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Designing Massive Open Online Courses to take account of participant motivations and expectations

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Abstract

We report on a study conducted on a Massive Open Online Course (MOOC) to explore and improve understanding and practice about MOOC learning design and participant motivations and expectations. The 'Carpe Diem' MOOC was designed, developed and delivered in 2014. The MOOC participants' experiences were studied through surveys and interviews, and the analysis was triangulated. Three dominant motivations to

complete the MOOC were found: to further existing knowledge, to acquire skills in the learning design process and to apply the learning design methodology in practice. We describe the relationship between participant motivations and expectations in this MOOC, which was undertaken mainly by participants who were themselves educators, and make recommendations for pedagogical design in MOOCs to promote and enable participant engagement and completion.

Practitioner Notes

What is already known about this topic

- Massive Open Online Course (MOOC) offerings are diverse and free, typically attracting high numbers of participants. Yet, high attrition rates in MOOCs remain a significant concern for MOOC developers and educators alike.
- MOOC participants typically express and possess a mix of motivations to study; their motivations can be extrinsic and intrinsic. Intrinsic motivation is considered more desirable by educators and academic developers as it is thought to be stronger and more likely to move learners towards academic achievement.
- Understanding how participants' motivations and expectations affect their online learning experiences and ultimately the decision to complete a MOOC is essential, especially since it is still being contested what works best to motivate students to complete a MOOC.

What this paper adds

- Knowing participants' expectations and motivations in online learning environments can inform educators of likely participant behaviours and outcomes in MOOCs.
- Successful MOOC participants held at least one of the three key reported motivations to partake in the MOOC: to further their knowledge of online education, to become skilled in the learning design process and/or to apply the process in their own practice.
- MOOC participants are driven by a combination of cognitive, self-assertive and task goals, all of which enhanced their motivations to finish the MOOC.

Implications for practice

- Design approaches in MOOCs are important since highly personalised learning and support approaches are non-feasible.
- The study emphasised a number of key and critical design components that are likely to increase participants' completion in MOOCs, and hence their ability to learn and apply their learning in practice.

- MOOC designers' knowledge of online participant motivations and their ability to design pedagogical pathways accordingly can be a key factor of ultimate participant success and avoidance of very high attrition rates typical of MOOCs.

Introduction

Wide-ranging, diverse and free, Massive Open Online Courses (MOOCs) attract high numbers of participants, but many of them do not complete their courses. What motivates participants to embark on and complete a MOOC presents an important question for those keen to expand the frontier of open online education through MOOCs. This study looks at MOOC participants' expectations of their learning processes and their motivations to finish the course. We recommend how knowledge of expectations and motivations can be used to inform learning design and have the potential to increase participants' engagement and completion in MOOCs.

Different from quantitative studies relying heavily on MOOC participation statistics or user surveys (Reich, 2015), our study utilises qualitative mixed-method methodology to take an in-depth look at MOOC participants' experiences and understand how those are affected by participants' motivations and expectations of their MOOC experience.

The role of motivations and expectations in shaping educational experiences

Motivation accounts for goal-driven behavior, its origin, direction, intensity and persistence (Maehr & Meyer, 1997), and can be intrinsic and extrinsic (Pintrich, Smith, Garcia, & McKeachie, 1993; Stage & Williams, 1990). In a learning context, intrinsic motivation is usually understood as a desire to learn for the sake of understanding (Byrne & Flood, 2005) while an extrinsically motivated learner wants to achieve a goal for the sake of an external reward (Lumsden, 1994; Paulsen & Gentry, 1995). Learners typically possess a mix of motivations (Pintrich & Garcia, 1994), however intrinsic motivation is considered more desirable as it is generally thought to be stronger and more likely to move learners towards

success (Dev, 1997; Donald, 2002). Ford (1992) adds task-oriented motivation such as mastering a new skill or gaining knowledge from peers to the intrinsic mix.

In regards to what works best to motivate students to complete a MOOC, critics argue against the existing pedagogical models used in MOOCs which, in their view, do not serve their intended purpose of creating a rewarding experience for students (Emanuel, 2013). Indeed, many MOOC registrants fail to commence (Perna et al., 2013), and those who persist beyond the first week are more likely to drop-out than not (Yang, Sinha, Adamson, & Rose, 2013). Learner motivations to participate in a MOOC were previously found to include curiosity, enjoyment, professional development and career advancement (Chen, Haklev, Harrison, Najafi, & Rolheiser, 2015; Jordan, 2014; Khalil & Ebner, 2014; Yuan & Powell, 2013).

MOOCs vary in design, delivery and assessment methods (Daradoumis, Bassi, Xhafa, & Caballé, 2013), and it is proposed that the design and structure of a course matter a great deal in participant engagement and, ultimately, completion (Pappano, 2012; Yousef, Chatti, Schroeder, & Wosnitza, 2014). Others argue in favor of participatory learning environments and peer support (Ahn, Butler, Alam, & Webster, 2013); while Keller and Suzuki (2004) advocate for an online design based on four components – attention, relevance, confidence and satisfaction – to motivate learners.

From the behavioural point of view, learners' confidence, prior experience and motivations are what really count if participants are to succeed in a MOOC (Chen et al., 2015; Hood, Littlejohn, & Milligan, 2015; Konstan, Walker, Brooks, Brown, & Ekstrand, 2015; Miligan, Littlejohn, & Margaryan, 2013). Hood et al. (2015) found that those MOOC participants who were either working as professionals or studying in the area of relevance to the MOOC scored significantly higher than others across such indicators as self-efficacy, self-regulated learning and task strategy. Other studies confirmed that intrinsic factors, such as high levels of personal motivation to learn about a concept or master a technique were instrumental to MOOC participants' success (Waite, Mackness, Roberts, & Lovegrove, 2013).

Measuring student success in MOOCs is another contested area of scholarship. With the causations of such correlations unclear (Reich, 2015), MOOC statistics analysed by Xiong et al. (2015) indicated that the increased levels of course engagement appeared to associate with higher completion. In contrast, Ho et al.(2014) argue against measuring student success in MOOCs through completion rates alone, suggesting that students who do not complete, in fact, may still engage with the MOOC content and learn from it. In this light, scholars like Reich (2015) call for a shift of focus away from the quantitative fixation on clickstream towards an in-depth understanding of learner experiences, which would involve researching the effects of instructional design on MOOC participants' outcomes.

If MOOC designers know something of the nature of their participants' cohort, their expectations of the learning process and what motivates them to engage with a particular course, then a tailored learning design is more likely to create a successful participant experience (Horton-Tognazzini, 2015; Malin, 2015). Learning design is particularly important since personalised or individual academic support is not feasible in 'massive' courses (Clow, 2013). We were therefore interested in how cohort-driven pedagogical design – undertaken in advance of the participants' arrival in the MOOC – might be enhanced. Our study sought to explore these issues through the concept of an appealing MOOC. We were interested in what features, in particular, we could build into the learning design that might impact on meeting participants' expectations and/or promoting expectations to complete.

The Carpe Diem MOOC: Intent, planning and broad outcomes

Designed, developed and delivered in 2014, the Carpe Diem MOOC (CD MOOC) was intended to “provide a viable, engaging online course for educators that embedded the experience of engaging with Carpe Diem learning design methods” (Salmon, Gregory, Lokuge Dona, & Ross, 2015, pp. 4, 7, 8). Hosted by the free CourseSites (Blackboard™) Learning Management System (LMS), the CD MOOC utilised online activities, known as e-tivities (Salmon, 2013), light touch e-moderation (Salmon, 2011), group collaboration, and digital badges to lead participants towards completion. Aspects of the CD MOOC such as academic professional development,

digital badging and the use of social media in a structured online learning were reported elsewhere (Lokuge Dona, Gregory, & Pechenkina, In Press; Lokuge Dona, Gregory, Salmon, & Pechenkina, 2014; Salmon, Gregory, et al., 2015; Salmon, Ross, Pechenkina, & Chase, 2015).

The CD MOOC attracted 1426 registrations from around the world, of which 1029 commenced the course, making this a small or 'boutique' MOOC compared to large-scale courses. Of the commencing participants, 32% stayed engaged with the MOOC until its end by accessing resources, activities and contributing to the discussion boards, with 17% of the commencing 1029 completing all of the MOOC's key milestones (Lokuge Dona et al., 2014).

Compared to typical MOOC cohorts (Christensen & Alcorn, 2014; Christensen et al., 2013), the CD MOOC participant population was dominated by academics and educators engaged in a variety of teaching practices: 91% of the MOOC participant survey responders were educators. All interview participants proved well informed about learning and teaching and often particularly self-reflective, offering a unique opportunity to examine their insights in the study.

The study

The research methodology was multi-modal. Immediately after the MOOC's completion, an anonymous online survey was distributed among all MOOC participants and followed up by an interview invitation to 60 randomly selected survey respondents. 15% of the commencing CD MOOC participants completed the survey (n=155) and 29 of those were interviewed. Analysis of the survey data alone has been previously reported elsewhere: it was found that CD MOOC design elements participants valued the most in their learning experience were short video lectures, resources, e-tivities and the ability to earn digital badges (Lokuge Dona et al., 2014; Salmon, Gregory, et al., 2015). Averaging at 30 minutes in length, interviews were conducted over the phone or Skype, depending on participants' locations and preferences. The interviews were semi-structured: while participants' narratives were elicited by set questions pertaining to the CD MOOC, participants were also free to offer and elaborate on topics of importance to them. Key topics covered by the interviews focused on participants' backgrounds, expectations of the CD MOOC and their motivations to take part in and persist with the course. Other

questions were concerned with the MOOC's key design aspects such as e-tivities, group work, e-moderation, digital badges, and social media. Participants were also invited to propose any recommendations for improvements to be taken into consideration in the CD MOOC's future iterations.

The interviews were transcribed, de-identified, coded and analysed for themes (Bazeley, 2009, 2013). Four researchers were involved in data analysis to ensure consistency, transparency and triangulation of findings. This paper presents frequencies and causally determined trends that emerged from the data. Direct quotes are included to illustrate general trends. Interviewees are referred to by pseudonyms to ensure anonymity while preserving the analysis's experiential nature.

Findings and triangulations

The analysis of participant interview narratives and survey data shows how dominant intrinsic and original motivations served as primary drivers of completion of the learning programme. Out of major themes emerging from participant interviews and the frequency of their coding throughout the interview narratives, affective factors (which included motivations and expectations) were the most frequently discussed theme.

Nearly half (45%) of the interview cohort had prior experience with MOOCs and a part of the interview sample (27%) had experience designing a MOOC or were in the process of developing one. It is not surprising, therefore, that participants' expectations of the CD MOOC tended to be high and their motivations strong. The interviewees actively engaged with the questions pertaining to why they decided to take part in the CD MOOC and whether their expectations were met. Discussions of the CD MOOC's elements therefore also tended to be presented through the lens of participants' expectations prior to starting the MOOC and their motivations to undertake it.

Based on the interviewees' responses to an open question, their motivations to undertake the CD MOOC can be grouped into three main types:

1. To become familiar with new developments in online education through immersion in an unfamiliar experience of the CD MOOC;
2. To become skilled in the Carpe Diem learning design process;
3. To apply the Carpe Diem process in their own practice.

The analysis proceeded to show how these motivations were interwoven with participants' expectations of their MOOC experiences and could influence their outcomes. Whilst it was common for a participant to mention all three dominant motivations in an interview, one of these tended to be the primary motivation, reiterated throughout the narrative.

Motivation 1: To become familiar with new developments in online education through immersion in an unfamiliar experience of the CD MOOC

Motivations such as curiosity and the desire to become familiar with new developments in online education dominated the narratives of Cobus, Didrika, Richelle and other interviewees. Cobus wanted to test how he would fare in the MOOC, to challenge himself by learning new things. His main aim in participating in the MOOC was "to experience what [a MOOC was], to be an active learner and experience the way of learning that such a MOOC facilitates". Didrika's main goal was to diversify her pedagogical knowledge and develop her online teaching skills. Richelle, whose initial motivation was to "dip [her] toe in the ocean of MOOCs", soon realised she had grown interested in the technical aspects of the CD MOOC, in particular, how social media was boosting connectivity.

Elissa who characterised herself as an educator "committed to interactive learning", wanted to "force [herself] to go through [the CD MOOC] to the end", so she could experience the e-moderation process first-hand. Starting the CD MOOC together with her colleagues, Elissa found in the end she was the only one still standing, so her motivation to complete intensified: "in the end... I decided I wanted to have a certificate to put on the wall to say *ha-ha* to the rest of [my colleagues]."

Elsa wanted to know “what the fuss was all about” in regards to MOOCs, while for Holly, the CD MOOC was a “trial run”, her first ever MOOC chosen because of her interests in online learning. Finally, Eliza “didn’t have any expectations” but wanted to do the CD MOOC “to find out what it was and how it worked”.

Motivation 2: To become skilled in the Carpe Diem learning design process

A different kind of motivation was reported by other participants who were driven first and foremost by the CD MOOC content, rather than general curiosity or a desire to learn about online learning. Typically these participants already had some familiarity with the Carpe Diem learning design and wanted to learn more.

Proud to have finished the CD MOOC, Irwan felt that what kept him going was that “it was a MOOC with something to teach... something... original and interesting, with a really nice approach”; and Sophia “wanted to get more of the strategies and collaborative tools to help with the design process [in her own course]”. Those participants, who initially mostly wanted to complete the CD MOOC to get themselves up to date on the latest developments in online learning, felt more and more engaged with the content as the MOOC progressed and wanted to become skilled in the Carpe Diem process and become experts in learning design.

The motivation to develop personal knowledge of the Carpe Diem learning design process was evidenced by the presence of more complex expectations among the participants. Those specifically interested in the Carpe Diem process were far more demanding of and engaged in their learning experiences. This group, motivated by the prospect of achieving their professional development goals, found their interest growing as the MOOC progressed.

Motivation 3: To apply the Carpe Diem process in their own practice

The third key motivation held by the CD MOOC participants was grounded in an aspiration to apply the Carpe Diem process in their own teaching practice, or enable others in their organisation to do so. All of the 29 interviewees introduced the idea of ‘scaling-up’ in some form or other when discussing their motivations to take part in the CD MOOC.

Holly's interest in the Carpe Diem process stemmed from her plan to use it in the design of her own MOOC. Another interviewee who was also a MOOC developer, Buzz, was negatively affected by high attrition rates and consequently with the learning groups diminishing in size. However, as Buzz's key motivation to partake in the CD MOOC was to learn about designing his own MOOC, he "wanted to gain the experience from A to Z" and was heavily invested in learning about benefits and challenges of a MOOC. He completed the CD MOOC despite personal difficulties. Another participant, Grace was particularly interested in the collaborative sessions and the deployment of videos in a MOOC. For Levi "[Carpe Diem was] a really interesting [collaborative] way of developing or redeveloping courses.

The motivation to apply the Carpe Diem learning design process in participants' own academic practice emerged as particularly strong, however, it was also the most affected by their high expectations of the CD MOOC experience. This group of participants were the most vocal about difficulties encountered due to attrition-affected inactive groups and the high drop-out rates. These participants treated the CD MOOC as a serious professional development pursuit and hence had high expectations of themselves and others.

Expectations, experiences and transformed motivations

The complexities of the types of motivations described above and their relationship with the participants' experiences of the MOOC ultimately affected the outcomes.

Participants' expectations predominantly dealt with the functioning of the groups, the role of the tutors and e-moderators (Salmon, 2011) and the input and behaviours of fellow participants. However, as the interview responses demonstrated, participants' expectations rarely matched their actual experiences and participants expressed surprise that other participants did not share their commitment, particularly where group work was concerned. Considering that participants were predominantly educators, this mismatch of expectations with experiences was a great learning opportunity for them in itself – however, not one that the MOOC developers and designers intended.

In response to clashes between their expectations and experiences, participants who were strongly driven to complete the CD MOOC, fell back on their intrinsic motivations to push themselves on, at times by adopting more independent study strategies, like breaking off into smaller groups consisting of two or three participants and/or moving all communications from the provided learning environment to private emails or social media (Salmon, Ross, et al., 2015). Participants like Corina, who “[was] happier working on [her own] and getting a buy-in from the group... towards the end”, found that this approach worked for them, even though they had to adjust the nature of their participation and change their learning strategies.

Despite studies showing that online learners tend to engage more with the asynchronous components of a course (Petty & Farinde, 2013), participants like Buzz felt his MOOC experience was affected negatively by the asynchronous environment because it created an “asymmetric” communication pattern that made it hard to engage with fellow participants. In the end though, Buzz persevered because his primary motivation to be in the CD MOOC was grounded in his interest in learning about the Carpe Diem design for future application. Through his experience he even started to understand that there are learning benefits in asynchronicity and that a learner must be flexible to succeed in a MOOC.

While having concrete task-oriented expectations was crucial to participants’ satisfaction, participants who knew less about the content of the MOOC in advance, felt their expectations were exceeded. As the MOOC progressed, a participant named Madeleine felt its content “just happened to be extremely relevant” to her work while for Buzz, who was “pretty open-minded about what to expect”, his MOOC experience was in the end “fulfilling”. Participants like Corina who self-defined as a “task-focused learner” appreciated the structure and direction in the MOOC as well as being a part of the Carpe Diem community for collaboration and social networking.

The matching of original motivations to take part the CD MOOC with the participants’ actual experiences showed that those who already had a strong idea of what they wanted were likely to stay engaged long enough to finish the MOOC.

Conclusions

This study took an in-depth look at how MOOC participants' motivations to engage in a MOOC and their expectations of this process shaped their experiences, impacted on their interaction with the learning material, peers and e-moderators and fueled their desire to persevere in the MOOC despite perceived challenges. Those participants whose expectations were high wanted the same levels of engagement and participation from their peers. In practice, participants' expectations were shaped more by the nature and structure of the CD MOOC and the levels of engagement of their groups of learning peers. As a result, high drop-out rates and inactivity in groups came as a surprise to many. When their expectations were not met, participants needed to fall back on more individualistic approaches to achieve their learning goals, relying on intrinsic motivations to complete the MOOC.

One group of respondents was motivated by the possibility of new knowledge and catching up on the latest developments in online education and hence they held cognitive goals at the core of their motivation (Ford, 1992). On the other hand, the group of respondents who were motivated by a specific interest in the professional development opportunities from the CD MOOC exhibited self-assertive goals (Ford, 1992) – they were attracted by the course's content and the opportunity to master the Carpe Diem learning design process. Third group held task-oriented goals, motivated by mastering a new skill or gaining input, knowledge or support from peers.

In addition to motivation, participants' expectations worked as another major factor impacting on their learning experiences. The more specific participants' expectations were in regards to what they wanted to achieve in the MOOC, the more they were motivated to succeed. Those participants who were able to be flexible and move quickly and easily around the MOOC (we called them 'agile learners') had a greater capacity to adjust to the learning experiences and adjust their original expectations if necessary.

It is likely that CD MOOC participants, mainly educators themselves, were able to be more self-reflective and metacognitive in their approach than more typical and diverse MOOC

participants. Our participants started to understand design aspects through their participation, including, for example, the use of scaffolding, critical and constructive peer review, or the way the e-moderator supported groups with fewer fully engaged members. Another emergent outcome from the study was how valuable the MOOC was for those educators who had little experience in asynchronous large-scale online learning as learners (rather than educators).

We recognise that our study was specific to educators in various professional and academic roles and that the generalisability of our findings could be challenged. However, the advantage of this cohort for study was that they were self-reflective and hence may have experienced greater ease than a more general MOOC population in exploring and expressing their complex motivation and expectation issues with researchers. At no time did any of them report that they felt special or different because they were educators; indeed, many expressed how much the experience of taking part took them back to 'learner' behaviours. We would therefore welcome the opportunity to extend the study to a variety of other groups for triangulation and confirmation.

Recommendations

The study emphasised a number of key and critical design components that are likely to increase participants' completion in MOOCs, and hence their ability to learn and apply their learning in practice. These components need to be identified early and impact on the pedagogical design and plan of the entire MOOC experience:

- Build clear scaffolding so that self-motivation based on achievement is frequent and progress obvious;
- Establish clear responsibilities amongst participants to sustain their engagement in their groups, if such pedagogical processes are used;
- Encourage participants' articulation and explorations of their expectations and motivations at clear points throughout the scaffold;

- Identify typical participant cohorts *and* their likely desired expectations of the process of the MOOC, especially the behaviours of other participants, offer alternatives pathways;
- Identify typical participant cohorts *and* their likely range of motivations, and, if in a large MOOC, offer different pathways through the materials to account for different motivations and expectations;
- When describing the benefits, *go beyond* the ‘content’ of the MOOC to be clear about the learning process and commitment;
- Encourage participants’ reflections and articulation of *unexpected and emergent benefits* of their continuing commitment to the MOOC;
- Ensure opportunities for constant review of how relevant the content is to practical applications – this can be achieved by allowing for self-personalisation and contextualisation of the learning material and assessment.

These findings, rooted as they are in the complexity of expectations and motivations, may also be of interest to those designing and delivering any type of digital learning – specifically, the need to design for scaffolding, reflection and meta-cognitive processes and the application of the online learning to practice.

Ethics statement

This research project received ethical clearance from Swinburne’s Human Research Ethics Committee (SUHREC) and follows the Australian Government’s National Statement on Ethical Conduct in Human Research (2007). Any conflicts of interest were minimal and resolved by employing researchers who were not involved in the deployment of the CD MOOC. All data used in this study was de-identified to ensure the confidentiality and privacy of participants. Interview participants are referred to by pseudonyms throughout this paper. To access the de-identified data used in this study, please email the corresponding author and provide a statement regarding the purposes of your request.

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