



Technological University Dublin
ARROW@TU Dublin

Stream 3: Digital Campus and Universal Design

Higher Education in Transformation
Conference, Dublin, 2015

2015-4

Evolving Strategies for Online Learning in Graduate Courses in Education

Maurice DiGiuseppe

University of Ontario Institute of Technology, maurice.digiuseppe@uoit.ca

Roland Van Oostveen

University of Ontario Institute of Technology, roland.vanoostveen@uoit.ca

Diana Petrarca

University of Ontario Institute of Technology, diana.petrarca@uoit.ca

Follow this and additional works at: <https://arrow.tudublin.ie/st3>

 Part of the [Higher Education Commons](#)

Recommended Citation

DiGiuseppe, M., Van Oostveen, R. & Petrarca, D. (2015). Evolving Strategies for Online Learning in Graduate Courses in Education. *Higher Education in Transformation Conference, Dublin, Ireland, 2015, pp.292-306.*

This Conference Paper is brought to you for free and open access by the Higher Education in Transformation Conference, Dublin, 2015 at ARROW@TU Dublin. It has been accepted for inclusion in Stream 3: Digital Campus and Universal Design by an authorized administrator of ARROW@TU Dublin. For more information, please contact yvonne.desmond@tudublin.ie, arrow.admin@tudublin.ie, brian.widdis@tudublin.ie.



This work is licensed under a [Creative Commons Attribution-Noncommercial-Share Alike 3.0 License](#)



Evolving strategies for online learning in graduate courses in education

Maurice DiGiuseppe, Roland vanOostveen, Diana M. Petrarca

University of Ontario Institute of Technology (UOIT)

Oshawa, Ontario, Canada

Abstract

Internet-based learning is becoming more commonplace in post-secondary settings in Canada and internationally, though, often, instructors struggle to develop effective programming for their students. In this article, we present three cases in which instructors critically reflect on their experiences designing and implementing online learning environments for various courses in the graduate programs in education at the University of Ontario Institute of Technology (UOIT) in Oshawa, Canada. The first case focuses on an instructor's efforts to develop courses involving problem-based learning (PBL) on the basis of a faculty-developed conceptual framework. In the second case, an instructor describes how her experiences as a graduate student influenced her efforts to create community-centred online courses at UOIT. In the third case, an instructor and his students reflect on the implementation of a major course assignment involving student-facilitated small group discussions. These cases provide insights regarding theory-informed graduate course development; consideration of meaningful past experiences in graduate course development; and strengths and weaknesses of hybrid online learning systems.

Introduction

Internet-based learning is gaining popularity in graduate studies programs around the world. Online courses are commonly provided in synchronous, asynchronous, or hybrid online formats. Synchronous online learning usually occurs in virtual spaces in which learners and instructors meet for simultaneous interaction. In asynchronous configurations, participants interact sporadically via email, blogs, bulletin/discussion boards, and other intermittent forms of communication. Hybrid online programs, however, allow for a combination of synchronous and asynchronous modes of interaction. Davidson-Shivers, Muilenburg, and Tanner (2001) claim that a hybrid model, including synchronous 'online chats' and asynchronous 'threaded discussions'...provide different, but useful, means for students to engage in discussion and learning" (p. 365).

The graduate programs in education at the University of Ontario Institute of Technology (UOIT) in Oshawa, Ontario, Canada offer all courses in hybrid, online mode, employing Adobe Connect web-conferencing software for synchronous meetings and, commonly, the BlackboardLearn learning management system (LMS) for asynchronous interaction. However, additional web-based tools are frequently employed, including YOUTUBE, GOOGLE DOCS, KNOWLEDGE FORUM, AND PREZI. Though studies show that post-secondary instructors are increasingly adopting online learning, they often struggle to learn and employ effective strategies: "The learning curve for mastering some educational technologies and social platforms can feel stunningly vertical at times, and institutional training and support is often limited or lacking altogether" (Matrix, 2012, p. 6). In this reflective paper, we discuss three cases, each focusing on the design and implementation of teaching/learning strategies employed in online courses in the UOIT graduate program in education.

The first case focuses on an instructor's efforts to integrate problem-based learning (PBL) in courses over a period of 3 years; the second on an instructor's efforts to create a community-centred learning environment; and the third on implementation of a major course assignment involving student-facilitated small group discussions. In general, in this paper, we discuss—through the lens of lived experience (Creswell, 1998)—relevant aspects of hybrid (synchronous / asynchronous) online graduate learning environments that support student self-direction, community-building, knowledge construction, and facilitation of online learning.

Case 1: Online Graduate Education through Problem-Based Learning

With my past experiences as a graduate student taking courses in an online environment still fresh in my mind, I considered teaching some of the initial online Master of Education (MEd) courses at UOIT. Already familiar with some key frameworks for online learning, including critical inquiry (Garrison, Anderson, & Archer, 2000); peer learning (Rourke & Anderson, 2002); and social presence (Rourke, Anderson, Garrison, & Archer, 2000), I collaborated with members of the Faculty of Education's "Graduate Program Online Pedagogy Sub-Committee" in developing a model of online pedagogy involving Cognitive Presence, Social Presence, Collaborative Learning, and Digital Space (van Oostveen, Bullock, DiGiuseppe, & Desjardins, 2010). The biggest challenge would be to develop and successfully implement online courses that adequately addressed each element of this model.

Philosophical Transformations: Addressing Cognitive Presence

My initial educational orientation was fairly traditional, believing that teachers teach and students learn. However, as a high school science teacher I realized that my students were severely limited in creativity and initiative and more focused on accumulating information (and grades) than on developing skills to analyze and synthesize information. Eventually, my participation in a PhD research project (Bencze, 1995) introduced me to problem-based learning (PBL) and constructivist learning theory (Piaget, 1967; Vygotsky, 1978), causing me to more deeply investigate the meaning of the terms "teaching" and "learning." When I transitioned to a university setting, these concerns seemed to be amplified, and I realized that I would have to employ radical methods to transform my orientation to teaching and learning (Zundel & Deanne, 2010). It was at this point that I began to seriously consider PBL as an overarching pedagogical orientation.

PBL may denote "project-based learning" or "problem-based learning." In project-based learning, students typically find solutions to instructor-selected practical problems (e.g., aircraft wing design in an aviation course) and share results through reports and formal presentations. Though project-based learning tends to be task-oriented and instructor-directed (Savin-Baden, 2007), the processes employed and solutions sought may be open-ended. In contrast, problem-based learning is "a curriculum model designed around real life problems that are ill structured, open ended, or ambiguous" (Fogerty, 1997, p.2). Thus, unlike project-based learning, in which students follow a prescribed syllabus, problem-based learning immerses students in open-ended learning situations. Problem-based learning is closely aligned

with “open-ended inquiry” in that groups of learners analyze a given situation; identify problems to be explored; develop problem-solving strategies; and use those strategies to propose solutions or solve the problems. However, solutions are not always the end-product since the nature of the product is under the direction and control (within reason) of the learner. While products such as mathematical formulas or disease diagnoses may result, the most meaningful end-product is the learning gained in the process. Note that “PBL” will refer to “problem-based learning” in the rest of this case.

In PBL, the problems are necessarily context-specific, meaning that they may be recordings of actual or “real” events or simulated “real” events with all of their inherent complexity, richness, and ambiguity. Typically, a community of learners should be established to provide the social setting for learners to discuss common experiences and negotiate new understandings. Engagement with a problem is far more likely if the learner is placed (virtually or physically) into a setting that is relevant and intriguing rather than an abstract or figurative one (Van Berkel & Schmidt, 2000). The types of problems included in PBL exercises are very different from, say, the “word problems” found in typical mathematics textbooks where unambiguous problems are presented, and predetermined solutions are sought.

Constructivism, PBL, and Multimedia Case Studies: Addressing Cognitive Presence, Social Presence, and Collaborative Learning

It was upon my introduction to social and radical constructivism (Vygotsky, 1978; vonGlaserfeld, 1995) that I found a set of ideas that might help rectify or mitigate the teaching and learning issues I experienced early in my career as an educator. Constructivist theories focus on learning, and may be used to design environments conducive to learning. A constructivist-inspired model that I found helpful in developing my graduate education courses was proposed by Bencze (2008). This model involves three stages: “Reflecting”, “Learning”, and “Evaluate.”

In the Reflecting stage, educators acknowledge that learners apply pre-existing mental constructs when encountering new situations and ideas. In this stage, learners establish a baseline of their understanding against which changes can be assessed. Students’ prior conceptions should be recorded on an individual basis using strategies such as concept maps, stories, and poems; thus allowing them to be reviewed and compared to later conceptions through reflective process involving metacognition.

In the Learning stage, instructors arrange for learners to appreciate the views of classmates and knowledgeable others in direct and unambiguous ways through strategies such as worksheets, demonstrations, readings, research, and group learning activities. Importantly, the information should be presented in ways that acknowledge its robustness, but also its tentativeness and refutability. This allows students’ prior conceptions to be challenged. While this approach opens all explanations to challenge, instructors should minimize opportunities for concept rejection and maximize opportunities for assimilation and accommodation. Ideally, information provided should be individualized; however, this may not possible in most classroom settings, so

alternative strategies such as PBL are used since individuals may identify problems in the context of their own (personal) experiences and schema.

In the Evaluate stage, instructors present opportunities for learners to test their pre-conceptions against the alternative conceptions they were exposed to in the Learning stage. In the context of the online graduate courses I developed at UOIT, this was done by having students engage in additional readings, further discussion and debate, and collaborative decision-making activities. In these courses, techniques such brainstorming in Knowledge Forum (WebKF) (a scaffolded knowledge-building discussion forum and blogging environment), concept mapping, and definition writing were used to elicit pre-conceived notions. Definition writing, in particular, caused some consternation among students since their first inclination was to “look up” definitions to “get them right” rather than posting their pre-conceived understandings in WebKF.

Within a constructivist learning environment, PBL requires learners to critically examine issues and arrive at a negotiated consensus about problems and their solutions. These are the basic characteristics of a community of practice (Lave & Wenger, 1991) where members of a social group, acting as “knowledgeable others” (Vygotsky, 1978), collaboratively create new knowledge. In the graduate education PBL courses that I facilitated, groups of learners were expected to come to a consensus regarding the problem-solving process and the proposed solutions. According to Barrett (2011), while each member of a problem-solving group is expected to argue his or her own viewpoint, the primary focus should be on the issues and the reasons for holding particular views, not on the personalities and emotions of the group’s members. Collaboration in these courses was greatly assisted by the use of a wide variety of synchronous and asynchronous technologies.

Case studies, as learning exercises in which students analyze complex, contextually rich, real-life scenarios (Davis & Wilcock, 2003) have a long history in law, medicine, and business education. Text-based exercises are common; however, PBL-based multimedia cases are growing in popularity since these provide richer representations of real-world situations (Hewitt, Pedretti, Bencze, Vaillancourt, & Yoon, 2003). However, Bencze, Hewitt, & Pedretti (2009) contend that multimedia case studies may present an overly simplified version of professional life, particularly if recordings lack the nuanced, tacit “reality” in which professionals normally perform their tasks. The multimedia case studies I developed for graduate courses at UOIT included recordings taken in unscripted settings, roles acted out by amateur or professional actors, and/or contexts depicted by digital animations or a series of still pictures. Regardless of how they are created, video-based case studies should depict “authentic” activities, as described earlier in this paper.

The Learning with Technology Course and PBLs: Addressing Social Presence, Cognitive Presence, Collaborative Learning, and Digital Space

When UOIT’s Faculty of Education adopted Adobe Connect as the “official” synchronous audio/video conferencing system for the Graduate Program in Education, I welcomed the move; however, I continued (and

continue) to also employ a number of different asynchronous tools, including BlackboardLearn, WebKF, and wikis. I find that the immediacy of video-audio conversations is greatly augmented by the opportunity to reflect on others' posts and respond in thoughtful ways using WebKF. Although most computers are equipped with webcams, there seems to be a fair amount of reluctance to turn these devices on during synchronous sessions in Adobe Connect, often for fear of precipitating connection problems or poor audio or video quality. Certainly, there are several technical drawbacks having students turn their cameras on; however, I feel that the benefits of being able to read body language and see reactions on faces is of far greater value than trying to avoid technical problems by keeping video cameras turned off.

By the time I began to teach my third MEd course in July/August, 2010, I began to use PBL for all of the courses I facilitated. In the last of these courses, "Learning with Technology"—a survey course on fundamental concepts and issues in the field of learning with digital technologies—I employed online tools such as WebCT (an information repository and asynchronous communication system), email, WebKF, and Adobe Connect. In this course, I would post a video clip at the beginning of every week depicting situations regarding the use of digital technologies in educational contexts to motivate students to identify problems and discuss and debate issues arising. During their discussions, groups would collaboratively develop processes for more deeply understanding identified problems and for finding solutions to those problems. Over the next three daily sessions, group discussions would ebb and flow. Then, towards the end of each week, groups would share the processes and solutions with the rest of the class. The final course assignment was a theory-informed paper critically analyzing a commonly used website or digital tool.

In July, 2011 and May/June, 2012, I prepared and facilitated brand new courses for an online Bachelor of Arts in Adult Education and Digital Technologies (BAAEDT) program in the Faculty of Education at UOIT. All courses in the BAAEDT program have three components: video-based lectures, video-conferencing tutorials, and collaborative activities involving various synchronous and asynchronous tools, including Adobe Connect, WebKF, Google Docs, and Twitter. The first course, called "Teaching and Learning: Problem-Based Learning" involved "Problem-Based Learning Objects" (PBLOs) — reusable PBL-based digital multimedia objects that start with a video-based case study with analysis questions, followed by pages containing additional contextual information, links to useful websites, relevant theoretical information, and synthesis questions promoting discussions leading to proposed solutions. The lecture components were delivered through 10-15 minute video clips posted to a public channel on YouTube (vanOostveen, 2011) including analysis questions, a theoretical lens designed to create cognitive dissonance, and synthesis questions. The questions became the basis for discourse in the tutorial sessions, which were conducted in Adobe Connect. Since PBLOs combine a rich mix of theoretical elements, multimedia exemplars, and reflective questions, they encourage learners to use higher order thinking and discussion to critique the techniques and activities displayed in the video. Unlike traditional learning objects, PBLOs

promote knowledge creation, not curricular content delivery. In these courses, students eventually use PBL processes to collaboratively create their own PBLOs.

Student Reaction to PBL-Based Courses

There has been mixed reaction from students regarding PBL-based courses. Though many continued to focus on grades, most appreciated the general aims of the course and were highly engaged in the learning activities. However, virtually all of the students suggested that student-directed learning involved more work, and many stated that they were frustrated at times because they were not always sure what they were supposed to do, assuming that the instructor would tell them what to “do” and also what they were supposed to “know.” Students did, however, indicate that they enjoyed tutorial sessions because these allowed them to come to grips with the implications of constructivist orientated learning. In all courses there was appreciable movement towards greater learner independence and, based on the papers students produced, new understandings of PBL. Unfortunately, students continued to ask “How come I didn’t get a higher grade?”, so maybe things didn’t change as much as I had hoped.

Case 2: Online Graduate Education through Community Centred Learning

When considering the design of learning environments, Bransford, Brown, and Cocking (2000) suggested that learner-, knowledge-, assessment-, and community-centred learning environments have the potential to enhance student learning. And, while each orientation works in conjunction with the others, community is an overarching factor that permeates the other three. In particular, community-centred environments involve the establishment and maintenance of norms that support learning, and encourage collaboration, risk-taking, and making mistakes. To enhance learning, learners need to feel safe to ask questions and seek clarification from others (including the instructor).

Reflections of a Former Student and Current Instructor on Safe Learning Environments

The online courses I took as a doctoral student were cohort-based and tended to foster a learning environment conducive to taking risks. Of twelve doctoral courses, four were summer courses conducted in physically co-located mode and eight were completed in synchronous online mode. Extremely nervous and apprehensive, I met with my professors and the other students who became my cohort. However, realizing that some classmates had previous social science research experience triggered imposter-like feelings in me (Clance & Imes, 1978), making me wonder if I belonged in this advanced degree program. Nevertheless, my peers and I quickly immersed ourselves within our learning environment. A typical day involved 6 – 8 hours of class time consisting of whole group discussions, presentations, and small group collaborative work, and there were many opportunities for informal community-building activities which helped create an atmosphere of inclusiveness and support. Eventually, I joined a group that developed into a small community of learners. Upon completion of our first on-campus course

as a cohort, we began the next course, online, from our various geographical locations across Canada and the United States. The safe learning environment originally established in our first course was seamlessly transferred to our first online course, which occurred synchronously in Eluminate, our online virtual class application, and asynchronously in BlackboardLearn, our LMS. Once all of our coursework was completed, my smaller community of learners continued to meet online on a regular basis via email and social media.

The graduate program in education at UOIT does not employ a cohort model, nor does it include a physically co-located component. When I taught my first online course at UOIT, I remembered the nervousness I felt as a doctoral student, and so I sent a welcome email to my students asking them to upload individual photos to our LMS, so that we could relate to each other by more than mere names and numbers. During the first synchronous class, I welcomed the students and shared a brief autobiography through images and text, and invited students to introduce themselves. When planning for this introductory session, I was unaware of students' comfort levels, and anticipating that some students might feel nervous and require reassurance, I provided a few helpful points on a slide for guidance. To further address potential student nervousness, I remembered the "imposter"-like feelings I experienced as a student and explained to the class that I was a co-learner and that we should use our respective experiences to benefit the group. Each week I conducted a "status of the class" exercise in which students shared concerns, challenges, and "aha! moments" based on course readings and assignments. Memories of tensions I experienced as a student prompted me to check in with students between classes and to adjust course requirements in response to tensions arising from the interplay of course work and my students' career and personal life commitments.

Reflections of a Former Student and Current Instructor on Establishing and Maintaining Norms

Bransford et al. (2000) stress that community-centred environments require the establishment of norms that support group learning. In my doctoral courses, foundational norms were established in our initial physically co-located encounters. It was at the beginning of my first course and every course thereafter that norms regarding program expectations, academic integrity, ethics, workload, communication, and collective contributions to learning were established. Most instructors also addressed technical norms, including reminders to log on early; to test microphones, video cameras, and connectivity; and to avoid eating and drinking with the sound turned on. In classes where these norms were not established, I resented listening to a classmate's screaming child or spending valuable class time working out a classmate's technical issues. In other cases, I grew increasingly frustrated by students who posted unnecessarily long and irrelevant comments and jokes in asynchronous online bulletin boards and who monopolized discussions in synchronous sessions.

In the first synchronous online class I taught at UOIT, my students and I developed and implemented norms regarding technology, routines, and

workload, including a step-by-step plan of action to implement if our virtual classroom suddenly went offline, so that the class would not be left in “online limbo.” I initiated this because I remembered my own online student experiences where a university IT technician was on stand-by to resolve any technical difficulties we may encounter. Since UOIT did not provide a similar service, I felt we needed to create our own emergency procedures. Additionally, from the very start, I wanted students to take ownership of their learning and their learning environment, and I encouraged them to provide me with feedback throughout the term, as I was new to the UOIT graduate program and a learner like them. To establish norms for online etiquette, I provided a variety of web-based “netiquette” resources as part of the first class’ readings, and when we used breakout rooms in Adobe Connect, I would pop into the rooms to facilitate and reinforce discussion norms, as required

Reflections of a Former Student and Current Instructor on Collaborative Processes

All of the online courses I took as a graduate student courses involved some type of collaborative work. During online synchronous sessions, most instructors stimulated discussion by posing open-ended questions that challenged our current understandings and compelled us to consider alternatives. These whole class collaborative learning exercises allowed social influences and community beliefs and values to contribute to my personal meaning-making (Jonassen, Hernanadez-Serrano, & Choi, 2000). However, there were some sessions in which our instructors asked us to simply discuss issues on the discussion board or in small group breakouts. I often found this strategy to be rather frustrating, especially if the material was particularly challenging. As Johnson and Johnson (1991) note, smaller groupings (dyads or triads) tend to promote individual accountability and positive interdependence; however, if the course instructor did not check in on our group’s progress or did not end with a large-group consolidation exercise, I was not always confident that our group discussion progressed in the right direction or that we had conceptualized the content adequately.

As a graduate course instructor, planning how my students could contribute to and support each other’s learning occurred in the early stages of course development. As I researched learning materials to address the course’s learning objectives, I contemplated my students’ participation and whether the content would be meaningful and worth learning (Wiggins & McTighe, 2001), and unified and consistent (Bransford et al., 2000). My goal was to maximize opportunities for students to conceptualize content, work together to fit concepts into case-based scenarios, and apply concepts to their own backgrounds—exercises similar to those I engaged in as a student. As my students contributed to session learning activities, I posed questions that encouraged them to find similarities and differences among applications. I found that posing questions helped my students make connections among the concepts—something that I often struggled with as a graduate student. Since enrolment in the course I taught was quite small, we did not need to use breakout rooms very frequently. However, when we did use them, I moved from room to room asking questions and providing assistance as needed. In

general, I believe that the frustrations I encountered as an online graduate student regarding collaborative processes helped me design a better online learning environment for my students. Furthermore, I believe that if my instructors had more diligently attended to their students' learning needs, my own graduate learning would have been much enhanced. I now deeply appreciate the importance of providing community-centred learning environments since community (or lack thereof) played such a critical role in my own learning.

Case 3: Online Graduate Education through Student-Facilitated Discussion

One of the purposes of graduate courses is to develop a deeper understanding of relevant subject matter through a critical analysis of the current knowledge base. Thus, students should have opportunities to construct knowledge through reading, reflection, critical thinking, analysis, discussion, and debate. Activities such as these may occur in physically co-located or online environments (Garrison, Anderson, & Archer, 2000). One of the courses I developed at UOIT was a hybrid online MEd course called "Dynamics of Change." This course focused on the concept of change in the context of professional practice. Students in this course were required to contribute to discussions in synchronous Adobe Connect sessions and asynchronous discussion board postings. The course had a significant emergent design component, since relevant articles, video clips, and websites were provided (or suggested) by the instructor and students on the basis of academic, personal, or professional interests and orientations. A major assignment in the Dynamics of Change course required students to facilitate small group discussions in Adobe Connect based on weekly readings from the literature. These discussions involved a student facilitator and 3-4 student participants and were approximately 1 hour long. Most discussion facilitators used multimedia Powerpoint or Prezi presentations as a guide, and in some cases, facilitators required participants to visit websites such as Go!Animate or YouTube to view pertinent video clips and photos. I typically visited breakout rooms to monitor proceedings and provide assistance when necessary.

The Purpose and Nature of Facilitated Discussion

Raleigh (2000) claims that discussions "help students internalize knowledge and share ideas in enjoyable and enriching exchange environments" (p.1), and according to Takayama (2009), "Discussion is a powerful mechanism for active learning" (p. 1). In general, two types of discussion took place in the Dynamics of Change course: open discussion and facilitated discussion. Open discussions involved unrestricted, guidance-free exchanges of ideas, while facilitated discussions (moderated discussion), involved exchanges guided by a facilitator (moderator). Takayama (2009) advocates for facilitated discussion, claiming that "a well-facilitated discussion allows the participant to explore new ideas while recognizing and valuing the contributions of others" (p. 1). In facilitated discussions, the facilitator and fellow group members play complementary roles.

Role and Skills of Discussion Facilitators and Participants

The key role of a discussion facilitator is to help make it easier for participants to “discuss issues, make decisions, or solve problems” by effectively guiding the discussion process (Lawson, 1996, p. 1). With effective facilitation skills, a facilitator can help a group discuss an issue more constructively and achieve learning goals more efficiently (Baran & Correia, 2009). Key facilitation skills include active listening; encouraging full participation; asking probing questions; drawing out participants’ opinions; responding positively to participants’ feelings and emotions; paraphrasing for clarity, summarizing; resolving group conflicts; and pacing the discussion (Cyr, 2000; Lawson, 1996). Although facilitators guide a discussion, participants have roles and responsibilities that must be discharged for the discussion to be successful. Key skills include active listening; active participation; offering personal views and critiques; being courteous and respectful; evaluating and synthesizing key ideas; and respecting ground rules (Palmerton, 2011).

Aspects of Online Environments that Enable and Impede Discussion, Facilitation, and Learning

As a course designed for learning to occur through the social construction of knowledge (Palincsar, 1998; vonGlaserfeld, 1995), there were aspects of the Dynamics of Change course that both enhanced and impeded the effectiveness of group discussion, seminar facilitation, and social learning. When asked to provide end-of-course feedback about their experiences in the course, one student stated, “I enjoyed participating in our lively discussions over a cup of coffee from the comfort of my home office!” Other students indicated that synchronous online learning was at least as equally effective as physically co-located learning, or even more so. Particular advantages mentioned included the possibility of simultaneous dialogue in multiple modalities (i.e., verbal and chat); instant “movement” between breakout rooms; broad geographic accessibility; and personal anonymity. These benefits are similar to those described in Learning Circuits (2006) and Lobel, Neubauer, and Swedburg (2002).

Students also described disadvantages, including software incompatibilities; the need for relatively large bandwidth; and system crashes resulting in classroom disruptions. Many of these disadvantages are similar to those identified by Duemer et al. (2002) and Song, Singleton, Hill, and Koh (2004) in their studies of online courses of similar design. Some students in the Dynamics of Change course indicated that they particularly enjoyed the facilitated discussions, claiming that facilitating a discussion in Adobe Connect reduced discussion anxiety, increased comprehension, and helped them focus their thinking. These benefits parallel some of those identified in Thormann (2014) who found that her online students valued being discussion facilitators/moderators because “moderating deepens their understanding of the content...[and]...they see the benefit of having others’ viewpoints brought to the forefront (p.2). In some cases, however, students experienced difficulties with their role as discussion facilitators, finding it to be a challenging experience at first, and then becoming more comfortable with it as

they gained more experience. One student candidly described this situation as follows:

I initially regarded the facilitator role as both unnerving and tedious. The first time I participated in this activity, I felt that it was the most challenging aspect of the Master's degree program I had undertaken to that point. It was an activity that forced me to step outside of my comfort zone and be prepared to have my opinions and reflections analyzed. However, looking back on this experience now, I believe that it helped prepare me for my role as a post-secondary educator, where one's beliefs and overall conduct can be questioned by their students.

The facilitation role was new to most students, and many struggled with it in their first facilitated seminar. They not only struggled with the facilitation role, but were also challenged in preparing for the seminar and writing a final facilitation report. Success in these seminars hinged on good preparation and the ability to efficiently and effectively guide and moderate the ensuing conversations. In general, the Dynamics of Change course provided its participants (students and instructor) with opportunities to construct knowledge and understanding through a hybrid online environment. A key learning activity in this course was the student-led facilitated seminar focused on weekly readings (or video clips) from the literature. Overall, students who provided feedback tended to indicate that hybrid modes of online learning are generally effective and beneficial, and that student-facilitated breakout seminars are both achievable and effective within a synchronous online learning environment. The experiences reported here do, nonetheless, indicate that a number of basic conditions must be met for synchronous online learning (and online facilitated discussion seminars) to be effective, including the provision of (a) a technically stable (i.e., crash-free) virtual classroom environment; (b) an adequate number of virtual breakout rooms; (c) a virtual classroom environment that includes a main meeting room and breakout rooms with chat, note-taking, screen sharing, and recording tools, and is compatible with the most popular forms of presentation/multimedia software.

In the context of the facilitated seminar activities, a significant deficiency in the Adobe Connect platform was the inability for students to record their facilitated (break-out) discussions for future reference. This occurred because Adobe Connect only allows proceedings in the main classroom to be recorded. This forced facilitators to document key discussion points, as they occurred, using the note-taking and/or chat tools only. One way to overcome this deficiency was by sending each seminar group to a different Adobe Connect classroom (i.e., to a different URL) instead of breakout rooms. In this way, each group was able to digitally record its discussion. However, this process required additional licenses and consequently additional fees. Nevertheless, this approach was tested in the later part of the course and it worked very well. Facilitators were able to record their seminars and then use the recordings in the preparation of their reports. An added benefit was that students who missed a synchronous session could listen to the recordings and participate more fully in the asynchronous discussions that occurred between classes in BlackboardLearn. It is hoped that Adobe and other providers of virtual

classroom programs like Adobe Connect include a recording function in all of the rooms (main classroom and breakouts).

Final Thoughts and Implications

The cases depicted in this paper provide glimpses of the perceptions, experiences, and insights of three professors (and students) in UOIT's Graduate Programs in Education and Digital Technologies. In each case, the instructor reflected on his or her experiences in hybrid online learning environments. It is evident in these stories that hybrid online environments are fertile ground for cultivating student-centred, constructivist forms of learning, including PBL (Fogerty, 1997), student-facilitated discussion (Baran & Correia, 2009), and community-based learning (Bransford et al., 2000; Darling-Hammond, 2008). The successful transposition of these three teaching-learning orientations and activities from physical classroom to hybrid online settings convincingly demonstrates the versatility, adaptability, uniqueness, and promise of current online learning environments.

References

- Baran, E. & Correia, A-P. (2009). Student-led facilitation strategies in online discussions. *Distance Education*, 30(3), 339–361.
- Barrett, T. (2011). What is problem-based learning? Retrieved from http://www.aishe.org/readings/2005-1/barrett-What_is_Problem_B_L.html
- Bencze, J.L. (1995). *Towards a More Authentic and Feasible Science Curriculum for Secondary Schools*. Unpublished Ph.D. Thesis. The Ontario Institute for Studies in Education, Toronto.
- Bencze, J.L. (2008). *Science & Technology Pedagogical Framework: Teaching & Learning based on Constructivist Learning Principles*. Retrieved from http://webpace.oise.utoronto.ca/~benczela/Constructivist_SandTed.html
- Bencze, L., Hewitt, J., & Pedretti, E. (2009). Personalizing and contextualizing multimedia case methods in university-based teacher education: An important modification for promoting technological design in school science. *Research in Science Education*, 39(1), 93-109.
- Bransford, J.D., Brown, A.L., & Cocking, R.R. (Eds.). (2000). *How people learn: Brain, mind, experience, and school: Expanded edition*. Washington, D.C.: National Academy Press. anonymity. *Journal of Computer-Mediated Communication*, 4(2), 0-0.
- Clance, R. R., & Imes, S. (1978). The imposter phenomenon in high achieving women: Dynamics and therapeutic intervention. *Psychotherapy Theory, Research and Practice*, 15(3), 1–9.
- Creswell, J. W. (1998). *Qualitative inquiry and research design: Choosing among five traditions*. Sage Publications, Thousand Oaks, CA.
- Cyr, L. F. (2000). *Facilitation – What is it?* University of Maine Cooperative Extension.
- San Francisco: Jossey-Bass. Retrieved from <http://www.umext.maine.edu/onlinepubs/PDFpubs/6101.pdf>
- Darling-Hammond, L. (2008). Creating Schools that Develop Understanding. In L. Darling-

- Hammond, B. Barron, P.D. Pearson, A.H. Schoenfeld, E.K. Stage, T.D. Zimmerman, G.N. Cervetti, & J.L. Tilson (Eds.), *Powerful learning: What we Know about Teaching for understanding* (pp. 193 – 211). San Francisco: CA: Jossey-Bass.
- Davidson-Shivers, G. V., Muilenburg, L., & Tanner, E. (2001). How do students participate in synchronous and asynchronous online discussions? *Journal of Educational Computing Research*, 25, 351-366.
- Davis, C. & Wilcock, E. (2003). *Teaching Materials Using Case Studies*. The UK Centre for Materials Education. Retrieved from <http://www.materials.ac.uk/guides/1-casestudies.pdf>
- Duemer, L., Fontenot, D., Gumfory, K., Kallus, M., Larsen, J., Schafer, S., & Shaw, Jr., B. (2002). The use of synchronous discussion groups to enhance community formation and professional identity development. *The Journal of Interactive Online Learning*, 1(2). Retrieved from <http://www.ncolr.org/jiol/issues/pdf/1.2.4.pdf>
- Fogarty, R. (1997) *Problem Based Learning and Other Curriculum Models for the Multiple Intelligences Classroom*. Australia: Hawker Brownlow Education.
- Garrison, D.R., Anderson, T., & Archer, W. (2000). Critical inquiry in text-based environment: Computer conferencing in higher education. *The Internet and Higher Education*, 2(2–3), 87– 105.
- Johnson, D.W., & Johnson, R.T. (1991). *Learning together and alone: Cooperative, competitive, Transitioning from Online Graduate Student to Instructor*
- Hewitt, J., Pedretti, E., Bencze, L., Vaillancourt, B.D., & Yoon, S. (2003). New applications for multimedia cases: Promoting reflective practice in preservice teacher education. *Journal of Technology and Teacher Education*, 11(4), 483-500.
- Jonassen, D. H., Hernandez-Serrano, J., & Choi, I. (2000). Integrating constructivism and learning. In J. Spector & T. Anderson (Eds.) *Integrated and holistic perspectives on learning, instruction and technology: Understanding complexity* (pp. 103-128). Netherlands: Kluwer Academic Publishers.
- Lave, J., & Wenger, E. (1991). *Situated Learning: Legitimate peripheral participation*. New York, NY: Cambridge University Press.
- Lawson, S. L. (1996). *A Quick Reference Guide for Facilitators*. Ontario Ministry of Agriculture, Food, and Rural Affairs. Ontario: Queens Printer. Retrieved from <http://www.omafra.gov.on.ca/english/rural/facts/95-073.htm>
- Learning Circuits (2006). *Synchronous E-Learning Survey Results*. American Society for Training and Development. Retrieved from <http://www.astd.org/Publications/Newsletters/ASTD-Links/ASTD-Links-Articles/2006/03/Data-File-Survey-of-Synchronous-E-Learning>
- Lobel, M., Neubauer, M., & Swedburg, R. (2002). Elements of group interaction in a real-time synchronous online learning-by-doing classroom without F2F participation. *USDLA Journal*, 16(4). Retrieved from http://www.usdla.org/html/journal/APR02_Issue/article01.html
- Matrix, S. (2012). Challenges, Opportunities, and New Expectations. *Academic Matters: The Journal of Higher Education*, May 2012, 3-6.

- Palincsar, A. S. (1998). Social constructivist perspectives on teaching and learning. *Annual Review of Psychology*, 49, 345–375.
- Palmerton, P. I. (2011). Oral Communication Resources: Responsibilities of Discussion Participants. Minnesota: Hamline University. Retrieved from http://www.oralcommresources.net/Responsibilities_of_Discussion_Participants.html
- Raleigh, D. (2000). Keys to Facilitating Successful Online Discussions. *Teaching with Technology Today*, 7(3). Retrieved from <http://www.uwsa.edu/ttt/raleigh.htm>
- Rourke, L., & Anderson, T. (2002). Using peer teams to lead online discussions. *Journal of Interactive Media in Education*, 1(1), 1–21.
- Rourke, L., Anderson, T., Garrison, D. R., & Archer, W. (2001). Assessing Social Presence in Asynchronous Text-based Computer Conferencing. *Journal of Distance Education/Revue de l'enseignement à distance*. Retrieved from <http://auspace.athabascau.ca:8080/dspace/bitstream/2149/732/1/Assessing%20Social%20Presence%20In%20Asynchronous%20Text-based%20Computer%20Conferencing.pdf>
- Savin-Baden, M. (2007). Challenging models and perspectives of problem-based learning. In E. de Graaff, & A. Kolmos (Eds.), *Management of change: Implementation of problem-based and project-based learning in engineering*. Rotterdam: Sense Publishing.
- Song, L., Singleton, E. S., Hill, J. R., & Koh, M. H. (2004). Improving online learning: Student perceptions of useful and challenging characteristics. *Internet and Higher Education*, 7, 59-70.
- Takayama, K. (2009). Tips on Facilitating Effective Group Discussions. The Harriet W. Sheridan Center for Teaching and Learning. Rhode Island: Brown University. Retrieved from http://brown.edu/Administration/Sheridan_Center/teaching/documents/Tips_on_facilitating_effective_discussions.pdf
- Thormann, J. (2014). Encouraging Online Learner Participation. *Online Classroom*, 12(8), 1-2. Retrieved from <http://www.facultyfocus.com/articles/asynchronous-learning-and-trends/encouraging-online-learner-participation/>
- Van Berkel, H., & Schmidt, H. (2000). Motivation to commit oneself as a determinant of achievement in problem-based learning. *Higher Education*, 40(2), 231-242.
- Vanderbilt University (1992). *What is the Jasper series?* Retrieved from <http://peabody.vanderbilt.edu/projects/funded/jasper/intro/jasperintro.html>
- vanOostveen, R. (2011). rolandvanoostveen's channel. Retrieved from <http://www.youtube.com/rolandvanoostveen>
- vanOostveen, R., Bullock, S., DiGiuseppe, M. & Desjardins, F. (2010). *UOIT Faculty of Education Model of Graduate Online Pedagogy*. Unpublished. Online Pedagogy Subcommittee of the UOIT Faculty of Education Graduate Program Committee.
- von Glasersfeld, E. (1995). *Radical Constructivism: A Way of Knowing and Learning*. London: Falmer Press.
- Vygotsky, L.S. (1978). *Mind in Society: the development of higher mental processes*. Cambridge: Harvard University Press.

Wiggins, G.P., & McTighe, J. (2001). *Understanding by design*. New York, NY: Prentice Hall.

Zundel, P., & Deane, P. (2010). It's time to transform undergraduate education. *University Affairs*, Dec. 6, 2010.