

Participants' Perceptions of Learning and Networking in Connectivist MOOCs

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Abstract

Massive open online courses (MOOCs) are growing exponentially in higher education. They have attracted the attention of higher education institutions, course designers, and policy makers. They challenge the mainstream of higher education and provide global learning opportunities to a huge number of students so they can learn anytime and anywhere. The value and applicability of the MOOC model in the current era of higher education and the nature of learning in such an open online format need to be investigated. This study focused on participants' experiences and perceived value of participation in connectivist MOOCs (cMOOCs) in terms of dealing with an abundance of resources and tools, learning activities, and network engagement. The results suggest a high extent of technology deployment for learning and interactions by the participants in cMOOCs. Creating networks and developing professional connections through networking technologies are advantages of participating in cMOOCs. The study's findings contribute to a better understanding of the nature of learning and participation in MOOCs from the perspective of students, who are the main stakeholders of such new learning experiences.

Keywords: massive open online course (MOOC), connectivist massive open online course (cMOOC), connectivism, networked learning, open education

Introduction

Emerging technologies and the pervasive distribution of open educational resources (i.e., open content, open course, and open access) challenge formats and approaches in higher education. Social media and mobile technologies have enabled learning and interaction to happen anytime and anywhere. The rapid co-evolution of technology and new learning formats expand traditional learning options, augment the roles of learners and educators, offer universality of instruction, and place the onus of responsibility on educators to produce and share knowledge in global networks ([Dabbagh, 2005](#); [de Waard et al., 2011](#); [Kop, Fournier, & Mak, 2011](#)). [Siemens and Conole \(2011\)](#) argue that the first decade of the 21st century has introduced amazing innovation in social and mobile technologies, openness movement, and new tools that can blend physical and virtual worlds. They state that "new technologies that influence how information is created and shared and how people connect and socialize hold promise for adoption in education" (p. i).

Not even Ivan Illich (1970), when calling for the deschooling of society, could have predicted how it might be actualized in the 21st century via modern technological infrastructures. The potential of technology to lower the threshold of engagement in informal learning renders the need for physical

resources (e.g., classrooms) less demanding, prompting the desire for open and distributed learning environments ([Siemens, 2010](#)). Part of the consequential paradigmatic shift is that learners can create their own learning experiences, alone or in networks.

Online learning in higher education is moving toward open sourcing. Translating the benefits of technology into innovative practices of MOOCs offers a huge number of learners worldwide the chance to use tools such as wikis, blogs, [Twitter](#), and [Facebook](#) to create and share content and to develop learning networks. These initiatives offer obvious advantages: eliminating geographic and economic barriers to education, allowing students access to multiple learning opportunities, promoting lifelong learning, and augmenting face-to-face and traditional education in new ways ([Clobridge, 2012](#)).

MOOCs are a new phenomenon in online learning, with a growing but immature research base. Of paramount importance to researchers is the quality of the learning experience that MOOCs provide ([Mazoue, 2013](#)). To what extent are MOOC organizers aware of the unique participation requirements and the changing nature of learning among students? What motivates MOOC learners? Further research is needed to examine the pedagogical value of the MOOC model, learners' motivation to participate in MOOCs, and the perceived value of participating in open network learning. [McAuley, Stewart, Siemens, and Cormier \(2010\)](#) believe that a coherent research agenda can help assess the viability of the model and address some pedagogical issues, challenges, and questions associated with MOOCs. Such an agenda should consider the nature and quality of participant learning, technological tradeoffs, and the role of an online learning community or other such networks.

Using an online ethnography design, this study describes the extent of technology deployment by the participants, learning activities, network interactions, and level of participation in connectivist MOOCs (cMOOCs). The authors begin with a brief history of MOOCs. They continue with an overview of the research on MOOCs and theoretical perspectives on open online learning and networked learning. They then describe the methods of data collection and data analysis. Finally, descriptive statistics and qualitative interpretations are presented, followed by a discussion of the implications of this research for theory and practice and a future research agenda.

The Emergence and Evolution of MOOCs

The MOOC movement has arisen largely because of the shortcomings of traditional learning models in higher education, namely the inability to reach a large number of learners and the failure to implement open and networking technologies. The development of MOOCs is rooted within the ideals of openness in education: "knowledge should be shared freely, and the desire to learn should be met without demographic, economic, and geographical constraints" ([Yuan & Powell, 2013](#), p. 6).

MOOCs were pioneered by open educators such as George Siemens, Stephen Downes, Dave Cormier, and Alec Couros ([Anderson & McGreal, 2012](#); [Baston, 2013a](#); [Siemens, 2012](#)). The MOOC idea was followed by open courses from Stanford University and other initiatives such as [Coursera](#), [Udacity](#), and [edX](#), which strive to attract large numbers of students.

Some researchers distinguish cMOOCs from xMOOCs or other forms of MOOCs such as Coursera, Udacity, and edX ([Conole, 2013](#); [Daniel, 2012](#); [Rodriguez, 2013](#); [Siemens, 2012](#)). The latter form is different from the original cMOOCs in terms of format and underlying ideology. CMOOCs provide more interactive learning environments with participants engaging in various activities and networking. They emphasize knowledge generation, autonomy, and social network learning. Meanwhile, the xMOOC model emphasizes a more traditional learning approach of knowledge duplication through video presentations and short quizzes and tests ([Siemens, 2012](#)).

Regardless of the format, MOOCs represent a platform ([Siemens, 2012](#)) that takes full advantage of the power of technology and networks to provide learning opportunities to distributed learners ([Anderson & McGreal, 2012](#)). [Hill \(2012\)](#) offers a visualization of the formation and evolution of MOOCs, which is shown in Figure 1.

MOOCs Defined: The Changing Roles of Learners and Educators

Characteristics of cMOOCs, such as formats, goals, and underlying assumptions about learning, vary enough to make defining them difficult. [McAuley et al. \(2010\)](#) offer the most comprehensive definition of a cMOOC:

An online course with the option of free and open registration, a publicly shared curriculum, and open-ended outcomes which integrates social networking, accessible online resources ... and most significantly builds on the engagement of learners who self-organize their participation according to learning goals, prior knowledge and skills, and common interests. (p. 10)

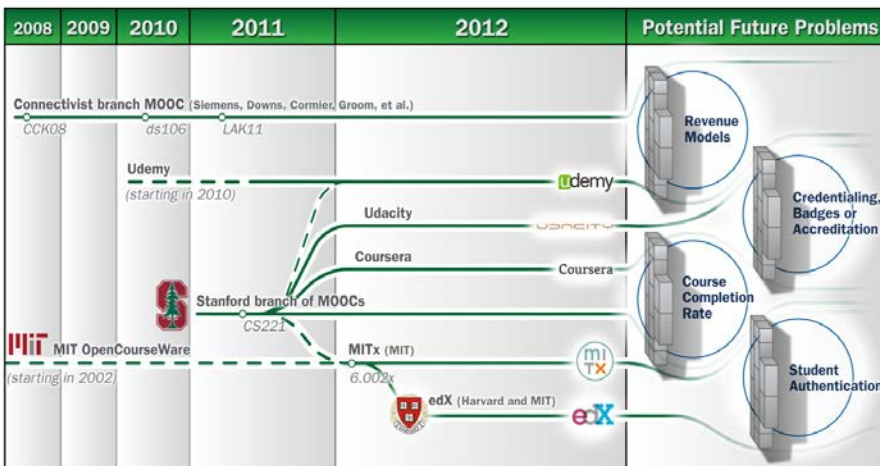


Figure 1. *The evolution of MOOCs*

(The above figure is from "Four Barriers that MOOCs Must Overcome to Build a Sustainable Model" [Web log post] by P. Hill, July 24, 2012, available at <http://www.deltainitiative.com/bloggers/four-barriers-that-moocs-must-overcome-to-build-a-sustainable-model> under a [Creative Commons Attribution-NoDerivs](https://creativecommons.org/licenses/by-nd/4.0/) license.)

The above definition relates to cMOOCs, particularly those that encourage interactivity and network engagement over content mastery and test taking, such as xMOOCs. [McAuley et al. \(2010\)](#) go on to add that, in cMOOCs, communities of participants are the primary sources of feedback for the majority of the work contributed, in keeping with the participatory collaboration and commenting norms within social media.

Openness is a fundamental principle of MOOCs; it influences the role of students, educators, and even the curriculum. [Cormier and Siemens \(2010\)](#) describe the characteristics of an open course as "open learners," "open educators," and "open curricula":

In an open course, participants are encouraged to engage at different levels of practice from outlining the course structure to creating and providing course materials and creating an avenue for communication and interaction. As content becomes readily available and as searching for it becomes easier, allowing learners to participate in the creation of their own curriculum becomes increasingly realistic. (p. 35)

MOOC-based educators may be content experts, but they tend to play down authoritative roles and instead facilitate peer and network interactions ([Cormier & Siemens, 2010](#)). They help learners rely less on the "sage on the stage" and more on social sense-making through networks.

A cMOOC has a less predefined curriculum or agenda of activities for participants to follow. Though structure and outlines of topics are always present, class activities are not predetermined. Participation is encouraged at every level, including student contributions in shaping the curriculum and patterns of interactions. [Cormier \(2008\)](#) talks about community as a curriculum in which all stakeholders are involved in planning and the curriculum is rhizomatically developed over the period of the course. [Cormier and Siemens \(2010\)](#) add that "The move away from standard class structures and toward a lifelong learning model also encourages this, since it allows learners with different interests and needs to create their own flavor of a course within the course" (p. 35).

Researching the Realities and Promises of MOOCs

The MOOC phenomenon has attracted the interest of many researchers in online learning. They have examined its limits and characteristics from a variety of perspectives: curricular, economic, pedagogic, and managerial. Still, research on MOOCs is immature. Topics of current importance include learner motivation, engagement, social presence, and instructor presence ([Koutropoulos et al., 2012](#)).

Noteworthy research abounds on different aspects of MOOCs, such as their potential for online higher education, technological considerations and the perceived value of MOOCs by educators and students (de Waard et al., 2011; Fini, 2011; Kop, 2011; Mackness, Mak, & Williams, 2010).

Fini (2011) studied technological dimensions of MOOCs and their uses in one cMOOC, *Connectivism and Connected Knowledge 2008 (CCK08)*. This study affirmed that, despite an abundance of tools and resources offered by course facilitators, participants tended to be selective in choosing their learning tools and mainly preferred the most common social networks.

Mackness et al. (2010) examined the principles of connectivist learning in a study on MOOCs and found that the more autonomous and connected the learners were and the more diverse and open the course was, the greater the lack of structure, support, and moderation.

Rodriguez (2013) explains that cMOOCs are based on the philosophy of connectivism and networking, while xMOOCs are based on the cognitive-behaviorist approach to information transmission and content delivery. According to Rodriguez, both rely heavily on technology: cMOOCs establish many-to-many interactions and massive interconnectedness using multiple spaces, tools, and technologies, while xMOOCs have shown impressive technology deployment, causing rapid course production and huge lists of high-standard partners.

Research has also been conducted on other aspects of learning in open network contexts: self-directed learning in MOOCs (Kop & Fournier, 2011); serendipity in open network environments (Saadatmand & Kumpulainen, 2013; Kop, 2012); the challenges of learning in MOOCs (Kop, 2011); chaos, complexity, and emergence in MOOCs (de Waard et al., 2011; Kop et al., 2011; Williams, Karousou, & Mackness, 2011); autonomy and self-organized learning (Mackness et al., 2010; Tschofen & Mackness, 2012); and MOOCs as a platform for mobile learning (de Waard et al., 2011; Koutropoulos et al., 2012).

However, more research is needed on participants' learning experiences, the meaning of working in networks, and overall perceptions of MOOCs, to understand their limits of effectiveness from the point of view of the learners. An appropriate research design for such research is online ethnography, which provides learners' perspectives in a naturalistic way while they participate in their learning environments.

Theoretical Perspectives on Learning in MOOCs

Conole (2010) states that theoretical perspectives in e-learning research include sociocultural theories, activity theory, communities of practice, actor-network theory, networked learning, and connectivism. Previous research has advanced various theoretical conceptualizations about learning and teaching activities in MOOCs, and much research has adapted a connectivist approach to elaborate on the interpretation of learning in MOOCs (e.g., Bell, 2010, 2011; Kop & Hill, 2008; Mackness et al., 2010). Research on MOOCs has mainly drawn on connectivism and networked learning as theoretical assumptions that provide a better understanding of the emerging forms of networked activities and learning in open online environments. The present study also draws on connectivism as a major theoretical notion of learning in cMOOCs and networked learning, which explains the nature of learning and dealing with resources in socio-technological learning environments.

Connectivism: The Pedagogy of cMOOCs

Connectivism is an approach to learning in the digital and networked world introduced by Siemens (2005a, 2007) and Downes (2006). Siemens (2005a) calls connectivism "a learning theory for the digital age."

Siemens (2005a, 2006) claims that the underlying assumptions behind connectivism are different from those of behaviorism, cognitivism, and constructivism in that they integrate principles of chaos, network, ubiquity, and complexity. Connectivism assumes that the key characteristics of learning in connectivist learning environments, such as MOOCs, are openness, autonomy, diversity, and interactivity/connectedness (Downes, 2010).

Theoretical frameworks such as connectivism inform network-based pedagogies by emphasizing the customization of learning in the online and networked world, offering greater autonomy and flexibility for learners with more personalized learning experiences. They allow learners "to exploit the affordances of Web 2.0 and to facilitate personal choices, participation, collaboration, and creative production" (McLoughlin & Lee, 2011, p. 51). Connectivism describes the nature of learning as a process of making

connections with people, resources, and networks, and creating networks of personal knowledge mediated by ubiquitous technology ([Downes, 2006, 2007](#); [Siemens, 2005a, 2005b](#)).

[Anderson and Dron \(2011\)](#) argue that the inherent fuzziness of the connectivist approach often fits poorly within a more formal and traditional context, where courses are based on constructivist and cognitive-behaviorist models. MOOCs are learning environments that promote restructuring education to change the spaces of learning from classrooms to ecologies and to change hierarchical content to networked content, which learners have easy access to and where knowledge is co-created and shared with others (Siemens, 2007). [Siemens \(2005b\)](#) uses networks and ecologies to conceptualize education in complex and technology-mediated environments.

Networked Learning and MOOCs

Networked theories of learning, as explained by [Siemens \(2005b\)](#) and [Goodyear, Jones, Asensio, Hodgson, and Steeples \(2005\)](#), have been elaborated to explain the impact of technology across education, communication, business, and society ([Bell, 2010](#)). [Anderson and Dron \(2011\)](#) describe connectivism as a networked learning theory that views learning as a process of creating networks of information, contacts, and resources: "Connectivist models explicitly rely on the ubiquity of networked connections between people, digital artifacts, and content" (p. 87).

Networked learning is a genre of technologically mediated learning in which social media and Web technologies are used to promote connections between individual learners, human resources, content resources, and learning communities, and to continuously deal with the ever-increasing amount of digital information (de Laat, 2006; [Goodyear et al., 2005](#); [Jarche, 2010](#); [McConnell, 2004](#); [Siemens, 2005b](#)). It is a continuous process of seeking, sensing, and sharing information and learning resources ([Jarche, 2010](#)) and requires an open attitude toward learning.

The central assumption of networked learning is developing and maintaining connections that include interactions with formal materials and resources, and more importantly, human-to-human interactions mediated by digital technologies. As [Siemens \(2012\)](#) asserts, MOOCs are really platforms that foster such networked activities by deploying a rich array of tools and resources to help learners create their own learning pathways.

Purpose of the Study

In this study, the authors examined participants' experiences and perceptions of learning in cMOOCs in terms of managing: (1) resources and tools to support their learning; (2) learning activities; and (3) level of participation and network engagement. The research questions that guided this study are as follows:

- 1) How do participants in cMOOCs use tools and resources for their learning?
- 2) What networking activities take place in cMOOCs?
- 3) What is the nature of participation and learning in MOOCs, and how is it perceived by MOOC learners?

Methods

Context and Participants

This study examined the following cMOOCs between Fall 2010 and Spring 2011: [Social Media and Open Education \(EC&I 831\)](#), a 13-week course offered by the University of Regina; [Personal Learning Environments, Networks, and Knowledge 2010 \(PLENK10\)](#), a 10-week course run by Athabasca University); and [Connectivism and Connective Knowledge 2011 \(CCK11\)](#), a 12-week course from the University of Manitoba. PLENK10 and CCK11 attracted more than a thousand participants each, while EC&I 831 had a few hundred participants. The number of participants changed throughout the course, as there seemed to be a high dropout rate. Each course had a few dozen for-credit students; the rest were non-credit participants. Participants of this study attended at least one of these MOOCs.

The course materials and activities were distributed via online tools and social Web platforms such as Google, Facebook, Twitter, wikis, blogs, and social bookmarking tools like Diigo and Delicious. Course facilitators presented a variety of tools, but participants were encouraged to be independent in choosing tools for interaction and networking during the course. Weekly synchronous online sessions were organized around different topics related to the course and delivered through [Elluminate Live!](#) and [Adobe Connect](#).

Data Collection and Data Analysis

This study employed an online ethnography design to gain a deeper understanding of participation and learning in cMOOCs. Online ethnography or virtual ethnography is a method designed to study cultures and communities online, and the complexities of technologically mediated social worlds ([Bowler, 2010](#); Hine, 2005; [Johnson & Humphry, 2012](#); Kozinets, 2010). Because of the researcher's crucial role in ethnography (Creswell, 1998), the first author participated in and observed different MOOCs since autumn 2010, which enabled a better understanding of the nature of learning in the MOOCs.

Data were collected through an online questionnaire, online semi-structured interviews, and autoethnographic insight (Chang, 2008; [Ellis, Adams, & Bochner, 2011](#); [Keefer, 2010](#)). The researcher's autoethnographic insight was augmented by lurking and observation within the following MOOCs: the iteration of EC&1831, PLENK10, and CCK11 in the following years, the iteration of EC&1831, PLENK10, and CCK11 in the following years, [Learning and Knowledge Analytics 2011 \(LAK11\)](#), [Change11](#), [Digital Storytelling \(DS106\)](#), [Current/Future State of Higher Education \(CFHE12\)](#), [Personal Learning Environments for Inquiry in K-12 \(PLEK12\)](#), [mobiMOOC](#), and [eduMOOC](#).

An online questionnaire was delivered through Twitter hashtag channels to the EC&I 831 and PLENK10 participants in December 2010. The questionnaire was designed and distributed through an online survey tool called [SurveyGizmo](#), and respondents completed it online. A total of 65 hits were observed on the online survey platform. Twenty respondents returned the questionnaire; eleven of them answered all the closed-ended and almost all the open-ended questions, and nine answered some of the closed-ended questions. Most of the respondents were from the United States, Canada, and Europe, and a few were from China, Egypt, and Russia.

The questionnaire contained 5-point Likert items in three main categories: use of tools and resources by MOOC participants, learning and networking activities in the MOOCs, and participants' experiences and perceptions of learning in MOOCs. The questionnaire also included a few open-ended questions for participants to elaborate more on their responses.

Another source of data was the online interviews with cMOOC participants. Twelve interviews were conducted in Spring 2011, each lasting between 45 and 75 minutes. The interviewees (nine females and three males) were between 25 and 54 years old. All interviews were done online using [Skype](#) and [Google Talk](#) and were audio recorded. Five were also video recorded.

Due to the low return rate of the questionnaire, descriptive, not inferential, statistics were used. After collecting the questionnaire responses, themes and topics for interviews were developed. The responses to the open-ended questions in the questionnaire were analyzed qualitatively along with the interview data. Questionnaire responses, interview data, the researcher's autoethnographic insight, and participants' public online data in the form of tweets and blog posts were analyzed and compared.

The data were interpreted using an ethnographic research design based on a framework of analytic induction and comparative analysis. In this framework (Figure 2), the broad and existing categories and the initial definition of the phenomenon of study are examined through preliminary observations and a small-case data collection process (questionnaire). They then undergo continuous refinement throughout further data collection and analysis ([Goetze & Lecompte, 1981](#); [Hammersley, 2004](#)). The process continues by redefining the phenomenon, developing and reformulating research questions over the course of research, and modifying and refining them based on subsequent cases and more data collection phases (e.g., interviews, participants' artifacts). Different sources of data are scanned for categories of the phenomenon and relationships among them ([Goetze & Lecompte, 1981](#)).

Ethical issues pertaining to online data retrieval were addressed through [Creative Commons](#) licenses wherever appropriate; otherwise, each participant provided direct permission to use these data. Participants' blogs, tweets, and discussions in Facebook groups and forums were accessible to other participants of the MOOCs. However, anonymity was maintained in data analysis and report presentation to minimize the risk to participants.

Results

Descriptive statistics were used to present the results from the closed-ended questions in the questionnaire. These results are based on the responses of 11 respondents who completed all the questionnaire items and nine other respondents who answered some questionnaire items. The

questionnaire contained few more items that were not included in the analysis of this paper. Figure 3 shows the frequency of use of tools by the cMOOC participants.

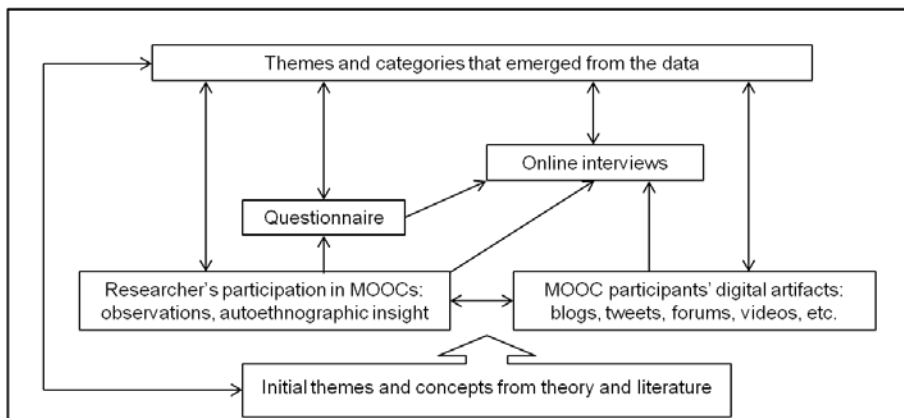


Figure 2. The process of analytic induction and constant comparative analysis in the ethnographic design of the study

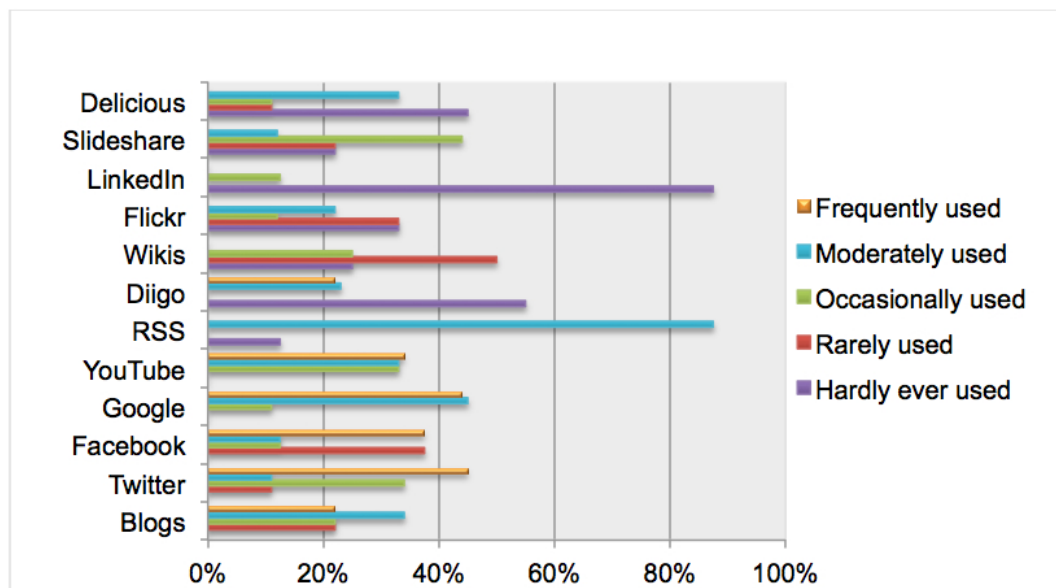


Figure 3. Use of tools by cMOOC participants

Figure 3 shows that Twitter was one of the main tools used by the participants, with 45% reporting that they used it frequently. One participant stated:

"I think Twitter is the best tool for networking because I got a lot of contacts through it. Networking with people that you haven't even met before, and those who have the same professional background ... I use Twitter exclusively for my professional development as a teacher." (Interviewee 4)

Most (87.5%) of the participants said they moderately used [Rich Site Summary \(RSS\)](#) feeds of the course which were used by the course facilitators to aggregate blog posts and tweets from the participants. Blogging was one of the main activities of the participants; about 80% said they blogged occasionally to frequently. Google services such as Reader, Plus, Groups, and Docs were also among the most frequently used tools by the participants of all three MOOCs. Compared to [Facebook](#), [LinkedIn](#) as a professional networking site seemed to be less used by the participants.

Figure 4 presents different learning activities and interactions that participants had during the course. Blogging, tweeting, reading the course's daily newsletter, and networking through social media were the

most common activities. Tweeting was reported as one of the main activities during the MOOCs; 43% were tweeting frequently.

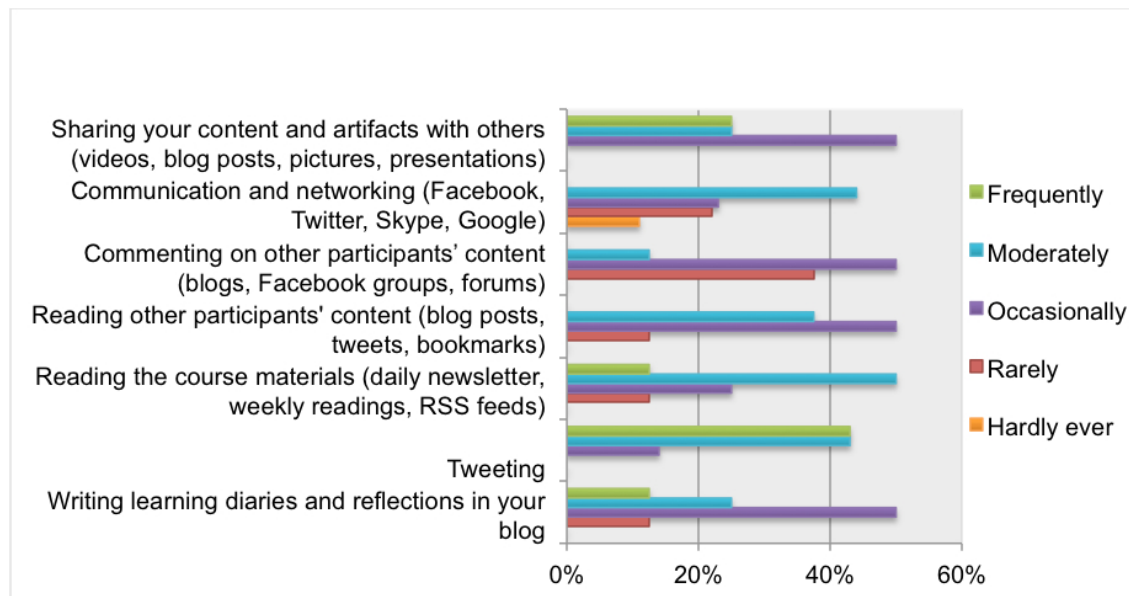


Figure 4. Participants' activities and interactions in cMOOCs

Half of the participants reported occasionally reading and commenting or providing feedback on other participants' content, such as their blogs and Facebook groups. Half of the respondents mentioned that they had been keeping a blog to reflect on their learning. In the interviews, some of the respondents revealed that blogging was one of the best ways to reflect on learning, to keep in touch with other people with the same areas of interest, and to create and share ideas. For instance, one respondent said, "I had been contacted by some people just because I have been blogging on some topics ... that was amazing" (Interviewee 4).

However, these activities are not necessarily limited to the duration of the course. For instance, some interviewees said they started using Twitter during the course and continued even after it for their own professional networking. One participant said, "I was not a technology person and didn't know many tools, but this year I decided to get a Twitter account" (Interviewee 2).

Figure 3 and Figure 4 show that participation in cMOOCs requires engaging in a variety of activities through social media and online networking tools to keep up with the course objectives. Such engagement needs a certain level of technological competency and an open attitude to actively create and share knowledge in learning networks.

Table 1 presents participants' perspectives on learning in cMOOCs. Sixteen respondents answered all the items in the table; items marked with an asterisk were based on the answers of 12 respondents.

Table 1 shows that many respondents had positive attitudes and perceptions toward learning in MOOCs. However, some respondents found it somewhat overwhelming to participate in a cMOOC and to adapt to such an environment with so many activities. Half of the respondents agreed or strongly agreed that learning in MOOCs is challenging and that it is sometimes frustrating to keep up with all the learning activities. On the other hand, half agreed and half strongly agreed that learning in cMOOCs is engaging and motivating. This does not contradict their perception of cMOOCs as challenging. A high level of autonomy, self-organized learning competency, and adequate technological competency are needed to create the learning pathways that best suit the learner preferences in cMOOCs. As shown by the responses to other questionnaire items, learning in the context of MOOCs encourages and even requires participants to use an array of Web tools and networking technologies to connect to many people, to create learning networks, and to share content, which improves technological competency.

The MOOC participants did not consider a lack of proficiency in using tools and social media as a big hindrance to learning in MOOCs. Rather, 87.5% of the respondents said the MOOC context was an environment that encouraged them to get to know and use many Web 2.0 tools in their learning process.

Social interactions and networking facilitated by various types of social media created an opportunity for cMOOC learners to share their learning contents and materials and to receive comments and feedback from other participants. Table 1 shows that the majority of respondents reported having received good feedback and support from other participants in the MOOC.

Table 1. *Participants' experiences and perceptions of learning in cMOOCs*

	SD	D	N	A	SA
1) Participating in MOOCs encourages creation and involvement in online learning networks.	0.0	0.0	12.5	37.5	50.0
2) Participating in MOOCs has helped develop my personal learning environment (PLE).	0.0	0.0	0.0	87.5	12.5
3) Participating in MOOCs has encouraged me to use a range of Web 2.0 tools and has developed my technological competency.	0.0	0.0	12.5	37.5	50.0
4) Learning in MOOCs is frustrating and confusing.	12.5	25.0	12.5	37.5	12.5
5) Learning in MOOCs enhances learner autonomy.	0.0	0.0	12.5	50.0	37.5
6) Learning in MOOCs improves self-directed learning.	0.0	0.0	12.5	37.5	50.0
7) It was easy to organize my learning activities during the course.	12.5	12.5	0.0	50.0	25.0
8) I liked the weekly synchronous sessions.	0.0	12.5	12.5	37.5	37.5
9) Lacking the proficiency to use different tools and social media was a barrier.	37.5	25.0	12.5	25.0	0.0
10) I was comfortable sharing my thoughts and artifacts through various social media.	0.0	12.5	25.0	50.0	12.5
11) Participating in MOOCs promotes more social interactions.	0.0	0.0	25.0	37.5	37.5
12) The course structure and learning activities were flexible and supported my learning.	0.0	0.0	0.0	62.5	37.5
13) I received good feedback, support, and comments from the participants of the course.	0.0	0.0	0.0	62.5	37.5
14) I received adequate support and encouragements from the course instructor.*	0.0	0.0	25.0	50.0	25.0
15) Learning in MOOCs is engaging and motivating.*	0.0	0.0	0.0	50.0	50.0

Note. N = 20. SD = Strongly Disagree; D = Disagree; N = Neutral; A = Agree; SA = Strongly Agree.

*Based on 12 respondents' answers.

A great majority (87.5%) believed the cMOOC environment helped enhance student autonomy and improve self-directed learning by defining their learning goals and organizing learning activities and interactions. This is perhaps due to the less structured nature of cMOOCs, which creates more room for learners to shape their learning. The role of the instructor is also as important in MOOCs as in a traditional learning setting. MOOC learners had a positive attitude toward the support and feedback received from the course instructor or other course facilitators.

Discussion: Learning Encounters in MOOCs

[McAuley et al. \(2010\)](#) argue that the volume of information flowing in a MOOC can be disorienting. Learning in a MOOC is reported to be quite overwhelming, especially for students expecting instructional processes similar to those of traditional models of higher education. The interview data revealed that participation in open online courses involving various kinds of networking and community-oriented activities is motivating and inspiring, but also time-consuming. Some participants also reported difficulties organizing their own learning activities.

Dealing with Abundance

Organizing learning and managing resources requires a great deal of autonomy and self-organization ([Mackness et al., 2010](#); [Tschofen & Mackness, 2012](#)). Keeping up with the readings, maintaining interactions with others, creating and sharing materials, and engaging fully in the activities is challenging for many participants. One participant said, "It was difficult to keep up the amount of involvement throughout the course. The most challenging aspect of these courses in general is being motivated to participate fully" (Interviewee 1).

A willingness to be involved is the key to coping with this challenge. As one participant admitted,

"I wasn't that comfortable during the course and I wasn't that involved with my classmates. I didn't know them and I didn't have a connection with them. Although we were connected on each other's blogs and we had to connect via Twitter, I didn't know them." (Interviewee 3)

Although dealing with the abundance seems to be one of the major challenges in open learning environments, MOOCs can help learners enhance their self-organization and learning skills. One participant shared, *"There were definitely times when I was uncomfortable and confused, but that only pushed me to change my way of thinking and reach out and share with people"* (Interviewee 1). Self-organized learners must find the appropriate ways to manage various learning processes, such as dealing with tools and contents, choosing the best out of the available resources, maintaining connections, and being involved in learning networks.

As [Siemens \(2010\)](#) explains, "sense-making" and "way-finding" regarding how to access, participate in, and contribute to the communal experience of a MOOC environment are imperatives for learners to cope with abundance. Networked learning in this abundance entails a continuous process of seeking and pulling information, personalizing and repurposing, and sharing through the networks ([Jarche, 2010](#)). While the MOOC learning environment opens up new forms of scholarship and learning in higher education, it also demands from students a range of technological and open learning and networking skills. Many learners readily adapt to the new challenges. Others may not be enough equipped or motivated to keep up with such challenges.

Network Creation and Connectedness in MOOCs

A main underlying principle of connectivist courses is developing connections and creating networks. Many participants who were not thoroughly engaged in networking and online communication began using tools like Twitter, Facebook, and blogs to develop their professional or learning connections. MOOC environments provide possibilities for learners to create and develop their networks as professional connections that may continue well beyond the course. One participant shared, *"I am working with two people that I have never met face to face, but we got connected in a MOOC in 2008 and we are now working together on a wiki"* (Interviewee 2).

Developing connections is the key to networked learning. Participation in a MOOC was seen as an opportunity for learners to use social media tools and to develop the necessary connections for networking and learning. One participant said, *"By joining PLENK10, I learned how to use Twitter. I had an account but I didn't know how to use and create a network"* (Interviewee 2).

Being connected and developing connections across different networking platforms creates opportunities to access resources and resource persons easily. For instance, one of the participants mentioned that when she had a problem understanding something during the course, she asked other participants on Twitter for help: *"I tweeted, 'Can you please help me with this?' People kept mentioning things to me and advising me, and I really found a lot of help"* (Interviewee 3).

Networked learning transcends the temporal limitations and geographical barriers through the power of technology. Learners develop connections and create networks that open up global learning opportunities. As one participant explained:

"An advantage of this open course was that people are connected from everywhere in the world. You are from Europe and I am here; other people are in Canada and the U.S. They are adjusting themselves according to their time. And everything is online, so you can access the materials at any time and you can contribute at any time. So, I think this type of learning is productive." (Interviewee 3)

Lurking and Peripheral Participation as a Way of Learning in MOOCs

MOOCs usually attract a large number of students, though not all participants remain active. While many drop out, others maintain a lower level of engagement referred to in this study as "lurking" or "peripheral participation." Many continue some level of lurking, such as through a subscription to NewsFeed or a daily newsletter or by jumping into synchronous or asynchronous discussions. In this sense, lurking is considered a way of learning in which participants do not drop out completely from the course activities but remain in the periphery.

This kind of "legitimate peripheral participation" (Lave & Wenger, 1991) allows individuals to be connected to a community of practice at a pace they feel comfortable with and in a way that suits their learning goals (Rodriguez, 2013). Participants decide how and at what pace they want to follow the course. One participant said,

"How much did I want to participate and interact, and what did I want to follow? So that was the reason that I followed that course, and since then, I have kept an eye on, as much as possible, all the open courses." (Interviewee 2)

Lurking does not necessarily mean wasting time; instead, it is a kind of unplanned learning that can lead to serendipitous discoveries in open online networks (Saadatmand & Kumpulainen, 2013). Participants may not remain involved in the planned activities or interact with the networks of the course, but through peripheral participation, the direction of their learning may shift to a more useful and unintended form that can allow them to opt for more active participation in other avenues. Participation in MOOCs is easier for self-organized, highly motivated, and extroverted individuals. Whether unmotivated participants are more likely to drop out than to continue on the periphery demands further research.

Conclusion

In this paper, the authors discussed learning experiences and participants' activities in cMOOCs. The results show that participation in MOOCs challenges learners to develop self-organization, self-motivation, and a reasonable amount of technological proficiency to manage the abundance of resources and the more open format. Participants in cMOOCs use an array of technologies and various networking skills. The nature of cMOOCs requires students to assume active roles, in a spirit of openness, to shape activities and collaborate in goal achievement.

In cMOOCs, learning is self-organized; learners decide which tools and resources to use, which readings to master, and which connections to rely on. Students choose tools and resources that best fit their goals and preferences of learning. For instance, Twitter, blogs, and RSS are used extensively by participants for reflection, networking, and keeping updated on course materials. As Fini (2011) explains, despite the availability of a variety of tools and resources, participants select their learning tools and mainly preferred the most common social networks. In the dynamic learning environment of cMOOCs, learners become more autonomous in selecting tools and resources, making sense of information and finding their appropriate learning pathways (Mackness et al., 2010; Siemens, 2012).

Although the descriptive results of this study are based on a rather small number of responses to the questionnaire, the data triangulation of online interviews, participants' online content and interactions, and autoethnographic insight provided a rich account of the nature of learning and participation in cMOOCs. The findings of this study can be further explored in different MOOC contexts. The nature of participation and level of engagement in MOOCs, the value of peripheral participation, and whether participants who are unmotivated are more likely to drop out than to continue on the periphery in MOOCs are a relevant agenda for further research.

MOOCs in any form take advantage of distributed and network technologies to transform educational practices. The findings of this study showed that cMOOCs are learner-controlled environments in which learners participate in the flow and generation of knowledge and create and share their own content and digital artifacts through social technologies such as blogs, wikis, Twitter, and Facebook. MOOCs are "platforms" (Siemens, 2012) that efficiently exploit the possibilities of social Web and networking technologies to create learning opportunities for tens of thousands of learners, which is no small achievement (Baston, 2013a).

MOOCs have come to stay and will likely be a prominent feature of higher education in the future. More research should be done on the viability, credibility, and accessibility of MOOCs for all types of learners. MOOC organizers and educators must be held accountable for orienting students on how to learn within the MOOC. As Mazoue (2013) stated, MOOCs are probably skewed toward more advanced learners, while novice learners who need instructional guidance are largely no better off. MOOC providers should carefully consider the quality of learning and experiences in MOOCs that best fit an individual's needs and learning style.

Although there has been a growing focus on the MOOC concept (Clobridge, 2012) as a way to offer online education and a chance for learners to benefit from free learning resources and interactions, a number of challenges have also been raised. These challenges include learning experience,

instructional quality, assessment and certification, scalability, funding, and administration (Baston, 2013b). Despite the many advantages that the MOOC model offers, the fundamental question is still the concept's applicability to formal education. Future research on MOOCs and networked learning may usher in reconceptualizations of such open learning formats in higher education.

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