The Ideals and Reality of Participating in a MOOC

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Abstract

'CCK08' was a unique event on Connectivism and Connective Knowledge within a MOOC (Massive Open Online Course) in 2008. It was a course and a network about the emergent practices and the theory of Connectivism, proposed by George Siemens as a new learning theory for a digital age. It was convened and led by Stephen Downes and George Siemens through the University of Manitoba, Canada. Although the event was not formally advertised, more than 2000 participants from all over the world registered for the course, with 24 of these enrolled for credit.

The course presented a unique opportunity to discover more about how people learn in large open networks, which offer extensive diversity, connectivity and opportunities for sharing knowledge. Learners are increasingly exercising autonomy regarding where, when, how, what and with whom to learn. To do this, they often select technologies independent of those offered by traditional courses. In CCK08 this autonomy was encouraged and learning on the course was distributed across a variety of platforms.

This paper explores the perspectives of some of the participants on their learning experiences in the course, in relation to the characteristics of connectivism outlined by Downes, i.e. autonomy, diversity, openness and connectedness/interactivity. The findings are based on an online survey which was emailed to all active participants and email interview data from self-selected interviewees.

The research found that autonomy, diversity, openness and connectedness/interactivity are indeed characteristics of a MOOC, but that they present paradoxes which are difficult to resolve in an online course. The more autonomous, diverse and open the course, and the more connected the learners, the more the potential for their learning to be limited by the lack of structure, support and moderation normally associated with an online course, and the more they seek to engage in traditional groups as opposed to an open network. These responses constrain the possibility of having the positive experiences of autonomy, diversity, openness and connectedness/interactivity normally expected of an online network. The research suggests that the question of whether a large open online network can be fused with a course has yet to be resolved. Further research studies with larger samples are needed, as is an investigation into the ethical considerations which may need to be taken into account when testing new theory and practice on course participants.

Introduction

September 2008 saw the launch of the first massive open online course (MOOC) of its kind (University of Manitoba, 2008). It was effectively a small credit-bearing course for 24 students, within an open-access network for over 2200 registered participants, of whom about 150 were actively interacting at various times. This course was unique in the number of participants it attracted, the use of distributed technologies for communication and because the course was used to present a new theory of learning - 'Connectivism' (Siemens 2004, 2009a). The ideal was that participants would learn about connectivism by exploring both the experience

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and the theory. This paper will argue that in reality the experience was mixed and the theory was challenged on many fronts. The experience was, in part, positive and stimulating, and in part frustrating and negative. The basic theoretical concepts were interesting and useful, but whether or not connectivism is a new theory has been the subject of much discussion and debate by CCK08 participants and in the wider community, and remains undecided.

For participants not only was the course design unique, but so too was the learning experience. Easy access to advancing technologies means that learners can now take control of where, when, how, what and with whom they learn. There has been a massive growth in online social networking in recent years. The use of online and other web 2.0 technologies is becoming common. Increasingly some learners can, and do, choose not to use the learning environment provided by a course or institution, but to meet instead in locations of their choice, such as Facebook, Twitter, wikis or blogs (Beetham, 2008; Guldberg & Mackness, 2009). The research question is: How will online course design take account of these learners' behaviour?

It has been suggested by Downes and Siemens that the whole idea of an educational course needs to be reconceived (Siemens, 2009b) from the traditional, closed group, highly structured course, where students are dependent on tutors, to open networks of self-directed learners.

> The design of the course - as a distributed connectivist-model course - created a structure in which the course contents formed a cluster of resources around a subject-area, rather than a linear set of materials that all students must follow … participants were creating their own materials, [and] …should sample the materials, selecting only those they found interesting and relevant, thereby creating a personal perspective on the materials (Downes 2009a).

Hirst (2009) has discussed the notion of an 'uncourse', i.e. one that does not follow a linear path, and Siemens (2009b) writes about 'destabilising' the course: '…distribute the conversation and learning resources in as wide a format as possible - making it impossible for anyone (instructors included) to participate in all forums and master the full range of content'. Siemens (2008) suggests that learning occurs as a result of making connections at social, conceptual and neural levels, and Downes (2007a) that it involves learning to traverse networks of connections in which knowledge resides. These ideas form the basis of 'a new and emerging theory of connectivism' which they claim is distinctively different to theories of behaviourism, cognitivism and constructivism (Siemens, 2004). Connectivism integrates the principles of chaos, network, complexity and self-organisation theories (Siemens 2004, 2006) and posits that '…to know something is to be organised in a certain way, to exhibit patterns of connectivity. To 'learn' is to 'acquire certain patterns' (Downes, 2005). The course was therefore designed to reflect the unique nature of learning in a 'connectivist' environment.

Downes (2007a, 2008, 2009b) has suggested that the key characteristics of an online course using connectivist principles are autonomy, diversity, openness, and connectedness and interactivity. 'Autonomy' allows learners maximum choice of where, when, how, with whom and even what to learn. 'Diversity' ensures that learners are from a sufficiently diverse population to avoid group-think and 'echo-chambers' (McRae, 2006). They engage in diverse readings, discussions and environments. 'Openness' accommodates all levels of engagement, with no barriers between 'in' and 'out'. It helps to ensure the free flow of information through the network, and encourages a culture of sharing and a focus on knowledge creation. 'Connectedness' and interactivity is what makes all this possible. Knowledge emerges as a result of connections.

This paper presents findings of research which explored learner experiences in CCK08 in relation to the four connectivist characteristics described above.

Context

CCK08 was designed to enable participants not only to engage with the theory of connectivism, but also to experience the principles of connectivism in practice (autonomy, diversity, openness and connectedness/interactivity). The course ran for 12 weeks online, between September and December 2008. It was validated by the University of Manitoba, which offered accreditation for those learners who wanted it (24 enrolled) and open access for those who did not. About 2200 people registered for the course, including the three authors, and whilst there was significant decline in online interaction following the first week and in successive weeks, it is impossible to say how many continued as 'read only' participants; 1870 remained subscribed to the daily online newsletter (OLDaily) for the duration of the course.

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In CCK08, learners were encouraged to be autonomous in their choice of technology for interaction on the course and ways of working. A variety of course sites were established by the course leaders, including Moodle forums, Ustream, Elluminate and a wiki, but participants also set up their own learning spaces, such as blogs, wikis, Ning, Facebook, Google and Diigo groups, and Second Life. Ultimately the majority of asynchronous interaction took place in the Moodle forums and blogs, with participants interacting in either blogs or forums, or both. The course attracted a diverse group of participants from around the world and whilst English was the dominant language, some participants established non-English speaking groups, such as Spanish, and the course syllabus was translated into five different languages. Openness was exemplified through open access to the course and course materials. The course made use of readings and presentations already freely available on the Web and these were supplemented by course instructor and visiting speaker presentations and materials. The course content was available from the start on the course wiki, and participants were free to plan their own paths through this content, engaging at their own levels. Implicit in the course design was the expectation of open 'sharing'. Information and expertise would be freely shared and knowledge would be created collaboratively. Connectedness and interactivity lay at the heart of the course design. It was expected that, knowledge would be emergent in the network and become a resource for the network as a whole as well as for the credit-bearing course.

Despite careful planning, the course was not without difficulties. The large numbers enrolled on the course meant that the Moodle forums were swamped with messages in the early weeks (over 1000 messages to the Introductions forum from 560 participants) and course participants who found the forums daunting and overwhelming were encouraged by an instructor to leave the forums and interact from their blogs. The difference in the way in which participants interacted in the blogs and forums was observed by the authors and is the subject of another paper (Mak, Williams and Mackness, 2009).

Methodology

Data was collected in two stages using a mixed methods approach. CCK08 participants were first surveyed about their preferences for communicating in blogs and forums. Analysis of the survey responses then informed email interview questions which further explored participants' learning experiences.

An online questionnaire was created using Survey Monkey. The Moodle forums and participants' blogs were searched for statements about the use of blogs or forums for interaction and connectivity and a list of statements was compiled. Concept mapping (using CMap) was used to identify statements which could be grouped under four themes: personal connections, conceptual connections, technology and learning. These themes arose naturally from the course content and learning experiences of participants, and in particular from Siemens' explanation of connectivism (2008).

The forums and blogs were searched for email addresses and organised into four groups according to level of activity on the course. Participants who set up a Moodle forum profile or a blog, but did not engage any further, were excluded from the survey. The survey was emailed to 167 bloggers (19 of whom were also forum users), 132 forum users and the two course instructors (n=301).

Responses to the survey's statements were analysed for the rating differences between participants who preferred interacting through blogs or forums. These differences were plotted on two axes of difference against overall agreement. The analysis revealed that the most significant differences between bloggers and forum users lay in their perceptions of how conceptual connectivity, personal connectivity, personal autonomy, identity and learning style influenced and supported their learning. These themes were therefore used as a basis for the email interview questions, which were sent to the 58 CCK08 participants (including the two instructors) who had self-selected to be interviewed by email.

Findings

The survey received 90 responses, a 29.9% response rate. Sixty three of the 66 survey statements were confirmed by a positive rating difference value. Plotting the difference statements against overall agreement statements revealed some significant differences between bloggers and forum users, in relation to how they felt their choice of technology for interaction affected their connectivity and learning. These differences are the subject of another paper resulting from this research (Mak, Williams and Mackness, 2009).

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In this paper, the findings focus on the results of the email interviews. Twenty two responses were received; a response rate of 37.9%. Whilst the responses provided significant data about the differences between bloggers and forum users, what was particularly interesting for the researchers was how much they also revealed about the participants' experience of the four characteristics of connectivism outlined by Downes (2009b).

Autonomy

Overall, 59% of interview respondents (13/22) rated the importance of learner autonomy at 9 or 10 on a scale of 1-10 (1 = low; 10 = high). Autonomy was equated to flexibility and control over learning and exemplified by the participants' choices of how, and how much, to engage with the course.

> Thanks to the learner autonomy I thought would be provided in the course, I started following the course. If it would have been a more rigid structure, I would not have done so (due to time/work schedule reasons). (non-credit participant - NCP)

> We had a lot of autonomy because we could basically do what we wanted; participate fully for credit, fully for no credit or on the varying scale of "partial participation". (NCP)

However learners new to the environment and concepts lacked confidence and preferred structure, guidance and even intervention to autonomy.

> Autonomy was less important when I needed full instructions (credit participant - CP)

> I felt like some guidance would have helped. Freedom is great, but this course was all over the place. There was no one place to follow the latest thinking on any one subject. (NCP)

It was also found that autonomy was equated with lack of assessment and that learner autonomy can be difficult for the course instructors.

> I loved the freedom to work outside assessment guidelines – choose what I wanted to focus on. (NCP)

> Learner control is not without frustration for the instructor. I recall feeling a bit frustrated that the concept of connectivism that I was trying to communicate - the neural, conceptual, and social/external dimensions of networked learning – was not resonating with participants. (Course instructor - CI)

Diversity

This was ensured by the large numbers enrolled on CCK08 from all over the world. Different nationalities, cultures, ages and backgrounds were very much in evidence on the course. Diversity was also reflected in the learning preferences, individual needs and choices expressed by interview respondents.

> Yes, I would consider myself a reflective learner, at least in a general sense, which is probably why I focused primarily on my blog as a reflective learning space. (NCP)

> Dyslexia for me means disorganisation and poor memory, so trailing through threads on moodle was tiring to read. (CP)

> Everything happens slower when you use a foreign language. (NCP)

> I was interested in the theoretical framework, and this probably also influenced my choice of using the forums. (NCP)

Openness

CCK08 was an open course: there were no entry requirements and it was free to any interested non-credit participant. Credit participants paid a fee. Numbers were not limited. Aside from the open access aspect, an

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implicit assumption in the course was that participants would be willing or ready to give and receive information, knowledge, opinions and ideas; in other words to share freely. 'Openness' within the Open Source (OS) community is usually interpreted similarly: i.e. 'free', as in beer; 'free' as in liberty, or speech; and there is an additional sense of 'free' as in transparent, and therefore shared. In CCK08 these interpretations were evident in participant responses to the email interviews. For example, in the three quotes below, from some participants who expressed a preference for working alone, we can see that the first participant appears to interpret openness as 'liberty and transparency' by choosing to work alone to develop and consolidate ideas, which are then shared. The second participant chose to work largely alone (interpreting openness as 'free access') and the third participant seems to be negotiating and feeling her way into or around the network, perhaps as a novice, perhaps not (interpreting openness as 'free access and liberty').

> Blogs are very appropriate to me because I don't need discussion with others to really explore ideas. Indeed part of contemplation for me is constant questioning of the conclusions I'm exploring - it's very much an internal dialogue with myself where I ask questions, internally debate points, and look at topics from multiple angles. (NCP)

> As has been my learning style for many, many years much of my work and learning was done alone. (NCP)

> I mostly observed and did not get involved into conversations much. (NCP)

In CCK08 active participation and interaction was only sustained by a small percentage (14%) of the total number of participants. The remaining 86% had probably either dropped out of the course or were 'lurking'. There are at least two possible explanations: i) they were getting a free ride (free as in 'beer'), or ii) they were demonstrating 'novice' behaviour; many novices 'lurk' until they feel confident enough to expose their views in 'public' forums. The differences in the responses of interview respondents suggested that there was no common understanding of openness as a characteristic of connectivism.

Connectedness and interactivity

As commented by one of the instructors, 'My main goal was to connect with other learners'. The other instructor puts it slightly differently:

> I don't consider either 'making connections' or 'theoretical conceptual framework' to be the essence of connectivism. As I have stated many times, knowledge is pattern recognition; learning is becoming able to recognize patterns. (CI)

In other words, connectivity is not an end, but a means: this shifts the gist of learning theory away from connectivity *per se* to pattern recognition.

Participants had the autonomy to choose from a wide range of technologies to facilitate connectivity and the diversity of participants afforded a wide range of possible connections. As one participant noted,

> I connected through e-mail ….. a few times – back and forth (that was very good)……I connected to the course learners by texting on these live and audio/text streams. I responded to blogs – at least twenty posts in different CCK08 blogs from other students. I responded to many of the introductions in the Forum …..These nodes of connectivism were meaningful places for me, even if temporary connections only. (NCP)

Whilst connectedness was afforded by technology, it did not necessarily ensure interaction. As Siemens (2009c) says, 'The question for me is not 'how are people connected?' but rather 'what are the implications of people being connected in a certain way?' … Frequency of contact isn't that important to me'. There were some significant barriers to interaction and connectedness:

> Interaction was key to the experience for me…[I] would like to add that the two barriers to participation on the forums IMHO were X's appalling behaviour and XX's patronising and 'teachery' posts and actions ….. (who knows how many timid people or those whose first language is not English we lost). (NCP)

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Other barriers to connectedness and interactivity were the quality of personal connections ('I was fed up with tittle tattle, bad behaviour, trolling … so did not need the connection socially') and levels of expertise. The expertise divide is critical in all online learning and can effectively undermine openness, connectedness and interactivity, e.g. 'The reason I stopped is because I cannot understand the issues being discussed anymore' The more open the course, the more this becomes a dilemma for the course designers. These quotes reveal that the dynamics of connectivism are perceived as both enablers and inhibitors for learning in a massive open online course designed on the basis of these principles alone. This is a view that Siemens (2009c) seems to acknowledge in a later blog post:

> We have limited language … [for] addressing a more nuanced view of networks … much more is needed before networks move from understanding novelty of form to understanding implications of form. (CI)

Discussion

The question that has arisen as a result of this research is: To what extent were autonomy, diversity, openness and connectedness/interactivity a reality for participants in the CCK08 MOOC and how much they were affected by the course design? The research suggests that whilst these characteristics were affirmed in the network, they were all problematic to some extent and subject to limitations.

As explained by one of the CCK08 instructors, learner autonomy is essential in MOOCs;

> ….one-to-one conversation [between instructor and participant] is simply not possible in large online courses. The interactions must increasingly be learner-to-learner raising the need, again, for learner autonomy. (CI)

However, as the findings have shown, not all CCK08 participants wanted the level of autonomy offered. In addition, the degree to which they could experience autonomy was affected by levels of fluency in English, the 'expertise divide', assessment for credit participants, personal learning styles, personal sense of identity and the power exerted, either implicitly or explicitly, by instructors through their communications, status and reputation, or by participants themselves, particularly those who engaged in 'trolling' behaviour (as described by Donath, 1999).

Autonomy does not mean casting learners adrift but it does require learners to embrace independent learning. Downes (2007b) disfavours groups which, he thinks, encourage members to conform. In effect he argues in favour of open networks of autonomous learners in which members receive timely information and can make their voices heard. In CCK08 the open-ended autonomy which was built into the course design allowed for disruptive trolling behaviour in the forums to go unchecked. This made some participants feel 'unsafe' in the forums and caused them to retreat to their blogs, effectively reducing their autonomy. In addition, the freedom to self-organise and choose where and with whom to interact led to participants establishing small groups and communities where they could interact with like minded people, safe in their comfort zones and 'echo chambers' (Gilbert, et al., 2009). One participant wrote, 'I ended up keeping up with 4-10 persons'. It would seem therefore that autonomy is, paradoxically, jeopardised in the absence of constraints (Cilliers, 2005, and Snowden & Boone, 2007). As noted by Buss, 2008, 'An agent's authority over her actions is no guarantee that she has the power to determine how she exercises this authority'.

Diversity was also problematic in that the autonomous independence expected of learners in CCK08 meant that there was little support for the hugely diverse group of participants, some of whom did not necessarily have all the skills or disposition needed to learn successfully, or to become autonomous learners in a MOOC. Darken and Sibert (1996) have written of the need to support wayfinding in large online networks. Salmon (2004) writes of the need to support initial online socialisation as a foundation for collaborative knowledge creation and of the need for effective moderation of online courses, but CCK08 was designed on the principles of an open network, with minimum instructor intervention. The complex diversity and minimal moderation were difficult to reconcile. One participant commented,

> A controlled environment would have been a great start. I liked that participants could start threads of their own but it also got out of hand a few times. It was clear the kids were in control of the classroom, which as an 'experiment' it was sort of expected to be. (NCP)

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It seems that the larger the course, the more potential for interaction to degenerate into interference and noise. In addition, open courses thrive on interconnectedness, transparency and sharing, but sharing for many people requires trust, and the more connectedness there is, the more time-consuming and hazardous it may be to build trust. This suggests that in a MOOC diversity needs to be managed, which paradoxically, adds another layer of constraint on autonomy.

The word 'open' in this context could have different interpretations. There was an expectation of 'openness' as a way of being, rather than a set of procedures and protocols (Cooksey, 2005), but this was implicit rather than explicit in CCK08. In addition the word 'course', bringing with it traditional expectations of structure, support and moderation from instructors, confused some participants. CCK08 was in fact an open network, requiring autonomous learning, with minimum facilitation, rather than an open course. 'Openness', in the sense of open communication and free sharing, can therefore be compromised by lack of clarity about the purpose and nature of the course, lack of moderation in the discussion forums, which would be expected on a traditional course, and the constraints (already discussed in relation to autonomy and diversity) under which participants worked. The more open the course, the more potential for barriers to emerge.

Autonomy, diversity and openness have been discussed separately, but these characteristics are interdependent and influence each other, just as they are influenced by, and in turn influence the experience of connectedness and interactivity. In CCK08, technology was a requirement for connectivity but was not sufficient for connectedness (in the added sense of 'engagement'). Connectedness in a network is complex and subject to many enablers and disablers for personal and conceptual engagement. It may be true that all learning begins with a connection, but connectivity itself is not a sufficient condition for connectedness or interactivity.

CCK08 offered a unique opportunity to witness the effect on learner experiences of a course designed as an open network. This research suggests that whilst it is technically possible to connect large numbers of people in this way, meaningful connectedness and interactivity are more difficult to achieve. These difficulties are bound up in the interplay between the concepts of autonomy, diversity, openness, connectedness/interactivity and MOOC.

Conclusion

The Connectivism and Connective Knowledge course was a courageous, ambitious and ground-breaking attempt to enable participants to experience the principles of connectivism - autonomy, diversity, openness and connectedness in practice. Our findings suggest that these might all be achievable in a complex learning network, but in a course (as opposed to a network), particularly a massive open online course, they can be compromised.

In CCK08 huge diversity, resulting from open access, meant that the support and moderation that would normally be expected in a course were not feasible. This, in turn, meant that some CCK08 participants had less than positive experiences of the principles of connectivism. Autonomy was equated to lack of support by some participants, particularly those enrolled for credit with associated assessments. The meaning of openness was interpreted differently by individual participants with the majority of enrolled participants opting out of connecting and sharing. Variations in levels of expertise and in individual online behaviour limited connectivity and led to the formation of groups. Group formation in turn reduced possibilities for autonomy, openness and diversity, which in turn reduced the opportunities for connectivity, connectedness and engagement, and so on.

From this the authors conclude that some constraints and moderation exercised by instructors and/or learners may be necessary for effective learning in a course such as CCK08. These constraints might include light touch moderation to reduce confusion, or firm intervention to prevent negative behaviours which impede learning in the network, and explicit communication of what is unacceptable, to ensure the 'safety' of learners. The key features of a complex, open course, rich in emergence, are that it is not defined by what *must* happen, but rather by what *must not* happen – the boundaries of openness (Cilliers, 2005; Snowden & Boone, 2007). This inverts the traditional curriculum design process. This is unresolved in connectivism as it is currently conceived.

Participation in a network is clearly different to participation in a course. The experience of CCK08 has shown that it is possible to 'destabilise' the notion of a course, and as action research this is both interesting and

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important. The question remains as to how a course can be designed which will provide participants with positive experiences of autonomy, diversity, openness, and connectedness/interactivity, and whether the framework of 'connectivism' as stated in CCK08 is adequate to do this, or to inform the design of a fully fledged learning network. The larger question of whether a MOOC can successfully fuse a course and a network is even more difficult to resolve.

The sample size for this research was too small to give a definitive response to these questions. Further research, with larger samples, is needed to validate these findings and explore the ethical considerations associated with testing course design on large groups of learners, but our findings suggest the aims of experiencing learning within a massive open online network are constrained by a course framework and many design issues and aspects of learner experience remain unresolved.

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