tacit component of graduate seminar work, not often shared.	Precipitates and reveals the processes of reflection, especially because of the online discussion, but also because of the collaboration requirement.
Collaboration	The norm in graduate school tends to be individual work, students tend to have a highly competitive practice (with some positive effects on individual outcomes)	Promote the achievement of more complex outcomes through collaboration; attention to collaboration processes themselves; alignment of learning activities on authentic, emerging scholarly practice (e.g., that of the instructors).
Culture	Tradition of territoriality and boundaries; problems of credit ownership and regulations, limited culture of connections between academic departments, regional institutions, etc.	Exemplary boundary crossing: regions, countries, language, cultures (academic and policy); overcoming of institutional and administrative barriers.

Understanding

This section discusses implications of CollabU for research. We emphasize the need for, and value of, enacting a research agenda within our exploration of collaborative teaching and learning practices, and find "reflective practice" to be a useful paradigm. We also look at more specific issues of understanding collaboration in discourse and media activities.

The CollabU design allows systematic explorations of a number of issues concerning collaboration; we have initiated such explorations that we present here in preliminary form, and we also discuss other possible explorations. It is important to note that CollabU does not constitute a traditional experimental

research setting independently of authentic participation in meaningful learning tasks. That is, we do not set up artificially reduced situations in order to investigate learning. Rather, we take a design experiment approach (Brown, 1992), and focus on a continuous bringing together of knowledge for the design of complex learning situations in which specific issues can be investigated. One salient realization from this recent work is that the investment of resources required for such design is extremely demanding, and it is therefore quite difficult, but not impossible, to conduct both the design and the research.

First, as a general observation, our CollabU activity is confirming the value of an approach to anchor this experimental technology-supported graduate teaching and learning within a framework of research activities. For example, publications on the topic of this teaching and learning activity are providing fundamental motivation, value, and justification for our involvement in such a complex activity in the face of local departmental structures.

As in the case of similar learning situations where many on-line discussions are sustained we need to develop ways of interpreting, sharing, and understanding the rich meanings of these discussions. When such on-line learning discussions are successfully maintained, we face "next generation" issues of providing to participants and external interpreters the appropriate methods (and eventually tools) to support the processes of generating perspectives, interpreting, and understanding the different layers of meaning and participation in on-line discussions (an earlier version of this argument is presented in Breuleux, Blatter, & Laferrière).

More specifically, the research questions we are identifying include: how discourse and different media are used by individuals and teams in different settings to respond to each others messages (e.g., are they using prior ideas to build a joint, novel understanding?), what is the range of coding schemes that can capture essential properties of the collaborative knowledge building activities in CollabU, how we can measure and demonstrate the different complexities in the work achieved by people in teams or individually, face-to-face or online.

We present here one sample analysis illustrating how two different groups evolved throughout the ten-week period of CollabU online discussions. Sociometric symbols (Moreno, 1953) are used to get a sense of the communication patterns as each of the two groups are developing. In one group, sociometric structures were drawn to get a sense of the dynamics at play, and to identify individuals whose contributions seemed to generate more responses than others. In each of the two groups (Figure 1 and Figure 2), the teacher (A) occupies the key position (structures number 1 and 2). In Figure 1, Student B moves to become a central figure as he reflects on his practice and brings conceptual materials in highly skilled ways (structures number 3 and 4). In Figure 2, students C and D are key to the conversation (structures number 3 and 4). In the last two structures and for both groups, the interaction is more horizontal than it was in the two first structures, though the teacher is back playing a more central role in Figure 1, along with students C and B. The role of the teacher remains more discrete in Figure 2 where it is Student E that draws the interaction in her direction.

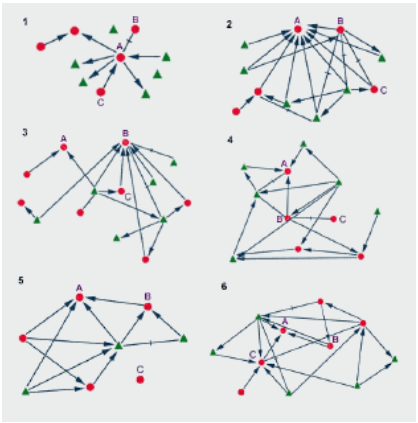

Figure 1. Communication in virtual group A, a group with zero-history, over a nine-week period.

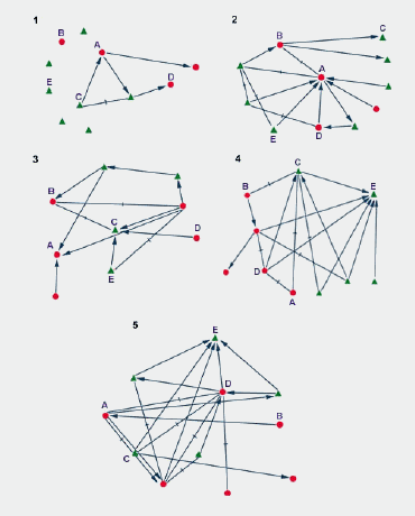

Figure 2: Communication in virtual group B, another group with zero-history, over a nine-week period.

These questions, and how we answer them, invite a reconceptualization of graduate learning and teaching as a much more reflective practice (Schön, 1983) than what currently seems the case: the nature of University teaching and its relationship to research tends to be limited to a "conduit" view of teaching as the transmission of new knowledge that originates in research activities. Our experience illuminates how we can consider other forms of relationships between research and teaching.

Implications

We believe the CollabU seminar experience brings valuable information that can illuminate the design of on-line community tools, on such issues as the development of views on patterns of participation, leadership, and conversations within on-line scholarship activities. CollabU is a complex socio-technical infrastructure requiring extensive resources for its establishment, but offers impressive potential for refined design and investigation of learning in higher education. Our next steps are: to promote discussions of such design and investigation with like-minded colleagues, build further implementations of CollabU, and conduct extensive research on collaborative design, learning and teaching in the context of CollabU.

Bibliography

Breuleux, A., Blatter, J. & Laferrière, T. (1999, April). *Representing learning transactions in networked learning communities: Who learns from whom?* Poster presentation at CILT 99, San Jose, CA.

Brown, A.L. (1997). Transforming schools into communities of thinking and learning about serious matters. *American Psychologist, 52*, 399-413.

Brown, J. S., & Duguid, P. (1995). *Universities in the digital age.* This version also appeared in Change: The Journal of the American Academy of Higher Education. [Available http://www.parc.xerox.com/ops/members/brown/papers/university.htmlSeely]

Moreno, J.L. (1953). *Who shall survive* (2nd Ed.). New York, NY: Beacon House.

Norris, D.N. (1997). *Revolutionary strategy for the knowledge age.* Ann Arbor, MI: Society for College and University Planning.

Schön, (1983). The reflective practitioners. New York, NY: Basic Books.

Teasley, S.D., & Roschelle, J. (1993). Constructing a joint problem space: The computer as a tool for sharing knowledge. In S. Lajoie, & S. Derry (Eds.), *Computers as cognitive tools.* Hillsdale, NJ: Erlbaum.

Authors' Addresses

Alain Breuleux (Breuleux@education.mcgill.ca)

Faculty of Education; McGill University; 3700 McTavish St., Montreal (QC); Canada; H3A 1Y2. Tel. (514) 398-6952

Ron Owston (rowston@YorkU.CA)

Centre for the Study of Computers in Education; York University; 4700 Keele St.; Toronto, Canada; M3J 1P3. Tel. (416) 736-5019

Therese Laferriere (tlaf@fse.ulaval.ca)

Faculte des sciences de l'education; Universite Laval; Ste-Foy (QC); Canada. Tel. (418) 656-2131 ext. 5480

Paul Resta (resta@mail.utexas.edu)

Learning Technology Center; The University of Texas at Austin, SZB 438; Austin, Texas 78712. Tel. (512) 471-4014

Nolan Estes (nestes@mail.utexas.edu)

Dept. of Educational Administration; The University of Texas at Austin, SZB 310; Austin, Texas 78712. Tel. (512) 475-8576

William Hunter (hunter@ucalgary.ca)

Faculty of Education, The University of Calgary, 1102 Education Tower; 2500 University Dr. NW; Calgary, Alberta, Canada; T2N 1N4. Tel. (403) 220-5507

Carolyn Awalt (cawalt@mail.utexas.edu)

Learning Technology Center; The University of Texas at Austin, SZB 438; Austin, Texas 78712. Tel. (512) 232-2189