OPEN, CONNECTED, SOCIAL — IMPLICATIONS FOR EDUCATIONAL DESIGN

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Abstract

In January 2008, a new Graduate course in Education was offered at the Faculty of Education, University of Regina. The online course, "Open, Connected, Social," utilizes Web 2.0 and open source software tools to promote, engage with and critically interpret emerging digital pedagogies. Students participated in collaborative activities that helped develop student self-efficacy, improved technological competencies, and positively influenced student perceptions of educational technology. This paper shares the theoretical foundations of the course, a description of course activities, assessments and experiences, and describes early successes and lessons learned in the design and facilitation of this unique experience.

Introduction

This paper describes the development and facilitation of "Open, Connected, Social," a graduate course in educational technology first offered in January, 2008, at the Faculty of Education, University of Regina. This online course, facilitated primarily through the use of Web 2.0 and open source software, was designed to foster an immersive experience where participants could engage in and critically interpret digital content, tools and emerging pedagogies. This paper is written from the perspective of the course developer and facilitator. It is a descriptive piece, and precedes the formal research and data collection processes set to begin May of 2008.

These sections will follow. First, the paper begins with a discussion of theories and concepts that informed the guiding principles for the course development and facilitation model. Second, the course format is described including a description of assessments, activities, and network experiences. Finally, there is a discussion of perceived, early successes and lessons learned through the development and delivery of this course.

Theoretical Foundations

The development of EC& I (Education, Curriculum & Instruction) 831 was largely influenced by three theories: social cognitive theory, connectivism, and open

thinking. These theories informed a model of course facilitation that stressed student immersion in social activities, the development of social connections, and the use of free and open technologies and processes including open source software, open content, and open publishing.

Social Cognitive Theory

Social cognitive theory finds its early roots in the area of social learning theory originally proposed by N. E. Miller and J. Dollard (1941). Social learning theory helps to explain how humans adopt behaviours through the observation of others. If individuals perceive positive, desired outcomes related to a specific behaviour, they might be more likely to imitate and adopt the behaviour themselves. Bandura and Walters (1963) broadened this theory to include observational learning and vicarious reinforcement. And later, Bandura (1997) added the concept of self-efficacy, "people's judgments of their capabilities to organize and execute courses of action required to attain designated types of performances" (p. 391).

Self-efficacy is a focal point of social cognitive theory, and helps to distinguish it from earlier social learning theories. Bandura (1997) considered self-efficacy beliefs to be the most influential arbiter of human activity and it is an important concept in conceptualizing student-centred learning environments (Lorsbach, 1999). Bandura (1997) introduced four factors affecting self-efficacy. These include:

- Experience: Past experiences are an important factor in influencing self-efficacy. Simply put, success raises self-efficacy and failure lowers it.

- Modeling (or Vicarious Experience): Individuals compare themselves with their peers. If individuals view success in peers, self-efficacy will likely increase.

- Social Persuasions: This concept relates to encouragements and discouragements. Positive reinforcement or assessments from peers have a favourable effect on self-efficacy.

- Physiological Factors: Physiological responses may influence an individual's self-efficacy. For instance, if an individual becomes stressed or anxious when using technology, they may view this as a sign of their own inability. However, for those with already higher self-efficacy, this nervousness may be perceived as a normal response to pressure.

Social cognitive theory and these four factors related to self-efficacy were important considerations in the development of activities and assessments in EC&I 831. Specifics will be outlined at the end of this section.

Connectivism

While social learning theory finds its roots in both behaviourist and cognitivist traditions, connectivism (Siemens, 2005) appears to be heavily influenced by theories of social constructivism (Vygotsky, 1978), network theory (Barabási, 2002; Watts, 2004), and chaos theory (Gleick, 1987). Connectivism is a learning theory that emphasizes the importance of non-human appliances, hardware and software, and network connections for human learning. The theory stresses the development of "metaskills" for evaluating and managing information and network connections, and notes the importance of information pattern recognition as a learning strategy. Connectivists recognize the influences that information and communication technologies have on human cognition, and theorize that technology is reshaping the ways that humans create, store, and share knowledge.

Principles of connectivism that are relevant to the development and facilitation of EC&I 831 include the following:

- Learning and knowledge rests in diversity.
- Dynamic learning is a process of connecting "specialized nodes" (people or groups), ideas, information and digital interfaces.
- "Capacity to know more is more critical than what is currently known."
- Fostering and maintaining connections is critical to knowledge generation.
- A multidisciplinary, multiliteracy approach to knowledge generation is a core tenet of connectivism.
- Decision-making is both action and learning; "Choosing what to learn and the meaning of incoming information is seen through the lens of a shifting reality." (Adapted from Siemens, 2005)

A connectivist approach to course design acknowledges the complexities of knowledge management and learning in the digital age. Course facilitators and students can leverage knowledge networks for personal knowledge generation, sharing, and collaboration.

Open Thinking

The third major theoretical influence for the development and facilitation of EC&I 831 was the concept of open thinking. This concept is derived from a doctoral research study of teachers, educational administrators, educational theorists, and technical experts who had moved away from the use of proprietary software and publishing processes toward open source, open access, and democratic publishing tools and philosophies. Open thinking, in part, is defined as "the tendency of an

individual, group or institution to give preference to the adoption of open technologies or formats in regards to software, publishing, content and practice. Open thinkers critique, question and seek to reject technologies or formats that compromise the power of adopters, especially in the freedom to use, reuse, edit and share creative works and tools" (Couros, 2006, p. 148).

Synthesis

Social cognitive theory, connectivism and open thinking were the three major philosophical influences for the development and facilitation of ECI&I 831. From these theories, guiding principles for the course were synthesized and established. They include the following:

- The instructor and assistants will assume roles as facilitators and social connectors, rather than deliverers of knowledge.

- Course content will be offered through conversations with invited guests, and in student participation in the greater educational network (e.g., edublogosphere).

- Students will immerse themselves in social knowledge creation and collaborative skill-building activities.

- Student learning will be explicitly aligned with personal and professional learning goals.

- Students will engage in the use of emerging technological tools (e.g., Web 2.0) for the critical consumption and production of content.

- Students will participate in distributed conversations, be immersed in relevant topics, and reflect on personal learning experiences.

- Course facilitation tools and processes will favour the use of free and open source software (FOSS), free services, open access tools, open formats, and transparent course mechanisms.

These principles guided the development of the course assessments and processes as written in the next section.

Course Facilitation Model

This section gives an overview of the course, describes the major assessments, synchronous activities and course facilitation tools. At this time, it is important to

note that the majority of participants are practicing teachers or educational administrators, and therefore, course assessments and activities were designed to be both relevant and challenging in respect to their existing professional roles.

Major Assessments

Three major student assessments guided student activities for the duration of this course experience. For the Winter semester of 2008, these assessments included: the development of a personal blog/electronic portfolio, the collaborative development of a wiki resource, and a major digital project.

Personal blog/electronic portfolio. Each student developed an electronic space to document learning, provide critique of course readings and activities, and to foster personal and professional reflection. The spaces became portals to student professional activities, and acted as distributed communication mechanisms; an alternative to centralized, managed discussion forums. Students chose from a variety of services to host their spaces, each was customized by the learner, and it is hoped that these blogs are maintained beyond the duration of the course.

Collaborative wiki resource. Students worked collaboratively to create a wiki focused on the use of technology in teaching in learning. This resource, found at http://t4tl.wikispaces.com, is the result of hundreds of student edits, and covers topics such as tools and techniques, digital pedagogies, virtual worlds, mobile learning, course management software, digital storytelling, screencasting, and podcasting. The site also provides case studies of technology use in the classroom supported by rich examples and media.

Major digital project. The major digital project was designed flexibly so that students could develop a relevant resource for their specific professional context. Some students engaged in producing videos, instructional resources, and other multimedia. Others engaged in global collaborative projects, developed online social networks, or produced local professional development workshops. The activities reflected the range of student technological competencies and professional/personal interests.

Synchronous Activities

To support the major assessments and provide content-rich opportunities, two synchronous sessions were offered weekly. Sessions varied in length from one to two hours, and provided conversations with guests around theoretical issues or alternately, were more skills-focused (hands-on). Additionally, these sessions helped to foster a sense of community among the course participants, the instructor, teaching assistants and guests from outside of the course.

Guest sessions. Leaders in the greater educational technology community were invited to participate in conversations with course participants. Notable presenters included Dr Richard Schwier, Stephen Downes and George Siemens. Sample topics included social learning tools, the history of educational technology, remote access, connectivism, open learning repositories, and personal learning. All conversations, including audio, video, and any instructional aids (e.g., slides, web resources), have been archived for future use.

Hands-on sessions. Student technological competencies varied greatly from the onset of the course. A series of hands-on sessions were provided to help students gain the knowledge and skills needed to better succeed in the technical aspects of the major project components.

Course Facilitation Tools

This section identifies the primary tools used to facilitate EC&I 831. As identified in Section 1, free and open source tools and services were favoured in the facilitation of this course. However, a number of proprietary tools were also used where deemed appropriate.

Wordpress. All students used the open source software Wordpress as their blogging engine. While most used hosted services (e.g., Wordpress.com), some have now moved to self-hosted solutions. Wordpress was also the software used for the course blog found at http://www.educationaltechnology.ca/eci831

Wikispaces. Wikispaces is a free, hosted wiki service that allows simple, web collaboration. The EC&I 831 course site was hosted primarily through the use of a Wikispaces wiki. This wiki featured course assessments, course calendar, tutorials, session summaries, and a participant directory with student bios. The course wiki can be viewed at http://eci831.wikispaces.com

Elluminate/Adobe Connect/Ustream. A number of tools were used to facilitate the synchronous sessions. Adobe Connect, a proprietary web conferencing tool, was first chosen as a relatively inexpensive solution. However, Connect was dropped after the first two sessions as audio was poor, and course participants experienced a number of system crashes. Elluminate, a more expensive web conferencing tool, was used next, and was found to be much more stable than Connect. However, participants and presenters found Elluminate to have a non-intuitive interface and the software contributed to a number of system crashes. Finally, Ustream.tv (a free service) was used in combination with Skype, an audio conferencing tool, to produce a very usable and robust system for course conversations. Ironically, the free tools were found to be the most stable, and thus, preferred by students and other course participants. A precise description of how these tools were used can be found at http://educationaltechnology.ca/couros/765

Successes and Lessons Learned

As stated in the introduction, this paper precedes the formal research and data collection processes due to begin in May 2008. However, from the point of view of course facilitator, there are several successes and lessons learned that could be shared at this preliminary stage.

Student Feedback has been Very Positive

Students have produced unsolicited reflections of their experience in the course. The following statements are representative of many similar writings from students in the course. Pseudonyms have been given to ensure anonymity.

> The course, the last one in my program, has been the most profound professional development experience I have ever had. It forced me to critique and review my own practice. I never thought about open access before. I never knew how important online social networks were. Now, I couldn't be a teacher without being connected. It's drastically changed my view of education. (Melanie, e-mail message)

> The quality of presenters and the activities that were relevant to my classroom experience made this class perfect for me. I have learned so much about teaching in the digital age. I am now a networked learner. I am part of a network, and I feel that I have become a better teacher. My students love the change! (Suzanne, e-mail message)

> I never would have thought that teachers in my school would look to me for advice about technology. Now, I feel so much more confident about technology. I used to be scared of it. Now I feel like I have become a leader in my school in tech and teaching. (David, e-mail message)

Participants generally reported increased confidence in personal technological competencies, the importance of establishing and leveraging personal social networks for teaching and learning, and a renewed sense of leadership as viewed by peers and colleagues.

Distributed Conversation More Authentic, but Difficult to Track

Rather than using a central discussion forum and a course management system (e.g., Blackboard, Moodle), the course utilized several tools to help distribute the conversation of students (e.g., blogs, wikis, podcasts, Google groups). For novice users, this was initially problematic. Students found it difficult to manage the conversations in the course, and to keep up with all of the blog posts, wiki edits, and audio recordings. However, feed reader tools such as Google Reader were presented to students early in the course. Students learned quickly to use this tool

to capture conversations and postings from various sources to a central location. This enabled students to subscribe to course content, and eventually, allowed students to subscribe to a number of other information sources outside of the course. One student commented

> I was lost in the first part of this course. Once I figured out how to use Google Reader, and get everyone's blogs in there, I couldn't imagine reading the web in the old way. Doing it this way allowed conversations to happen where they naturally occurred, rather than always bringing it back to a central place. (Jeff, e-mail message)

Free and Open Tools and Services Are Valuable to Online Courses

As outlined in the previous section, a number of free and open source tools and services were used to develop and facilitate the course experience. Blogs and wikis were more than sufficient in handling the majority of functions offered by a traditional content management system (e.g., Blackboard, Moodle), minus a few notable exceptions (e.g., grading tools, student reporting). Additionally, open wikis and blogs created a transparent course environment where observers could co-participate in course experiences with registered students. This transparent environment is counter to the "walled-garden" approach typical of contemporary course management systems. Benefits of each model can be argued, but this debate is not offered in the scope of this paper.

Social Networks Can Provide Valuable Experiences for Students

There were a number of notable projects that resulted from the use of social networks in the course. These projects were a result of students connecting with other classrooms and individuals for common, educational goals. Some of these projects include:

Collaborative Iditarod project. A student in the course developed a collaborative project with classrooms from two Canadian cities, a classroom from the United States, and one from the Middle East. The goal of the project was to develop an understanding of Alaska, the Iditarod (dog sled) race, geography, climate, and culture. Together, students from each of the participating classrooms tracked the progress of the race, while learning about Alaska.

Parents 2.0 social network. Another student created a social network focused on parent education issues related to technology and children. The site included resources, literature, surveys, legal guidelines, multimedia, and the ability to share and discuss issues. The site is a unique resource, and has attracted much interest from parents and educators.

Classroom blogs. There were several classroom blogs developed during the course. Blogs that were perceived to be most successful included: links and access to community (e.g., parental participation), multi-subject area content (e.g., content covering several courses taught), visible guidelines and mission statements, and multimedia created by K–12 students. These spaces were well received by students, and more apparent, most parents were excited to have an online link to the learning activities of their children.

Closing

This paper highlighted the processes involved in the development and facilitation of the course "Open, Social, Connected." Careful attention to the course's theoretical foundations, flexible assessment models, collaborative activities, and the use of emerging technologies (e.g., Web 2.0 tools, free and open source software) helped to make this course successful for its students. Participants leveraged new technologies, immersed themselves in new forms of pedagogy, and connected and conversed with content experts and colleagues from around the globe. Perhaps the most telling quotes regarding the success of the course comes from Jennifer as she writes, "The best part of this course is that it's not ending. With the connections we've built, it never has to end" (blog post).

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