DESIGNING, DEVELOPING AND IMPLEMENTING
AN EDUCATIONAL SOCIAL NETWORKING ENVIRONMENT

Abstract

In its efforts to offer quality education that responds to the diverse needs of its students, Cegep@distance exploits various technological innovations to diversify course delivery options. In keeping with this perspective, the research project Osmose seeks to identify new avenues to address the special needs of one particular category of learners. These learners value the flexibility of the self-paced programming model of the institution, but they feel their learning experience would be enhanced if they were offered opportunities for some level of interaction with their peers. The two demands seem to be competing and mutually exclusive, but it is hypothesized that through a "social networking educational environment" based on Paulsen's theory of cooperative freedom (1993), it is possible to reconcile these two conflicting design goals. In this report, we present the preliminary findings of the first phase of the study, with a particular focus on design challenges and lessons learned.

Introduction

For the past few years, Cegep@distance has been experimenting with new tutoring and student support methods to improve the persistence and success rates of its students. One of the major challenges Cegep@distance faces in pursuing this target is its individualized, learner-paced, continuous intake model of distance education. This model, also known as self-paced programming or flexible delivery, has the advantage of allowing maximum flexibility and freedom for the students. While obviously cherished by the students, flexibility and freedom come with a price: the absence of cohorts and group pacing. The absence of cohorts and group pacing complicates the task of creating a learning community which, it has been theorized, could improve learning and persistence. Project Osmose addresses these challenges and takes advantage of the opportunities offered by social networking software.

The research project is about the educational uses of social networking software. It is sponsored by the Quebec Ministry of Education and the Canadian Inukshuk Learning Fund. More specifically, this study consists of examining the role social networking software could play in fostering collaboration and social support among otherwise isolated distance learners. It is hoped that increasing peer interaction opportunities will enhance motivation and persistence and reduce dropout.

Cegep@distance

Cegep@distance is a French-language, post-secondary institution in Quebec (Canada) dedicated to distance education. It was founded in 1991 by the provincial Ministry of Education. It offers 250 courses and four programs, reaching about 15,000 students a year. Cegep@distance designs and develops its own instructional materials in print and multimedia formats and delivers them by correspondence as well as online. Its clientele includes students in technical and pre-university collegial programs, as well as in short-credit and non-credit adult continuing education programs. Students may enrol in single courses or full programs.

The problem of dropout in distance education

Despite its increasing popularity, distance education has traditionally been associated with high dropout rates compared to campus-based education. According to Pithers & Twyford (2000), the dropout rate varies between 30% and 68% (cited in Poellhuber, Chomienne, & Karsenti, 2008). In 2007-2008, at Cegep@distance, the rate of failure due to dropout was 32.9%. According to the literature, the reasons for this phenomenon include isolation, lack of

interaction, poor student-teacher communication and procrastination (Bernard *et al.*, 2004; Willging and Johnson 2004).

Past studies at Cegep@distance have focused on closer support through enhanced tutoring. The results were positive, but the solution was deemed financially unsustainable for institution-wide implementation. It was hypothesized, however, that based on Anderson's interaction equivalency theorem (2003), the same effect could be achieved through enhanced peer interaction (a cost-effective alternative). The problem is to achieve this in the absence of cohorts and given the resulting difficulty in scheduling and group pacing.

The potential of social software

The challenge is to provide opportunities for student-student interaction while retaining the advantages of the student-paced model: freedom and flexibility. Project Osmose seeks to achieve this goal through the use of social software. The idea is to harness the educational potential of a technology – social software and Web 2.0 tools – that is already popular and widely used among the younger generations. In a recent survey of around 1000 Cegep@distance students, 85% of the respondents said they were familiar with social software, 65% said they were interested in using them to learn, and around 25% expressed an interest in online collaboration (Poellhuber, 2009).

Research design and methodology

The study follows the design-based research methodology. This approach is based on close collaboration between researchers and practitioners and allows for the development of solutions that are tested and refined in iterative cycles. Research objectives include describing the ways students use social software, videoconferencing and collaborative learning activities, and determining value attributed to these activities by the students.

Design, development and implementation of the solution

The educational social networking environment designed for the project is made up of four major components: a social networking program Elgg (including a set of Web 2.0 tools), collaborative learning activities, a Web videoconferencing application (Via), and a bridge to the LMS. Three courses were selected for the experiment. Three teachers, one for each course, were recruited and invited to join the research team as subject matter experts in the design of the learning activities and as tutors during the implementation phase.

Once the software components were tested and installed, a training program was put in place to help the tutors develop the skills needed to serve as facilitators in the online environment. At the same time, help resources were being developed for future students and learning activities were designed according to the principles of social constructivism. The objective was to create a learning environment that would be conducive to collaboration and team work. The final phase prior to implementation was the recruitment campaign. This took the form of presentations inside and outside the organization, newspapers ads and an online promotional video.

Challenges and constraints

One of the difficulties we faced during the design and development phase was having to work in and around an environment that was constantly changing. It was like aiming at a moving target. On one hand, there was our own evolving understanding of the solution, which at different points called for certain adjustments. It was one thing to espouse the principle at a theoretical level, but quite another to translate it into practice. On the other hand, the social networking application Elgg itself saw some significant changes along the way, introducing some important new features that we simply could not ignore.

Another challenge was recruiting research participants. In spite of the highly elaborate promotional campaign, the information did not initially seem to circulate fast enough, but with time, things got better. Finally, we had to deal with a certain amount of scepticism and apprehension internally. This was related to doubts about whether the service offered meets a real client need. Questions were also raised about the impact of the project on the workload of the support personnel.

Preliminary evaluation and results

Seven months into the study, a preliminary evaluation was conducted to find out what was working and what wasn't, in preparation for the second iteration starting in June 2010. Data were collected from various sources, namely, activity traces in the system, Web videoconferences, an interview with one student team in one of the courses, and weekly debriefings with the tutors.

Our analysis of the data collected was supported by a thorough review of the literature which provided us with the conceptual tools necessary to make sense of the results and make informed decisions about any necessary modifications to the design before we embark on the second and final phase of the experiment.

First interpretations

In a meta-analysis of the experimental literature on distance education comparing different types of interaction treatments, Bernard *et al.* (2009) argue that students will not necessarily avail themselves of opportunities for interaction or collaboration just because they are offered, and that if they do interact or collaborate, they will not necessarily do so effectively. This was to some extent borne out in the first phase of our experiment. Overall, the level of socializing and collaboration was below our expectations. To be sure, there have been a number of cases of successful use of the learning environment, but we still cannot say that we have achieved our target of fostering the development of a self-organized community of mutually supportive learners.

Among the issues identified are usability problems for certain features, the absence of a critical mass of users (even though this is changing), difficulty in scheduling welcome videoconferences, difficulty for students to find team mates, learning activities that are found to be over-structured and restrictive, and a tendency for tutoring to slip into the traditional role of "sage on the stage" instead of "guide on the side" to support student autonomy and foster collaboration among peers.

Lessons learned and future directions

The main "lesson" that we have learned from our evaluation of the first phase of the project is a confirmation of the very premise on which the whole project stands, namely that while students in distance education might need or want more peer interaction, they definitely do not want it to be at the expense of the freedom and flexibility afforded by the self-paced programming model. In light of this diagnosis, we have concluded that we have to rethink our learning design and interaction architecture strategies.

A new approach is, therefore, needed. Social software is at the centre of the envisioned solution, but its potential will be exploited differently. The main idea comes from Paulsen's theory of cooperative freedom (Paulsen, 1993, 2006, 2007). In a nutshell, we are moving from a more traditional view of collaboration based on tight-knit social structures (or strong ties) and direct communication, to a looser, more diffused form (in Paulsen's terms, cooperation) based on weak ties and indirect, possibly even unintentional exchanges. In more concrete terms, here are some of the changes proposed for the second iteration:

- Promoting cooperative rather than collaborative learning, enabled through transparency (making users' presence, activities and interactions visible to others)
- A shift of focus by placing more emphasis on peer-support and promoting a different role for the tutor as "guide on the side," nurturing interactions and facilitating the emergence of a student-centred learning community
- A shift of focus by placing more emphasis on the group and less on the individual (in the structure and organization of the site as well as the tutoring approach)
- Improving usability by simplifying the interface, eliminating redundancy, combining features and facilitating access

The challenges ahead

Once again the million dollar question is how we can walk the walk now that we have talked the talk. Theoretically speaking, everything seems to fall in place, but a number of practical questions will have to be answered before we can transform this new vision into reality:
- How can we design cooperative learning activities according to the principle of cooperative freedom? Or should we?
- What mechanisms can be used to support transparency (the potential of social networking and cooperative learning)? How can we do it while keeping control in the hands of the learners (the notion of social translucence)? (Erickson, 2000)
- What tools do we need to harvest traces and signs (applying the concept of stigmergic collaboration)? (Dron & Anderson, 2007)
- What is the ideal balance between the social and course-related uses of an educational social networking environment?
- How can we design our interventions so as not to affect the users' sense of ownership of the system? What balance shall we strike between structure and dialogue? Can we have structure through dialogue? (Dron, 2007)
- What is the role of the tutor? How can we enforce the role of the tutor as "guide on the side"? What practical strategies can be used to support the emergence of a self-organized, student-centred learning community?
- What strategies best promote peer support, direct and voluntary as well as stigmergic?
- Is there a need for a support role beyond the tutor in a cooperative learning community?

Highlights of good practice

Even though we have not even completed the first of two experiment iterations, and only a small portion of the data have been collected and analyzed, we have been able to draw important lessons from our experience so far and reach significant conclusions. This will certainly bring us closer to achieving our objectives in the second iteration as our research foundations are reinforced and our design is refined. Some of the choices we made that maximized our chances of success were:
- Choosing the appropriate research design and methodology for the research question
- Maintaining a continuous dialogue with the literature to ensure a constant flow of new ideas in response to emerging problems
- Setting up a communications plan that facilitates the recruitment of research participants and mobilizes various resources both internally and externally
- Choosing an open source software application, allowing us maximum flexibility to adapt it to our needs
- Experimenting with technological solutions that can help the world of education catch up with the other sectors of society and reap the benefits of the latest advances in ICT
- Exploring new approaches to teaching and learning that are more in line with the needs of the different generations of learners

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