



A MOOC WITH A DIFFERENCE: CREATING COMMUNITY FOR LEARNING IN MOOCS

*Martha Cleveland-Innes, Daniel Wilton, Nathaniel Ostashewski, Nancy Parker,
Athabasca University, Canada*

Summary

In keeping with ERW9 theme of *Evolving Practices in Technology Enhanced Learning and Teaching* this paper presentation will offer participants the opportunity to discuss the MOOC initiative and how MOOCs may, or may not, offer increased access to learning, in higher education and beyond. In addition, the review of MOOC courses provides another opportunity to consider online learning and teaching; what is essential, and how those essential pieces may support a pedagogical sound learning experience in MOOCs. This study examines different methods of facilitation in an instructionally designed MOOC for novice online learners called *Learning to Learn Online* (see <http://www.ltlo.ca>) and the role of both design and interaction for different dimensions of presence in a Community of Inquiry (COI) framework.

Introduction

Athabasca University opened in 1970 to offer open, accessible higher education to students in Canada and beyond. It was Canada's first provider of distance and online university education and is still the largest, serving 40,000+ students annually. Known as innovators and leaders in distance education, the emergence of MOOCs was of both interest and concern at Athabasca University; interest in reference to the opportunities MOOCs could offer as accessible, affordable education and concern at the speed with which MOOCs were being designed and delivered without reference to distance education research or instructional design.

An AU-MOOC Advisory Group was created to consider the opportunity to do just that: evaluate the opportunity to use what is known about successful distance online education in a massive open online course. Learning to Learn Online was the chosen topic for this exploratory MOOC design research. Learning to Learn Online (LTLO) is a facilitated massive open online course (MOOC) offered by Athabasca University via Canvas' MOOC platform. It is designed to provide novice online learners with effective skills, practices, and attitudes for online learning. This five-week MOOC was offered in the spring of 2015 and again in the spring of 2016.

The creation of LTLO rested on sound instructional design strategies (Sheninger, 2016) and the premises found in the online community of inquiry as identified by Garrison, Anderson, & Archer (1999). For Sheninger, “instructional design (ID) is part creative arts and part science which utilizes theoretical as well as practical research in the areas of cognition, educational psychology, information technology, graphic and Web design, and problem solving. ID aims to create the best instructional environment and learning materials to bring a learner from the state of not knowing, not feeling or not being able to accomplish certain tasks to the state of knowing, feeling and being able to accomplish those tasks in a given subject area through carefully organized interactions with information, activities and assessments” (Sheninger, 2016; p.18). These carefully organized interactions were guided by the requirements of social, cognitive, and teaching presence as identified in the community of inquiry framework (Garrison et al., 1999); it is at the convergence of these three mutually reinforcing elements that a deeply personal, collaborative constructivist educational experience may be realized.

Background

Usually referred to as online learning, web-based teaching and learning describes a learning environment which is electronically supported: virtual classrooms, Internet-based learning management systems with multi-media digital materials and meetings spaces. These spaces are self-paced, self-directed learning opportunities and, in the case of formal, accredited education programs, led by an instructor. Online learning surfaced in the 1960s as an education delivery method through the evolution of distance education – a unique form of education delivery with specific roles for teachers and learners. These roles in distance education are unique to the delivery method and significantly different than the roles of students and teachers in face-to-face, traditional higher education. According to Allen and Seaman in the US, online learning is on a consistent increasing trajectory, and all expectations are that participation will continue to grow. Athabasca University in Canada has been providing accessible, open, distance and online learning since the 1970s.

The most recent form of open, distance, online teaching and learning delivery has caused a significant stir –Massive Open Online Courses, or MOOCs. A unique form of distant and open education, MOOCs provide informal learning opportunities and access to knowledge and knowledgeable people previously out of reach for many. Some suggest that the advent of the MOOC initiative is the most significant event in higher education to occur in decades. Considered from the point of view of access to education, MOOCs are a moderate increase to access available to someone willing to study online, but may compromise education quality out of balance to the benefit to access afforded by a MOOC.

The massive open online course is still under-investigated, with institutional investment and media attention preceding a more rigorous, peer-reviewed evaluation of its effectiveness as a learning medium. Gasevic et al. (2014) point out this lack of methodological or theoretical rigour in early MOOC reports, suggesting a difficulty in applying existing social learning frameworks at the scale of a MOOC. However, the notion that productive learning

environments, as are required in higher education, can be constructed without facilitator leadership is deemed to be erroneous (Cleveland-Innes, Briton, Gismondi, & Ives, 2015).

In order to address this issue, this study tested the role of facilitator in a MOOC environment and identified unique patterns of participant interaction when facilitator roles moved from direct and on-demand to supportive and facilitative.

Methods

Learning to Learn Online was designed by a team of educators: researchers in online learning, professors with experience teaching online, instructional designers, and a web-analyst. Design imperatives were identified from the online learning conceptual framework called the online community of inquiry by Garrison, Anderson, and Archer (1999) and the preliminary MOOC instructional design research by Athabasca University researchers Cleveland-Innes, Briton, Gismondi, and Ives (2015).

Because research strongly suggests that *instructor presence* is essential to the success of online learning (Garrison, Anderson, & Archer, 1999; Garrison & Cleveland-Innes, 2005; Akyol & Garrison, 2014), we designed LTLO with three levels of instructor presence. These three levels represent, individually and in combination, the three requirements of online teaching presence: design and organization, direct instruction, and facilitation. These are manifested in the roles of a lead course Instructor, one Inspirer who supported and summarized learning activities, and discourse Facilitators. The course is “led” by a professor who offers direct instruction, who will act as the figurehead of the MOOC in the role of the primary *Instructor*. The instructor provides a consistent “flat” presence through the use of pre-recorded video / pre-set text segments.

The second layer of instructor presence (the *Inspirer*) uses a combination of guiding participants through the design and organization of the course, reviewing direct instructions, and facilitating participant experience as necessary. The Inspirer is an Instructional Designer. The third level of instructor presence, the Facilitators, are a dynamic presence, responding to learner emails, discussion board posts, submissions and activities, etc. These facilitators are AU Masters students.

Following the Community of Inquiry framework (Garrison, Anderson, & Archer, 1999), one of the key elements of LTLO’s design was to create smaller, more focused learner support networks within the MOOC by dividing the students into a number of homeroom forums for facilitated, general discussions. Students were divided into homerooms alphabetically by first name, with no attempt to group by characteristics, abilities, or interests. As part of their learning, students were also prompted to contribute to additional population-wide, lesson-related activity forums throughout the course, with all facilitators participating in each activity forum.

In the first offering, ten such homeroom forums were created, each with its own facilitator, along with separate forums for each activity, for a total of 39 forums. The facilitators received

basic training in facilitation techniques and were directed to provide a high level of support with quick and frequent responses to student questions and postings.

In the second offering, the number of facilitators was reduced from ten to four, with just two homeroom forums, each with a pair of facilitators, along with five module-based activity forums, for a total of seven forums. In this run, the four facilitators (selected from the original ten) were asked to be more selective in their responses, to give students the first opportunity to respond to each other, and to encourage more student-to-student dialogue and support, with the goal of shifting the focus and weight of the discussions from the facilitators to the students.

Participation activity cross-referenced with demographics in the two sessions is reported and compared below.

Findings

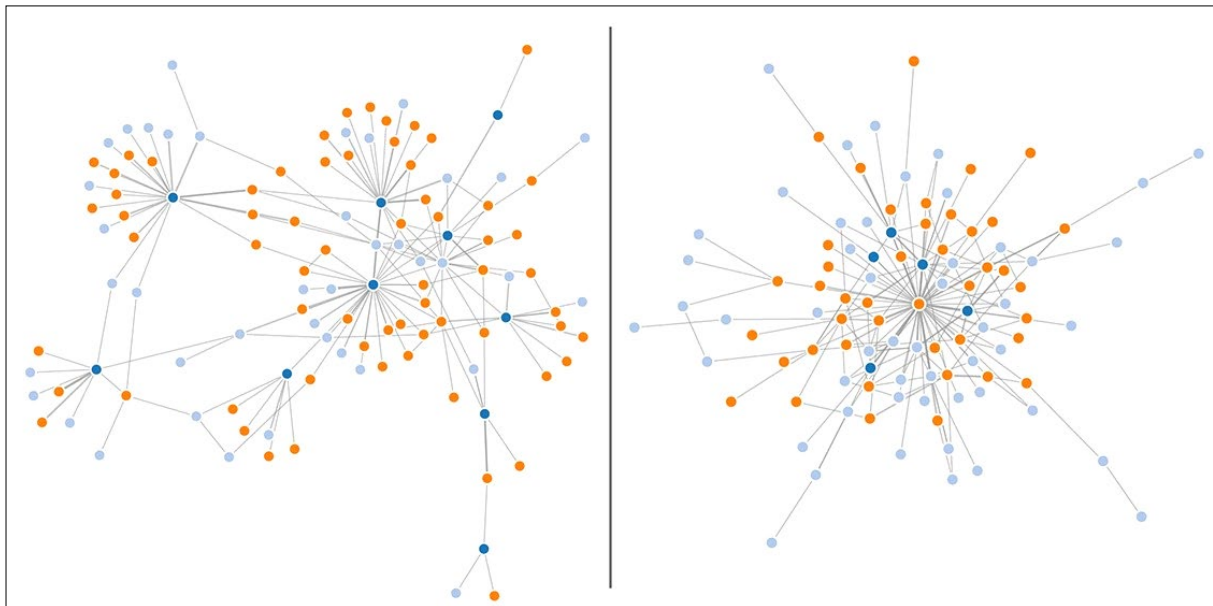


Figure 1. Social network graphs for Module 1 activity (left: 2015, right: 2016).

Dark blue nodes represent facilitators, orange nodes represent students who completed the course, and light blue nodes represent non-completing students. (Social network graphs for additional modules and homerooms for both offerings are available at <http://www.ltlo.ca/analysis>.)

In the first offering, 842 person-to-person links (edges), defined as a direct reply within a threaded discussion, were formed between participants. 333, or 40% of the links, were between two students, with an average strength of 1.53 contacts per pair. The social network graph compiled from the three Module 1 forums (Figure 1, left) shows a collection of star-shaped clusters centred around instructors (dark blue nodes), but with fewer edges between students (orange and light blue nodes). 50% of the inter-student links were formed after 12 days, and 90% were formed after 31 days of the five-week MOOC. Using logarithmic regression, at no point in the course did the number of re-contacts between the same pairs of students overtake the number of initial contacts (Figure 2, left), suggesting very little sustained interaction.

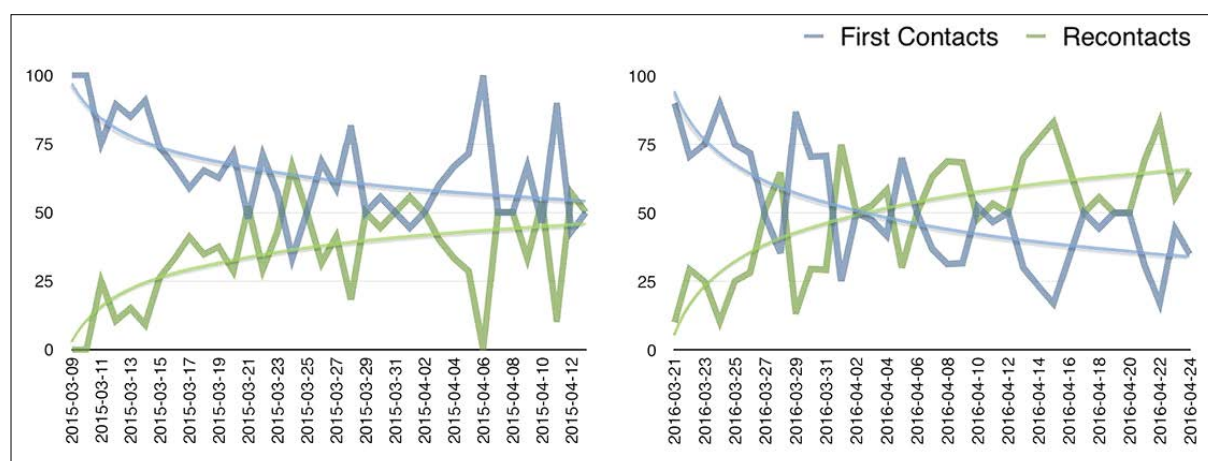


Figure 2. Initial contacts between students (blue) vs. re-contacts (green) by course date (left: 2015, right: 2016)

In the second offering, 535 links were formed between participants. A much higher number of links – 428, or 80% of the links – were formed between pairs of students, with an average strength of 1.7 contacts per pair. The social network graph for the Module 1 forum (Figure 1, right) shows more tightly-connected pattern distributed more evenly between students and instructors. These links were formed noticeably earlier in the five-week MOOC, with 50% of the links formed after just seven days and 90% formed after 25 days. Using logarithmic regression, re-contacts between the same pairs of students overtook initial contacts after 14 days (Figure 2, right), suggesting that students formed their relationships earlier and were able to build upon them before the course completed.

Table 1: Mean distances between pairs of students by characteristic. Lower numbers indicate greater similarity

Attribute	Year	Mean distance between all students	Between students making first contact	Between students making second contact	Between all contacting students
Age (years)	2015	13.6	13.5	15	13.7
	2016	14.8	13.3	15.1	14.8
Gender (binary)	2015	0.44	0.32	0.41	0.33
	2016	0.46	0.5	0.56	0.52
Education level (ordinal)	2015	1.97	2.11	2.24	2.11
	2016	2.11	1.87	1.8	1.92
Skills (ordinal)	2015	0.54	0.49	0.28	0.36
	2016	0.57	0.67	0.61	0.62

As shown in Table 1, the students in the first offering tended to initiate contacts with those of the same gender (a mean distance of 0.44 between all students but 0.32 between those contacting each other for the first time), but then developed an increasing bias towards those of a similar skill level (a mean distance of 0.54 between all students but 0.28 by the second contact).

In the second offering, students were less likely to form contacts with fellow students of the same gender, or even of the same skill level, with education level being a better predictor of contact between students (a mean distance of 2.11 between all students but 1.8 by the second contact).

Discussion

One of the questions in the ID of MOOCs is the appropriate role of discussions and facilitators in a short-term course of this scale and nature. In this comparison between two offerings of the same MOOC, with similar student profiles but notably different discussion structures and facilitation patterns, we can begin to extract some of the effect of those structures and patterns on student-to-student interaction and the formation of a Community of Inquiry.

By reducing the number of groups and adopting a facilitation model in which students are asked to take on a greater role in supporting their peers, the balance of interaction has shifted dramatically towards the students, and in the process, has increased their betweenness, a proxy for social capital within the network.

Rather than the first offering's star formations, with the facilitator at the centre, a greater range of linkages formed in the second offering, and with it, a tendency to form contacts earlier and a greater likelihood of re-contacts and stronger linkages. Rather than the more obvious linkages between students of similar gender or the more pragmatic linkages of similar skill level in the first offering, students in the second offering appear to be gravitating more towards those with similar education levels for further contacts, suggesting a richer form of mutual support.

Conclusions

Is it possible to maintain the access and affordability offered by MOOCs while completing the education iron triangle (Daniel, Kanwar, & Uvalić-Trumbić, 2009) which requires pedagogical quality as well?

It is unrealistic to expect the MOOC initiative to contribute to higher education without careful reference to existing instructional design requirements in regular online design and delivery. Much of the accolades provided for MOOCs are general attributes of online learning. Like any online education, MOOCs can (a) increase access, (b) foster equity in the learning environment as it is colour and gender blind and class neutral, (c) create affordable, convenient learning opportunities, and (d) develop expanded learning skills for students related to self-direction, self-regulation and collaboration. Online opportunities can provide quality education to an increasing audience previously left-out of elitist, geographically-bound and expensive place-based higher education. However, MOOCs take this a step further, allowing free access to any interested party who signs in and partakes of the experience, yet it is not yet clear if these new versions of online learning carry all the requirements of a sound, measured learning experience with appropriate and necessary outcomes. MOOCs design

should borrow from small-scale online design and delivery, rather than face-to-face models, but will also need to move beyond it.

Further opportunities for research include a deeper investigation of the linkages formed between pairs of students and, by extension, network clustering to explore the spontaneous development of discussion sub-groups and support networks by the students themselves. This is a growing area of data analytic documentation may provide information that correlates socio-academic activity

A third offering of LTLO runs in March, 2017. See <http://www.ltlo.ca> for more information.

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