

Discussion Forums in MOOCs

Afsaneh Sharif and Barry Magrill
The University of British Columbia
Vancouver, British Columbia, Canada

Abstract. Discussion forums in Massive Open Online Courses (MOOCs) represent a unique opportunity for insight into the formation of learning communities. Discussions are the locus of a MOOC's social experience and the forum space a testing ground of instructor presence. In MOOCs, the global scale of peer-to-peer contact represents a network of cross-cultural sharing and collaborative problem-solving, a relationship that generates the opportunity for experts to scaffold a novice's learning (Anderson, 2008). How learners acquire and build upon prior knowledge sets, sharing them with others in discussion forums, contributes to the robustness of learning communities. As extant literature suggests, collaborative learning accelerates content acquisition, providing a diverse approach to intellectual inquiry based upon the social construction of meaning. This paper outlines a framework for diagnosing a scaffolding of knowledge based on the social and contextual patterning in MOOC discussion forums.

Keywords: Scaffolding; Peer Support; Learning Communities; Collaborative Learning

Introduction

Massive Open Online Courses (MOOCs) were introduced into higher education around 2010. Through MOOCs learners gained open access to courses from leading universities and started networking with a global pool of professionals with various life and academic experiences. In MOOCs, a collection of video lectures, readings, projects, quizzes, peer-graded assignments, and discussion forums drew learners together. We propose that discussion forums deserve further investigation, particularly in relation to the formation of sub-communities facilitating a scaffolding of knowledge. Discussion forums in MOOCs promote experiential learning and, we suggest, provide a crucial avenue of user-generated content typically associated with the connectivist approach in cMOOCs where learner input is critical to course development. Thus, learning spaces become a locus of cross-cultural sharing and collaborative problem-solving that collapse time zones and national boundaries.

The plentiful research and scholarship about MOOCs as disruptors of higher education has nonetheless left an open question around knowledge scaffolding

through discussion forum participation. An instructor's presence, consisting of the design and administration, discussion facilitation, and direct instruction (Anderson et al., 2014), became a point of learner collaboration; that is, the instructor set the groundwork for collaboration by designing an active learning experience. Thereafter, learners populated the discussion forums with posts that often show how experts scaffold the knowledge of novices. Peers very often assisted one another in the teaching process since the instructor and even a team of teaching assistants could neither be active nor keep up with the scale of posts in the discussion forums at every given moment during the course's run. Ownership of knowledge became communal, literally. To better understand the scaffolding of knowledge in MOOCs, this paper examines social and learning distribution patterns in discussion forums. In particular we look at the formation of sub-communities in MOOCs and the impact of the discussion types on student learning. The roots of our investigation can be traced back to the early days of MOOC development when Andrew Ng, the Stanford professor who pioneered Coursera Inc. as a major provider of MOOCs, described the online learning process as community-based engagement. Ng's remarks indicating the secondary status of an institutional course brand to the online engagement of learners underscored the importance of online communities and peer-to-peer learning theories. In the next few sections, we will examine the patterns in MOOC discussion forums and how sub-communities take shape in MOOCs.

Patterns in MOOC Discussion Forums

Discussion forums are spaces for the exchange of ideas in MOOCs. In simple terms, a discussion forum involves making original posts (ideas and analyses expressed in text, images, or videos), reading posts, responding or commenting on posts, and possibly engaging in a rating scheme. In keeping with their significance to MOOCs, where learners are scattered across the globe, forum sub-communities are empowering spaces that learners use to test out new concepts, galvanize ideas, and reinforce new thinking. Replacing the term "discussion" with "discourse", Anderson (2008, p. 280) makes the important distinction that online forums facilitate a community of inquiry where learners work out new ideas and articulate them to one another. Misconceptions are uncovered, resulting in dialogue and debate. In this view of MOOCs, learners enter forum discussions with the expectation that the spaces are far more than chat rooms. Courses that have a higher level of insightful discussion posts have been found to have created trust amongst the learning community, typically by using "Get to Know You" introduction forums and interactive maps. Thus, the measurement of learning may be mapped according to a matrix of interrelated discussion posts, forming a community of learning, rather than a quantitative measurement of forum posts that might be linked to attrition rates. We also recognize that discussion forum participation is modest in MOOCs, typically in the range of 10-20% of registered learners, yet it nonetheless represents an important aspect of active learning that deserves further study. The type of posts related to course content include alternative perspectives, additional data, links to new and innovative research, and requests/offers of advice. That learners' posts brought forward personal/professional perspectives, raised local issues,

and shared experiences accounts for a sense of learner ownership among the sub-community topics.

Forums allow students in massive enrollments to congregate in smaller virtual spaces, like virtual villages, distilling social learning from large groups into manageable sizes. These sub-communities tend to form naturally around a broad range of topics. It is not surprising that small sub-communities form in MOOCs as a reaction to the perceived scale of the course and despite the fact that individual registrants cannot see the size of the course cohort. Thus, the sub-communities that form in MOOC discussion forums are a type of “imagined community”, as theorized by B. Anderson’s (1982) seeking to define nationalist endeavor, herein gathered together temporarily without the benefit of face-to-face connection but projecting a horizontal comradeship. The sub-communities in discussion forums in MOOCs negate the actual inequalities (social, economic, and political) of participants through the pursuit of having a voice amongst content put forth via a single individual, the instructor. Though the instructor can determine the forum topics, it is the learning cohort that populates them. Learners are often responsible for populating the forums with the exciting interactions, solutions, and perspectives that result in new knowledge, user-generated content (Anderson, 2004). Since well before T. Anderson (2004) theorized that content in and of itself does not do the job of teaching, educators have focused greater attention on the reception of content material. Scaffolding one’s knowledge fits into this educational matrix. The phenomenon of geographically displaced learners forming an imagined community, not necessarily homogenous or sharing worldviews, for a short time around the desire to have a voice still revolves around the notion of print capitalism. People have knowledge they can share that builds a communal learning ladder and user-generated content should increase when learners are empowered in an open educational environment. A more or less common vernacular language, predominantly English, deployed in sub-communities of MOOC discussion forums explains the popularity of social constructivism.

What is the nature of the variety of learner perspectives in MOOCs and how are they able to benefit a scaffolding of knowledge in the discussion forums? Having a scale of learners ranging from novices to experts means having a robust ecosystem of learners helping each other throughout the life of the discussion forums. Though there have been many ways to identify forum users according to the roles an individual will play in the forums, these basically break down into learners searching for assistance and learners seeking to provide help to others (Anderson, 2004; Gillani, Osborne, Roberts, Eynon, & Hjorth, 2014). Experts benefit from articulating concepts new to novices. Novices learn to make deeper connections by working through the perspectives offered by their peers. Still, it is not entirely clear how and why some discussion forums succeed in achieving deeper participation where others fail. The demographics of any particular discussion forum may be a factor; as well, instructor presence in forums likely helps create a locus of identification, which may extend to the design strategies used in setting up forums. Yang, Wen, Kumar, Xing, and Rosé (2014) emphasize that social support exchanged through online discussion is a significant factor leading to decreased attrition in other online communities.

They encourage educators and instructional designer to obtain insight into ways that we can design more engaging and socially conducive MOOCs by providing learners a platform where they can lend or receive social support and providing instructors a platform or method to gain a bird's-eye view of the emerging social structure in discussion forums and other social tools. One suggestion is for instructors and assistants to interject probing questions at critical opportunities to keep the discussion going until the appropriate depth has been reached.

This means looking for patterns in the forums. Some patterns are based on learner demographics, motivations, and life experience, i.e., adult learning pathways require higher levels of self-motivation and are often job-related learning, whereas younger demographic groups typically acquire abstract knowledge for an unspecified future purpose. Gillani et al. (2014) identified patterns in discussion forums using demographic and geographic data sets. In either event, one thing is clear: learners like to engage online course materials through some kind of community even though their connection to the learning materials is self-directed and self-determined. With this idea in mind, it is clear that an individual cannot disrupt traditional learning pathways. Disruption is a group activity. Furthermore, our ideas about an online learner working alone and periodically checking into a discussion group may be inaccurate. Rather, it appears that online learners consider themselves to be part of multiple and ever-evolving mini-communities. They access these communities on a need-to-know basis and feel connected to the group(s) via a temporary horizontal comradeship. Being part of a cohort that begins and ends the course together and on the same trajectory, no matter how separate in time and space, may be a significant factor in student retention rates. It is not simply that individuals' psycho-social connection to the online sub-community holds them in the course until completion, but rather it is the additional sense that an individual who participates in discussion forums feels a sense of belonging to a group that is arranged around the temporal formation of that sub-community. We assert that "on-demand" MOOCs are socially isolating and the disconnection that results damages the potential for knowledge scaffolding. A discussion thread entitled "Why is No-One Here?" illustrates the point, which was prompted by a learner in an "on-demand" MOOC called "How Things Work" on Coursera. Replacing the cohort system with on-demand learning appears to alienate and isolate learners particularly; why would someone post a comment if they were not certain that there was anybody to respond? These communities are strongest when comprised of a broad cross section of learners: education, profession, and life experience. These online sub-communities are heterogeneous and form for opportunistic reasons. It stands to reason that a learner can expect more help from a diverse group of peers, drawing on different backgrounds, experiences, and professions. This may apply most especially to courses that rely on problem-solving, where multiple perspectives shared in discussion forums will benefit the novices. Learners new to a subject have the steepest learning curve to tackle, and help from experts ought to increase a novice's engagement with the content. Rather than giving up when the content gets challenging, novices appear to turn to the discussion forums for help from peers. Strategies that promote learner engagement vary. For MOOC discussion forums, the act of participating in

discourse may be its own reward. The activity of the group creates its own cohesiveness that fosters a positive group dynamic. Participants keep coming back to the discussions that are in a positive feedback loop. To create and maintain the positivity, instructors often feature new and innovative posts in a weekly announcement. Badges for forum participation and visualization tools to assess individual activity are currently being deployed (Anderson, Huttenlocher, Kleinberg, & Leskovec, 2014). Platforms such as Coursera, edX, and FutureLearn provide an e-mail notification feature that alerts thread subscribers to new posts, eliminating the learner's need to constantly check for updates. The extent to which these features contribute to group cohesiveness remains to be seen.

Learner engagement is closely linked to persistence, especially in terms of forum participation. Persistence in forum participation depends on several factors, our interest being linked to some practical aspects. At which point in time a group collectively agreed that an answer was discovered, at which point a community of learners exhausted all possibilities for solutions to problems, and at which point in time an instructor posted what was perceived to be the "answer" in a thread are all potential factors affecting persistence.

The reasons, as noted, that discussion forums fill up with activity depends on a network of factors that we are not intent on exploring in a paper of this length. Some interesting practical reasons include increases to forum participation just before a graded activity or test. The increased traffic stems from a desire to seek peer feedback, and it is simply human nature to work towards deadlines. Thus, paying greater attention to the discussion threads, student responses to topics, and overall student activity is an opportunity for modeling group learning in online forums (Gillani et al., 2014). Another reason that groups form, at least temporarily, is to "game" the course. They may share quiz answers, usually in chat rooms outside of the course proper. These content-related formations are similar to those instances where students try to help each other navigate problems accessing content. Cheating aside, participation in discussions forums appears to influence the scaffolding of knowledge, and this is the focus of our next section.

Scaffolding and Community Building in MOOCs

Social interaction and peer support have recently proved to be key elements in the learning process. How does one give support to less-experienced learners in MOOCs? What skills do less-experienced MOOC learners need: study skills, a regular study schedule, problem-solving, aggregating information, or managing information? Do we need a MOOC on how to take a MOOC? Although some authors claim that there is "no correlation between awareness of time management strategies and learning success" (Jung, 2008), educators generally agree that metacognitive self-regulation correlates with learners' course completion (Puspitasari, 2012). How does self-learning occur in a flexible learning environment such as a MOOC?

Kop (2011) says “It takes time for people to feel competent and comfortable to learn in an autonomous fashion, and there are critical literacies, such as collaboration, creativity, and a flexible mindset, that are prerequisites for active learning in a changing and complex learning environment without the provision of too much organized guidance by facilitators. Especially at the start of the learning journey, support by more knowledgeable others proved to be helpful in this.” Connectivists claim that learning does not happen in a single space, but it happens across the web and beyond through learners’ engagement with the knowledge.

In the constructivist view, learning is enhanced by four major types of activity:

- 1) aggregation, access to, and collection of resources
- 2) relation: after reading, watching, or listening to those resources, the learner might reflect and relate it to previous learning or to earlier experiences
- 3) creation: learners might create something of their own after some reflection (i.e., discussion, blog post, video)
- 4) sharing: learners might share their work with others (Kop, 2011).

What is it in MOOCs that directs educators’ attention to the scaffolding concept?

- Learners at different levels (novice to mastery): MOOCs create an opportunity for novices to meet fellow master learners who are interested in similar subjects; those connections can live on as we choose
- Self-directed learning, which is unleashed and can be unnerving
- There is no finality and the learning is not structured and is on-going; learners can go as far as they want for as long as they want
- Continuous experiments, trying things as they are evolving

Scaffolding

Scaffolding is an instructional technique in which an instructor or a learner assists another learner to improve and build on prior knowledge. One of the key characteristics for success of online courses is scaffolding, which MOOCs also follow. Owing to the global nature of MOOCs, learners come from different backgrounds and levels and connect with each other to move towards heterogeneous learning objectives. Those who are more skilled might create a ladder for the novices by providing them with more resources, information, or responses. They use course content or tools or they bring new tools and content or in some cases create new content; these resources become tools for learning. The challenge for learners is often learning how to learn, rather than being content driven; therefore, peer support and connection help learners to move to the next step and build on their knowledge. Larkin (2002) suggests eight guidelines that teachers most commonly follow when developing scaffolded lessons. In the following the guidelines have been modified for MOOCs’ purposes:

- 1) Focus on curriculum goals to develop interactive activities

- 2) Define a shared goal for learners to achieve through engagement in specific tasks
- 3) Provide flexible instructions that can be modified or adapted to each student's ability
- 4) Encourage students to remain active and focused
- 5) Provide instant feedback through tools/technologies (e.g., game-based approach) or provide venues for peer feedback
- 6) Create an environment where students feel safe taking risks and which presents opportunities for students to move into unfamiliar territory successfully
- 7) Promote responsibility for independent learning
- 8) Introduce community building and peer support

Community Building

Learning is culturally and contextually dependent, ideally situated within an activity; people learn by doing. A critical component of situated learning is social interaction where learners become involved in a "community of practice" that represents certain behaviors and beliefs to be achieved. As the beginners move from the sides of this community to its center, they become more confident, and involved and assume the role of expert. Furthermore, situated learning is usually unintentional, not deliberate. Lave and Wenger (1990) call these ideas the process of "legitimate peripheral participation." "Learning is a social activity, whether we immerse ourselves into what Etienne Wenger called a community of practice, learn what Michael Polanyi called tacit knowledge, and be able to complete, as Thomas Kuhn famously summarized, the problems at the end of the chapter" (Downes, 2013). In MOOCs, social activities and peer connection are the pillars of learning. Learners in MOOCs form communities to share ideas, discuss problems/offer solutions, share interests, achieve course learning outcomes, etc. (Figure 1). Some communities are interest based, i.e., "formed around a topic of interest, a profession, or a domain" (Downes, 2013). In such communities, as Wenger (2004) explains, "members engage in joint activities and discussions, help each other, and share information." And they share a practice — a repertoire of resources, a vocabulary, and common ways of approaching a problem. Some communities are shaped around a problem or question in which members engage to find a solution or resolve the issue. A MOOC is to create a place where members can share ideas and beliefs. There are communities that move outside of the MOOC and meet in person to have the human touch and continue the journey. These communities are activated by peer learning. One recent example, a MOOC offered by Wesleyan University, entitled "The Language of Hollywood: Storytelling, Sound, and Color", included learner posts asking for and offering peer opportunities to join virtual and face-to-face study groups outside the course. Known examples of peer group formation outside of the MOOC parameters were initiated by the Clinical Associate Professor of Information at the University of Michigan, Dr. Charles Severance (aka Dr. Chuck), who recorded and posted "meet-ups" he had with students in many parts of the world. His manipulation of the online peer community into a face-to-face community added to his Coursera celebrity status.

Peer online learning communities are vital to learning as they provide a safe learning environment. Being part of an active sub-community may help learners navigate the more difficult moments when their motivation in a course is tested. “Though each may be pursuing a different educational goal, their overall objective and means of travel is the same, and thus they offer mutual support, encouragement, and reassurance” (Downs, 2013). Huang, Dasgupta, Ghosh, Manning, and Sanders (2014) posited the idea that “superposters” may be responsible for the lion’s share of the activity on discussion forums, which does not negate but rather supports the idea that communities create forums around the sharing of thoughts, concepts, and solutions despite the chance that receptive readers outnumber active forum posters. Because users attempt to generate content via participatory avenues, discussion forums appear ubiquitous across MOOC typology.

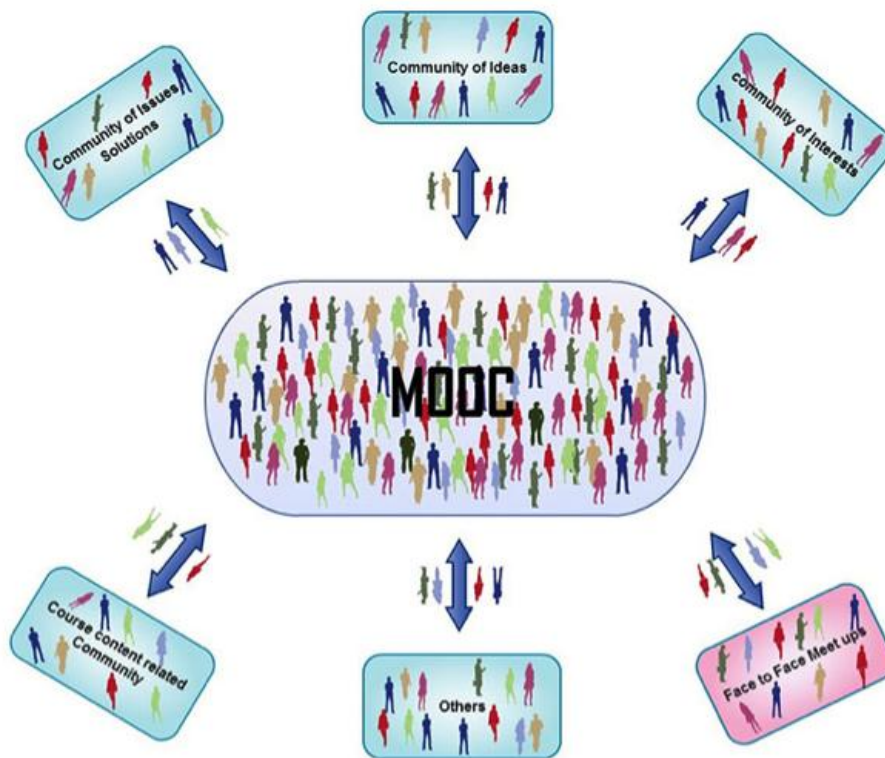


Figure 1: Different communities within a MOOC

A variety of communities form in MOOCs, based on the approaches of designers and instructors:

Connectivist MOOCs (connection) communities. “the cMOOC experience’s distributed, flexible nature produces more robust and persistent communities largely because the community’s focus is less on the course itself and more

focused on the intersection of the course content with the lives and work of the students” (Caulfield, Collier, and Halawa, 2013).

Cross-institutional/courses communities. “The key element connecting experiments such as these is that the differences in the local versions of each class are seen not as deviations but as net benefits to the cross-institutional community; the dialogue among students in different classes is meant to foster a diverse community of learners” (Caulfield et al., 2013).

Real-world communities. “In these cases, the community can act to connect students to engaging, real-world opportunities that might be impossible to provide in the context of a smaller, face-to-face course. Example projects include Waterfeed, a crowd-sourced, student-managed site that aggregates and summarizes recent news on water policy, science, and technology” (Caulfield et al., 2013) and the student-led “Online Data Privacy” cMOOC (Griesbaum, 2014). It is also important to mention that there are communities that form within a MOOC and move together to another MOOC for comparison, experiments, and learning (Figure 2).

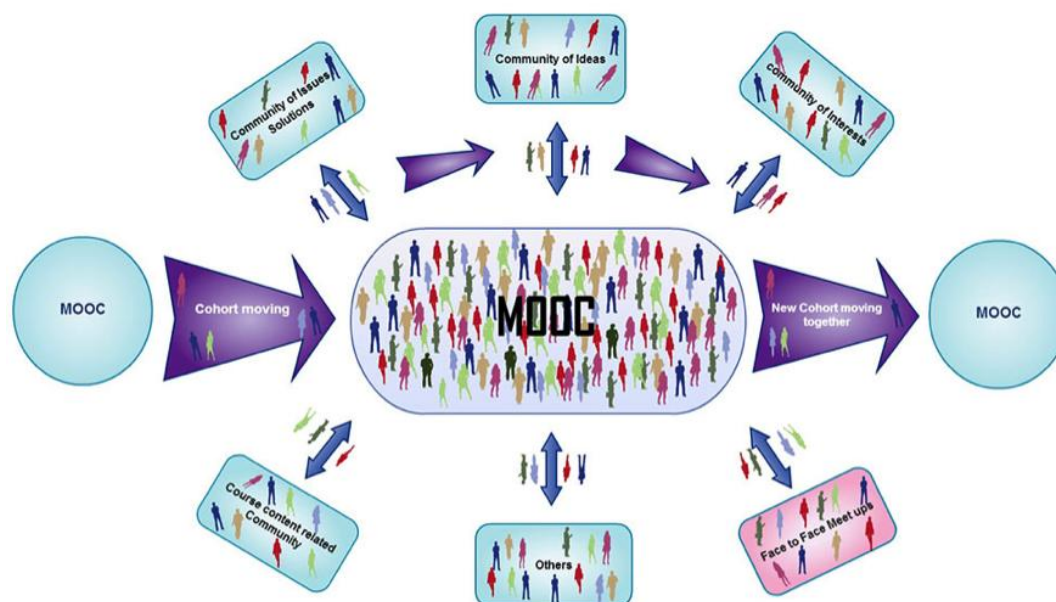


Figure 2: Cohort moving from one MOOC to another

The scale of a MOOC poses challenges to visualize the formation of communities; however, there are also clear indications in forum posts that suggest some communities that started with one form, such as problem-based communities, moved to another form of communities, such as interest based, as problems are resolved and members’ interests/attention shift. As a MOOC and

its environment evolve, learners' behaviors with regard to learning also evolve; therefore, the benefits and characteristics of communities in MOOCs need further exploration.

MOOCs at The University of British Columbia

Patterns in Community Development and Discussion Forums

In 2012/2013, The University of British Columbia (UBC) ran a pilot project to produce four MOOCs using the Coursera platform: Useful Genetics, Climate Literacy, Introduction to Systematic Program Design, and Game Theory (in partnership with Stanford University). Each course consisted of video lectures, quizzes, assignments, and discussion forums, the latter representing the interface of peer-to-peer learning. Discussion forums were important parts of the learning plan. It was anticipated that learning amongst a group of peers would encourage deeper learning (Bransford, Brown, & Cocking, 2000; Stahl, Koschmann, & Suthers, 2006; Vygotskii, 1978; Kizilcec, Schneider, Cohen, & McFarland, 2014). Each course attracted tens of thousands of participants, collectively producing thousands of discussion forum posts.

In the Climate Literacy MOOC at UBC, a single discussion thread initiated by a student, called "The Carbon Cycle", offers a compelling case analysis. The thread received 70 posts by peers and was viewed 425 times. The variety and depth of many of the individual posts suggest that the discussion group attracted people with prior knowledge around climate science. Participants suggested links to a variety of climate science studies and readings. They hypothesized and suggested alternate solutions to real-world problems related to the carbon question, e.g., what happens to crops as the carbon level in the atmosphere changes? Students were articulate, thoughtful, and generally respected alternate viewpoints. Overall, the instructors described the discussion forums as positive spaces for group learning.

Other patterns of social engagement evolved out of the discussion forums of these MOOCs. In Climate Literacy and Introduction to Systematic Program Design there was anecdotal evidence that group interaction extended beyond the limits of the MOOC. Not only did learners continue to return to the discussion forums after the course had ended but also it was clear that some people wanted to continue the conversation outside of the MOOC domain. Facebook pages and blogs were launched as a result of the initial meetings inside the MOOC forums. This practice was actually encouraged by the course authors, Sarah Harrison and Sara Burke, who wanted learners to continue thinking about the impact people have on the planet. They invited learners to consider, record, and share their ideas about climate literacy by asking questions such as, "Are you still turning off the lights you don't need six months after the courses ended?" Continuing the discussion about climate literacy beyond the boundary of the MOOC was actually an integral part of the course structure. People continued to post new discussion threads to the forums for several weeks after the course closed because individuals had a social space and an audience. Even after the forums were officially closed to prevent misuse, people found

ways to access the forums to create posts by adding comments to earlier comments. This was a creative tactic to make posts in a discussion forum that had locked out new posts.

Each of the UBC MOOCs relied upon Teaching Assistants (TAs) and volunteer Community Teaching Assistants to monitor the forums. Teaching Assistants and Community Teaching Assistants directed the traffic of discussion posts inside the forums, providing feedback, guidance, and support. While the MOOC was active, TAs and Community TAs became the custodians of knowledge transfer in the peer-to-peer model and thus took on a significant responsibility in the learning process.

Learners exercised the option to create anonymous posts in discussion forums, though most course instructors adopted a policy of asking people to create unique nicknames. This method allowed people to freely express themselves no matter where they lived. Even in traditionally “open” countries some subjects crossed boundaries, and so nicknames allowed people to feel safe in their self-expression. Anonymous or nickname posts were not an invitation to disrupt or otherwise act inappropriately, though in these cases the crowd often metes out its own form of justice. MOOC forum participation is an intrinsic phenomenon, whose success depends on personal satisfaction derived from being part of a robust community.

Lessons Learned: Promising Practices for MOOC Development and Delivery

Through the first round of MOOC offering, the first lesson learned was to spend more time planning. The major tasks in planning include assess needs, define project scope, determine resources, create a project schedule, and determine budget. The importance of needs analysis for the design of syllabus and course design is supported by many educators in the field (Gomez Garcia, 2007; Pilar & Mayo, 2000). MOOCs appear to be primarily about the video lectures. In fact, recent trends in MOOCs suggest that lecture videos complement rather than replace a variety of educational materials. Other lessons learned include developing learning materials, such as storyboards, project plans, project and media charters, and activities, before producing video. An important, if overlooked, component of the design and development phase is how to build compelling discussion forums. Thinking about questions that will engage a broad sector of learners is crucial to student motivation. Developing healthy discussion forums that attract students who push for deeper learning as a group does not happen by accident. Design MOOCs to support communities and culture and promote peer support and learning. It is important to have a core team to work on MOOCs in which members’ roles and responsibilities are discussed and confirmed, including subject matter expert, media producer, graphic designer, instructional designer, and technical support. It is also important to review and discuss promising practices and strategies for online learning with all the team members. From our findings and experiences, we recommend the following steps to designing MOOCs:

- Talk to faculty about promising practices and teaching strategies for online learning and MOOCs.
- Adopt open educational resources in support of your MOOCs.
- Include potential content and community partners in MOOC design.
- Consider different forms of online community beyond the discussion forum.
- Ensure the social presence of the facilitators and of participants, which enhanced the “community” forming and the sense of belonging that built confidence and stimulated active participation.
- Discuss strategies for anticipating how diverse users in a mass audience will interact.
- Consider what learners need to take away from the MOOC, and then figure out how to get the students to learn it on their own through the MOOC’s learning objects.
- Keep learners motivated and on track by providing a weekly announcement/email update summarizing the key points covered and signposting to the following week’s activities (Conole, 2014).
- Invite experts to participate in Google Hangouts or in a module’s discussion forum.
- Consider and invite internal and external subject matter reviewers for your MOOC.
- Introduce all the tools/technologies used in the course and their benefits. For example, using blogs to develop e-portfolios as a means of participants collecting all the artifacts they have developed throughout the MOOC to achieve learning outcomes or Wiki as a collaborative tool to develop an online resource.
- Encourage and ensure active learning and participation, e.g., get participants to work collaboratively and develop an online resource on a particular topic using a Wiki or encourage them to create and comment on blogs.

Conclusion

Users in discussion forums are an integral part of MOOCs, their participation constituting a sub-community. Forming on an ad hoc basis and in connection with the presentation and design of learning content, sub-communities are an avenue of user-generated content. Forums become populated with data that users feel adds to the matrix of learning materials and perspectives that round out the vision of the course topics. The heterogeneous composition of discussion forum sub-communities enhances the scaffolding of knowledge by putting the broad range of experience of both experts and novices in league with one another. It is clear that scaffolding knowledge is an important aspect of the learning process that happens to also be a significant part of successful discussion forums. These are areas where students command the greatest amount of control, precisely because of scale, requiring a new standard of practice in course design. A crucial step to making this successful is encouraging user-generated content. Getting students to feel empowered to add their own content to a course, in discussion forums in an xMOOC for instance, requires setting up a space of trust inside the course. This means moving passive learners into active ones. It is clear that students are more engaged when they find a personal connection between their interests, goals, and a specific topic provided

by the course. Scaffolding opportunities within the discussions, the diversity of students, the presence of experts and novices, and good design practices assist students to find such personal connections. This strategy increases motivation until learners move to the next step, past initial confusions, and settle more comfortably into the course. We have also noted the difficulty of trying to create user-generated content in an on-demand course that foregoes cohorting. The objective of this paper has been to demonstrate, by the aggregation of existing studies, the relevance of user-generated content on the learning ecosystem in MOOCs as it applied to sub-communities forming in discussion forums.

References

- Anderson, A. (Ed.) (2008). *Theory and practice of online learning*. Edmonton, AB: Athabasca Press.
- Anderson, A., Huttenlocher, D., Kleinberg, J., Leskovec, J. (2014). *Engaging with massive online courses*. arXiv:1403.3100. Retrieved December 2014 from <http://arxiv.org/pdf/1403.3100.pdf>
- Anderson, B. (1982). *Imagined communities*. London: Verso Press.
- Anderson, T. (2004). Toward a theory of online learning. In T. Anderson & F. Elloumi (Eds.), *Theory and practice of online learning* (pp. 33–60). Athabasca, AB: Athabasca University.
- Bransford, J. D., Brown, A. L., & Cocking, R. R. (Eds.) (2000). *How people learn: Brain, mind, experience, and school: Expanded edition*. Washington, DC: National Academy Press.
- Caulfield, M., Collier, A., Halawa, S. (2013). Rethinking online community in MOOCs used for blended learning. *EDUCAUSE Review Online*. Retrieved April 2014 from <http://www.educause.edu/ero/article/rethinking-online-community-moocs-used-blended-learning>
- Conole, G. (2014). Tips for designing MOOCs and useful teaching strategies. Retrieved June 2014 from e4innovation.com
- Downes, S. (2013). MOOC – The resurgence of community in online learning. *Half an hour*. Retrieved May 2014 from http://halfanhour.blogspot.ca/2013_05_01_archive.html
- Gillani, N., Osborne, M., Roberts, S., Eynon, R., & Hjorth, I. (2014). *Communication communities in MOOCs*. arXiv:1403.4640
- Gomez Garcia, L. (2007). *The importance of needs analysis in syllabus and course design. The CMC-E project: a case in point*. Retrieved August 2013 from <http://www.spertus.es/Publications/Lidia/valladolid.pdf>
- Griesbaum, J. (2014). Students as teachers in MOOCs? The double gain of MOOCs as an in-class teaching method experiences from a student-made MOOC “Online data privacy”. *International Journal of Information and Education Technology*, 4(1), 29–34.
- Huang, J., Dasgupta, A., Ghosh, A., Manning, J., & Sanders, M. (2014). Superposter behavior in MOOC forums. *Proceedings of the First ACM Conference on Learning@Scale (L@S)*, pp. 117–126. doi:[10.1145/2556325.2566249](https://doi.org/10.1145/2556325.2566249).
- Jung, M. (2008). *The effects of integrating time management skills into a blended distance learning course*. PhD Thesis, University of Southern California.
- Kizilcec, R. F., Schneider, E., Cohen, G. L., & McFarland, D. A. (2014). Encouraging forum participation in online courses with collectivist, individualist and neutral motivational framings. In U. Cress and C. D. Kloos (Eds.), *EMOOCs 2014, Proceedings of the European MOOC Stakeholder Summit*. pp. 80–87.
- Kop, R. (2011). The challenges to connectivist learning on open online networks: Learning experiences during a massive open online course. *The International Review of Research in Open and Distance Learning, Special Issue – Connectivism*:

- Design and Delivery of Social Networked Learning*, 12(3). Retrieved February 2014 from <http://nparc.cisti-icist.nrc-cnrc.gc.ca/npsi/ctrl?action=rtdoc&an=18150443&lang=en>
- Larkin, M. (2002). Using scaffolded instruction to optimize learning. *ERIC Digest*. Arlington, VA: Clearinghouse on Disabilities and Gifted Education, ED474301.
- Lave, J., & Wenger, E. (1990). *Situated learning: Legitimate peripheral participation*. Cambridge, UK: Cambridge University Press.
- Pilar, M., & Mayo, G. (2000). *English for specific purposes: Discourse analysis and course design*. Bilbao: Servicio Editorial. Universidad del Pais Vasco/Euskal Herriko Unibertsitatea. pp. 37-39.
- Puspitasari, K. (2012). *The effects of learning strategy intervention and study time management intervention on students' self-regulated learning, achievement, and course completion in a distance education learning environment*. PhD Thesis, The Florida State University, Tallahassee, FL.
- Stahl, G., Koschmann, T., and Suthers, D. (2006). Computer-supported collaborative learning: An historical perspective. In *Cambridge Handbook of the Learning Sciences* (pp. 409-426). Cambridge, UK: Cambridge University Press.
- Vygotskii, L. L. S. (1978). *Mind in society: The development of higher psychological processes*. Cambridge, MA: Harvard University Press.
- Yang, D., Wen, M., Kumar, A., Xing, E., & Rosé, C. P. (2014). Towards an integration of text and graph clustering methods as a lens for studying social interaction in MOOCs. *The International Review of Research In Open and Distributed Learning*. 15(5).
- Wenger, E. (2004). *Communities of practice: A brief introduction*. Retrieved April 2014 from https://scholarsbank.uoregon.edu/xmlui/bitstream/handle/1794/11736/A_brief_introduction_to_CoP.pdf?sequence=1