# DEVELOPING AND IMPLEMENTING A NEW ONLINE BACHELOR PROGRAM: FORMAL ADOPTION OF VIDEOCONFERENCING AND SOCIAL NETWORKING AS A STEP TOWARDS M-LEARNING

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**ABSTRACT**

The political will to move educational opportunities online is growing for numerous reasons and new mobile technologies are being adopted at unprecedented rates. Such a context presents opportunities to develop online programs and experiments in universities, with new affordances to solve old problems such as access and isolation.
This paper presents an initial experiment in the creation, development and first implementation of an online Bachelor's program in adult education and digital technology. It was designed with a central videoconferencing component intended to reduce isolation for the students and technical affordances were selected to promote course development for both a mobile implementation and for at least partial open access.
The results of this initiative have both demonstrated the potential of such an approach as well as allowed some of the finer elements to emerge, such as expectations on all parts and administrative adaptation to this new reality.

**KEYWORDS**

Videoconferencing, social networking, m-Learning, online program, curriculum development

## 1. THE CONTEXT

People are social beings (Lowenthal, 2010). They rely on all senses for connecting with others (Gunawardena, 1995), and they are constantly on the move. This implies that for any education endeavour to be successful, it must not only allow for, but promote learning in groups or teams or communities. The learners much prefer to be able to interact with others in a direct a manner. Consequently, the live, face-to-face discussion is generally preferred over all other modes of interaction. The learning situations must also address all senses and all dimension of the human experience for it to be relevant. The written word is fine for getting to information, but to access rich thick information, the experience of involving sights, sounds, and even interacting with objects, fosters the construction of multidimensional knowledge. Finally, in this age of short careers and constant need for re-education and lifelong learning, this upgrading of one's education is done on the run, in transit, as less time is available to commit long periods in a day to one single activity.

These three elements of human nature present challenges for post secondary education, particularly university education, as it is facing yet another milestone in its continued evolution. With a continued pressure for democratization of education in all corners of the world reaching the tertiary sector, the demands for access to student spaces are, by far, exceeding the capacity of a system that was designed for the exceptions rather than the masses (Trow, 2006). As the higher education sector has been scrambling to adapt to this new reality following a recent economic downturn, some governments, such as is the case in Ontario (Canada), have been actively initiating conversations to find new, effective and efficient ways to meet this challenge. Locally, in Ontario, the MTCU (Ministry of Training Colleges and Universities, 2012) has recently been advocating for both colleges and universities to increase their online offerings in terms of courses and programs. This political will provides both the challenges as well as opportunities to support university initiatives to explore new avenues in the development of online education.

The current state of technological development as well as its extensive adoption by populations around the globe is fostering many initiatives in online education aiming at addressing these challenges. The rapidly

increasing use of synchronous modes of communication, facilitated by the adoption of videoconferencing platforms and recently adding the possibilities of group video meetings, live collaboration at a distance is easy, affordable and directly fosters a greater sense of community, even online (McInnerney, & Roberts, 2004). In addition, these live media, also call upon much more than textual information. They make use of sight and sound. They promote the live social interaction between people in a more complete experience. Adding to this the fact that adult learners tend to select their programs of study based on specialisation rather than the proximity of the institution, the availability of online options become an important solution for both educational institutions and the learners. Furthermore, with career changes becoming far more frequent, the need for constant upgrading of skills and competencies is matched only by the increase need for commuting to the next job or project. These kinds of changes tend to involve more time spent in transit or in remote locations (hotels, offsite work locations, etc.) and the possibility of dedicating some of that time for study is beginning to surface as a desired option. Making use of synchronous communications on mobile technology in order to access and participate in formal education from anywhere, anytime will shortly become an absolute necessity for a very large number of post-secondary learners.

In the midst of a multiplicity of online education initiatives by institutions around the world, members of the Faculty of Education at the University of Ontario Institute of Technology (UOIT) were interested in providing an alternative form of program which would capitalize on available online technology, while paying attention to the learner needs for socialisation, multisensory experiences, and mobility. In this context, a project was initiated to create a Bachelor level program (B.A.) that would, on the one hand, expand on the strengths of existing programs in education, and on the other, provide the impetus for developing the necessary experience in online learning to eventually integrate mobile learning as a regular affordance in all online courses. Such a program would have to be designed in a manner as to have the modes of interaction between all participants (professors and students), as well as being fully consistent with the objectives and content of all the courses. As initial internal faculty discussions started, the idea of using desktop (or mobile) videoconferencing (VC) and social networking quickly emerged both as the target and the necessary context.

It was assumed that the VC proposition would attract some resistance and consequently attention was paid to attempt to understand and address the major concerns. The most important criticism was that online learning was perceived as cold and isolating, one where the student interacts mostly with online documents as well as with sparse and impersonal communications through e-mail or disembodied discussion forums (Goldrick, O'Higgins Norman, 2012). Recognising that creating a meaningful learning experience requires the establishment of a community of personal relationships between the students themselves as well as with their professors and tutors, the concept of using more face-to-face communications became a central objective for the new program. Therefore, it was proposed that all courses should include regular (weekly) meetings using some form of VC allowing students to access from any location that was equipped with broadband availability. It was also suggested that these meetings would serve to foster rich, meaningful discussions and interactions that would take advantage of the immediacy of the communication which included the facial expression and body language nuancing between all participants as a community exercise. Current two-way VC technology is now widespread enough with offerings such as Skype (Microsoft), Facetime (Apple) and others, that it is no longer seen as something impossible to use by the general public. Although these systems are used mostly for *one-to-one* conversations, many systems are available for *many–to-many* or *multipoint* VC, and are being used in the higher education sector as a possible solution to address a large part of the student isolation concerns (Goldrick, O'Higgins Norman, 2012).

This brought on another concern, that of necessary flexibility. One of the perceived advantages of online learning using the more traditional asynchronous communications models is that students can work on their own schedule, at their own pace. Proposing the weekly scheduled video meetings seemed to seriously reduce this flexibility. Creating a model that would strike an appropriate balance between this desired flexibility and the need for opportunities for direct real-time interactions while maintaining the advantage of doing all this from home, no matter where that may be, became a prime objective.

Moving to a mobile virtual platform also necessitated the adoption of a pedagogical or learning model that is radically different from that used in most traditional classrooms as the learners will be expected to access Internet-based documents in a wide variety of formats and virtual environments rather than confining themselves to a specific textbook or classroom set of paper-based documents. An online problem based learning curriculum development model (Savin-Baden, 2007) was adopted as it allowed for the incorporation of problem scenarios or contexts within which learners could identify their own problems and work towards

creating solutions, thereby learning about the content while actively engaging with it. All of the technological tools required for this type of work are available for mobile device platforms.

It has also often been stated that for a great variety of reasons, many of today's post-secondary learners tend to balance studies with work, family and other time constraints. In addition, the reality of spending a substantial amount of time commuting between these activities, or even at locations away from home, means that there would be a great advantage to having as much of the planned learning activities designed in a manner as to be accessible on mobile devices from anywhere, anytime.

For these reasons, a Bachelor of Arts in Adult Education and Digital Technology was designed, formally proposed and implemented. It was to be offered completely online, with a dominant real-time videoconferencing component and a pedagogical framework that would foster the development of meaningful teacher-learner and learner-learner relationships as well as taking advantage of any and all opportunities of access to information and experts in the domain being studied. This paper discusses some of the initial stages in the designing and implementation process as well as some of the concerns that have emerged along the way.

# 2. PROGRAM FRAMEWORK

In the initial documents, intending for every aspect of this program to fall within all university regulations, a typical 36 hour (3 credit) course was designed to be articulated in 12 weekly modules each including:

- a total of 3-4 (approx. 12 minutes each) video clips publically available online (ie.: YouTube). This was to represent the "lecture" part of a traditional course and was intended to avoid the perceived necessity of such lecturing in the videoconferencing portion of the course. The video clips were initially to be written by a content expert, (i.e., professor from our own Faculty or a recognised expert from another institution). These have since mostly been produced either by the professors themselves or by media specialists. These were then to be installed on the institution's video repository or simply on some public site such as YouTube.
- 60 minutes of synchronous group activities in Adobe Connect (videoconferencing) moderated by one teaching assistant for each 30 students. These could include planned discussions on specific questions, teamwork on predesigned problems, or any activity that would foster collaborative knowledge construction. The synchronous group activities in the videoconferencing platform are planned in detail by the professor (content expert) with the explicit opportunity to consult with other professors in the program or with the institution's instructional designers. The online activities are then run by the TA on a weekly basis. By scheduling the different groups at different times of the day and of the week, the courses are able to accommodate students from a wide variety of time zones
- Equivalent of one hour of work to be done online asynchronously (i.e.: Blackboard discussion forum, wiki entries, etc.). This is to allow for students to engage in a more reflective set of activities where time can be taken to express thoughts or ideas at one's individual rate, without the pressure of the immediate discussion. The final element of each weekly class includes many other online activities such as forum discussions, self-directed learning activities, etc. as deemed appropriate for the course. Although this covers the basic weekly three-hour commitment to the class, it is to be noted that additional reading or other course work is usually expected from the student.

In order to meet the requirement of reaching the students wherever they maybe at anytime, the technical systems were chosen with the additional characteristic of necessarily being able to run on most mobile devices such as the smartphones and tablets supported by the dominant mobile platforms, i.e., iOS, Android and Blackberry10.

# 3. IMPLEMENTATION

## 3.1 Online Pedagogical Model

From this initial design, the group involved in the program made use of a digital space that currently includes: 1) video clips publically posted on YouTube to present concepts and ideas, 2) email and file

repository capabilities as provided by a Learning Management System (LMS), 3) synchronous virtual audio/video conferencing conducted using Adobe Connect® for tutorial discussions and, 4) a wide variety of Open Educational Resources (OER), such as Wiki's, Discussion Forums and Blogs for assignments and tasks.

Most of the applications comprising this digital space can be accessed using mobile devices of all kinds, thus providing systems, structures, and processes that facilitate ubiquitous learning. The digital space is used to define the context of a 'completely' online (using synchronous, as well as asynchronous digital tools) program in that all interactions with students in a formal 'course' setting will occur within the space to ensure equity of access and experience to all students regardless of geographic or temporal location.

The model designed for the development of courses within the program was based, to a large extent, on the work of Anderson (2007) and Savin-Baden (2007). The model details that learning within the program occurs where the sphere of social presence (the availability for interaction with others) interacts with the sphere of cognitive presence (the availability for interaction with ideas and theories, as well as the creation of knowledge).

Social presence within the program occurs within the context of an online community of inquiry that was welcoming to a wide diversity of learners. It was understood that the community could not be structured as most physical classrooms are, with information dispensers and information gatherers, since classrooms in this program are situated in the Internet, which provides access to more information than any single teacher could ever hope to provide. Since there was no need to provide material to the learners and in order to give the learners opportunities to investigate issues of personal import it was decided to pursue a learning model that was as horizontally flat as possible. All members of the community, inclusive of students, teaching assistants and professors, would be involved in learning, critiquing, assessing and evaluating. In the online learning environment, the distinctions of power, the barriers between the 'haves' and the 'have nots', and the obstacles of authority or expertise were not as important as promoting communal collaborative inquiry allowing students to freely and safely exchange criticisms, views, and opinions.

According to Anderson (2007), the cognitive presence encourages students to:

- approach problems creatively and strategically,
- actively seek out sources of information,
- identify and address bias, prejudice, and privilege,
- manage, analyse and synthesize large quantities of information, and
- formulate and defend personal views and positions.

Students in the BA program access course 'lectures' in the form of publically available video files posted to YouTube using a Creative Commons – Attribution licence. YouTube was chosen as the publication site primarily due to its availability to most individuals with apps provided for all of the major mobile platforms. Publically publishing video clips dealing with educational material on YouTube not only establishes Open Educational Resources (OER), it simultaneously plays an outreach function allowing those not registered in the courses to access the material.

Within the B.A. courses, the institutional learning management system (LMS) is used as a common email and file repository system. All program students are registered into an additional 'course' that is set up within the LMS. This allows for posting of announcements and administrative messages that are sent directly to the students.

Within small tutorial groups, students discussed their particular understandings of the situation portrayed in the video clips, eventually agreeing on a specific question or questions that they would collaboratively investigate, identifying resources and knowledge that was possessed or required in order to create answers to the questions that were posed (vanOostveen, Desjardins & Bullock, 2010).

In this program, collaborative learning occurs primarily through the use of synchronous technologies, such as Adobe Connect and Skype, in an environment in which the cognitive presence, social presence, and digital space intersect; an environment in which "members of a community of inquiry […] construct meaning though sustained communication" (Anderson, 2008). Learners are encouraged to nurture the development of valuable social and cognitive skills that are essential to the establishment of a critical learning community. A learning community relies on the process of peer review to ensure that a certain standard of rigour and quality is maintained (Wenger, 2000). Students in the B.A. program learn to adopt characteristics of a community of learners in order to determine the strength of warrants for knowledge claims. Longino (1994) identifies four conditions that a community of practitioners must meet if consensus is to count as knowledge rather than mere opinion.

1. There must be publicly recognized forums for criticism.
2. There must be uptake of criticism.
3. There must be publicly recognized standards for evaluation of theory and practice.
4. There must be equality of intellectual authority.

Students within the program are regularly required to engage in academic critiques of their work and the work of their colleagues.

The establishment of a learning community requires both asynchronous and synchronous technologies. Synchronous online learning has been reported as being more social in nature than asynchronous online learning and it avoids frustration by allowing for conversations in real time. Two-way videoconferencing offers access to all the non-verbal communication, all of which provides for greater nuancing of the interactions. In addition, social networking apps such as Twitter and many blogging sites, are growing in use within the program, and are intended to foster a different mode of asynchronous discussion. Many of these applications have associated mobile apps or are available through mobile browsers.

## 3.2 Curriculum Development Model

Content experts from within UOIT's Faculty of Education, other Faculties and from beyond the university were contracted to develop the course outlines, video clips, course assignments/tasks, rubrics and any other activities in order to create an online environment within which the students could learn. The developers followed a curriculum development model designed to promote problem-based learning (PBL) (Savin-Baden, 2007) and constructivist learning orientations (Vygotsky, 1978).

Each course contains several opportunities to use collaborative PBL processes to learn about content. This is typically done using the video clips posted to YouTube to present students with a situation or a context representing. PBL, as used in the B.A. program, is defined as 'a curriculum model designed around real life problems that are ill structured, open ended or ambiguous' and it is suggested that 'PBL engages students in intriguing, real and relevant intellectual inquiry and allows them to learn from these life situations' (Fogarty, 1997). Problems are identified by the students when they bring their own particular perspectives to bear on the presented situation. Once a problem or set of problems have been chosen by a group of students, over the course of the next few weeks they will meet virtually, using Skype or a general Adobe Connect room that has been set up for all students taking B.A. courses. The general room is available to all students, TAs and professors 24hrs per day, 7 days per week.

The video clips are formatted very precisely using a pattern laid out in the curriculum development document requiring the incorporation of 3-5 analysis questions at the beginning of every clip. Analysis questions are designed to invite the viewer to break down the remainder of the video clip into component parts in order to identify embedded problems (inductive processes). A further 3-5 synthesis questions are posed at the conclusion of each video clip. Synthesis questions are designed to invite the viewer to compile information gleaned from the video clip content to propose solutions (deductive processes). The video clips then become instigations for the discussions that follow in the tutorial sessions conducted using Adobe Connect.

The structure of the tutorials tends to be most effective if there is a strong tie between the video clip portion of the courses and the tutorial sessions. As the sessions are usually facilitated by Teaching Assistants (TAs), it was vital that a strong relationship was established between the instructor and the TA in a course. TAs and professors function as facilitators, rather than disseminators of information, during the tutorial sessions. De Grave, Dolmans & van der Vleuten (1999) state that the facilitation role should "scaffold student learning in order to:

- simulate the elaboration of information and ideas
- guide the learning process, including stimulation of reflection on the learning process
- stimulate the creation and integration of knowledge
- stimulate and support student interaction and individual accountability" (p.901)

Tasks and activities which are designed to provide synthesis, evaluation and creation experiences are assigned to students while they are engaged in the courses. While there is a fair amount of variety in the types of tasks that are assigned, such as the production of learning objects, video 'papers', and briefing notes, these are primarily collaborative in nature, requiring students to meet virtually using a number of technologies such as email, Twitter, Google Drive, YouTube, ScreenCast, etc. Course TAs meet virtually with the students on a regular basis in order to support this work.

## 4. CONCLUDING REMARKS

At the time of this writing, students in the B.A. program's first class are entering their second term. There are approximately 20 students registered in the program, approximately half of these are registered in 4 or 5 courses per term and the remainder are registered in 1 or 2 courses as fits their personal schedules and workloads. While this is not a large number of students for the inaugural year, it has been reported that this is an extraordinarily good response for a program that bridges between college and university experiences. Additional students, 4 or 5 per course, from other faculties in UOIT have joined the program by taking individual courses as electives to augment their studies in other degree programs.

Most of the students who are registered in the program are working full time and many have families that need part of their daily attention. A wide diversity of backgrounds is represented with students coming from security services, fine arts, and various commercial interests. Several of the students are employed as instructors by community colleges in Ontario. These students are required to obtain university degrees and the B.A. program provides the flexibility to do this while continuing to be employed.

Over the course of the first term, teaching staff (professors and TA's) and students were polled every few weeks. Two questions were asked: 1) What do you like about this program so far? Why? and, 2) What would you like to change/modify about the program so that it better suits your needs? Why? Approximately ½ of the teaching staff and student population responded to each survey

Anecdotal responses to the first question reflected a positive reaction to the flexibility of the program in terms of time, as the only synchronous portions are the tutorials. Some students mentioned that a warm collaborative learning environment had been established allowing them to feel connected to classmates and the learning community as a whole. PBL was singled out as being a new way to learn which required some adjustment but was appreciated none the less.

The comments posted in response to the second question reflected the transitioning that was required of all. Most of the statements reflected challenges using all of the digital technologies. Some students noted difficulties in synchronizing schedules with others within groups and a struggle to adjust to the demands of a university program which requires a lot of reading, collaborative group work and synthesis and evaluation of concepts. One student complained that the tutorial sessions were not long enough as the discussions are often cut short. An instructor also noted that since the students are included in the discussions about customizing the learning environment the modifications of the courses were being done continuously reflecting an individualized curriculum, or perhaps making significant strides towards this goal.

## 5. COURSE DEVELOPMENT COMMENTS

10 courses have been developed to date for the B.A. program. Five of these were implemented over the past term, with the remaining five being initiated in the winter 2013 term. Some of the courses are foundational to the program. For instance, in the fall term, the Foundations of Digital Teaching and Learning Technologies course was offered, providing students a framework that can be used to analyse teaching and learning technologies. Additional courses regarding the Foundations of Adult learning and Psychological Foundations of Digital Technologies will be implemented in the winter term. Other offerings include courses in Problem Based Learning, Creating Digital Tools, Culture and Digital Technologies, Digital Technologies and Advanced Teaching Methods, Online Learning, Professional Writing, as well as a course about Serious Games and Simulations. Next year there are plans to develop an additional 9 courses, ranging from Digital Communication Technologies, Graphic Design, Information Literacy, Workplace Learning and a year-long double course that requires students to design and implement an applied research project resulting in a brief thesis. In the following 2 years, the remainder of the courses will be developed and brought online when they are required for the Direct Entry registrants who will register in the program directly from high school. In the past year, and in the upcoming years, there are several courses that will be and have been developed by professors in other faculties. It is likely that these courses will be cross-listed for students in other programs so that the university as a whole can benefit from the development of these fully online courses, providing alleviation, for those who prefer the convenience, of the space constraints currently experienced.

Professors who are interested in course development work fulfil a contract with the UOIT Teaching and Learning Centre. Comments from course developers describe the extreme amount of work and writing that is

required to produce the course outlines, tasks and video clips. One professor estimated that the video clip scripts, which are required in order to transcribe the audio components for closed captioning on YouTube, comprised in excess of 40,000 words or a sizable book. Another professor expressed an appreciation for the level of detail that was provided in the curriculum development model but as it did not provide a prescription for the course that was being built, the professor found herself engaged in a problem based learning scenario and she was able to produce a course that, in a paraphrase of her words, will be engaging and demanding for the students. Other challenges lie in the area of keeping the video clips short, relevant and engaging. Obtaining copyright permissions is another issue that has required due diligence on the part of the program administration and library staff.

In December of 2012, a full day workshop was held for more than 20 teaching staff using the services provided through the Adobe Connect general room. The program for the workshop included sessions on: Managing the Culture, which concentrated on understanding the technology/pedagogy relationship and process of change; BA Graduate Career Aspirations, which focussed on determining what are the target competencies for graduates of the program; and finally, Assessing the Program/Students. The main function of the workshop was to provide opportunities for all to discuss these issues so that a set of common views could begin to develop. Teaching staff also experienced limited project based learning activities and were able to better appreciate it, particularly if it was new to them.

A number of challenges exist across the university when contemplating moving to an mobile online model of teaching and learning. In order to determine what these challenges are, a gap analysis is being conducted. It is hoped that this process will be able to identify the discrepancies between the level of services that are not yet available but are required for fully online learners to take their place in the university student body without ever physically being present on campus. Some of these challenges come from those who express serious reservations about the level of academic rigour that is possible in online learning environments. Other challenges, such as faculty development, technology support, resource availability and programming issues have already been alluded to. Others such as a rationalized fee structure and the implementation of a comprehensive orientation program have yet to be resolved. Promotion of the program beyond the borders of the province and the country when all of the recruitment efforts to date have been focussed on face-2-face meetings also offers a considerable test. It is hoped that the use of social media and Internet advertising will be of some value in getting the message out regarding the program. Finally, building and implementing a course and program evaluation process that recognizes the various constraints inherent in online teaching and learning, along with on-going program review processes, will be vital to the viability of this type of program.

While the number of outstanding challenges can be daunting, the overall promise of moving into an online teaching and learning environment, particularly when it is premised on the use of synchronous digital technologies and includes opportunities to employ mobile devices providing anytime, anywhere access, is positive. As can be seen from this project, centred on the creation of the B.A. in Adult Education and Digital Technology program at UOIT, flexibility of thought and planning provides an answer for the physical constraints that currently hamper the university while simultaneously opening a door to a possible revisioning of educational and learning processes.

Finally, concerns have been raised on the issue of service provisioning for online students as being totally different to regular on-site students. From the perspective of working within fully online programs, it is possible to forget that others may not think that attending class from your office or home is normal and therefore, this kind of information is now flowing up to many institutional departments to find ways to better serve these new online students. Some of the issues currently under study are:

1. Tuition and auxiliary fee structures for online students (must be transparent in the application of charges and non-residential fees should not be substantially different from residents as there are few additional costs)
2. Establishment of an online learning community
3. Inclusion of online students in student life and government
4. Orientation programs to invite students into each term
5. Ongoing communication between units of the university which are responsible for the myriad of details regarding the program
6. Programming, including cross-listing across programs and faculties, maximizing access to courses for all students
7. Registration services and program administration support

8. Technical support for the IT infrastructure that is developing
9. Faculty development creating links between facilitation and resources
10. Library support, particularly in the area of open educational resources
11. Specific online course and program evaluation processes that are separate from those used for f2f classes

Solving these issues represents some of the next steps in institutionalising online learning that is mobile ready, and solving these will allow us to move towards the next level of mobile learning in the Faculty of Education.

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