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Motivation and Engagement in MOOC – Teachers' Perspective

Li Fern TAN[a*], Kai Song GOH[b] & Emile SABASTIAN[b]
[a]*Office of Learning Technologies, Temasek Polytechnic, Singapore*
[b]*School of Informatics & IT, Temasek Polytechnic, Singapore*
*lifern@tp.edu.sg

Abstract: In recent years, the growth of online educational programs has been stimulated by the advancement of the Internet and learning technologies which have transformed the educational landscape. Massive Open Online Courses (MOOCs) have gained much popularity over the past few years and have changed the way people learn. In this qualitative study, we interviewed 14 academic staff at a polytechnic in Singapore and examined the key factors that motivated them to sign up for learning via MOOCs as well as factors that affected their choice of MOOC subjects. Our participants consisted of two distinct groups of academic staff, those who completed the MOOCs they signed up for and those who did not complete. We discovered that the two groups of participants were motivated differently when signing up for MOOCs. We also investigated the factors that led to successful completion of MOOCs by one group of academic staff and the challenges faced by the other group that cause their incompletion. Finally, we asked academic staff for their recommendations on how they think MOOCs could be made more engaging and adaptive to learners with different learning needs and styles. Their recommendations on how MOOCs should be administered, delivered and assessed are presented in this study.

Keywords: MOOC, motivation, engagement, adaptive

1. Introduction

Massive Open Online Courses (MOOCs) cast education in a new paradigm, leveraging on the pervasiveness of Web access and the potential of social learning. By making education available to everyone with access to the web, MOOCs break the boundaries of economic access, time and geographical location faced by traditional education. What was only available to a privileged group of learners is now available to tens of thousands of students. A MOOC generally carries no charges, no prerequisites, no predefined expectations for participation and no formal accreditation. It aims to reach out to anyone who is interested to learn something new. Today, in addition to taking some MOOCs without charge, participants may pay a fee for courses that lead to a certificate (Waldrop, 2013).

Online learning through MOOC is one of the emerging technologies for learning in education. According to Wikipedia (2014) emerging technologies learning is defined as "technical innovations that brings out new territory in some significant way". MOOC has evolved as an emerging technology into new pedagogy that will have an impact on teaching and learning. NMC Horizon Report (2013) stated that higher education will see widespread adoption of MOOC and tablet computing.

The pedagogy that MOOCs employ is different from traditional online learning. MOOCs can be delivered synchronously on a predefined schedule allowing learners to do his or her lessons without geographical boundaries and at his or her convenience. Instead of making a 45-60 minute recorded lecture online for learning, short lecture modules, each lasting 12-15 minutes are used. The shorter duration provides learners with convenient blocks to complete the learning that could be easily fitted in their schedule. Assessments and grading are automated within the platform. MOOCs are used for continuing education objectives by learners who wish to supplement their previous education with skills-enhancement or personal challenge purposes.

MOOCs began in 2011 when Stanford professor, Sabastian Thrun and Director of Research at Google, Peter Norvig taught "Introduction to Artificial Intelligence" online with 160,000 students enrolled and 20,000 completing it. Professor Thrun later resigned and founded Udacity. Thrun's

colleagues at Stanford, Daphne Koller and Andrew Ng established their own platform, Coursera, in February 2012. Harvard's and MIT's EdX started in May 2013. Other MOOCs soon followed in the wake of these MOOCs (Nanfito, 2014). Today, institutions are offering a variety of courses on MOOC platforms such as Coursera, Canvas Network, Udacity and EduKart. There are other MOOC-like online platforms like Fathom, Sunoikisis and Connexions.

Enrolments in online education are increasing substantially although retention and completion rates remain low in the face of declining enrollment in higher education (Allen & Seaman, 2013). The 2013 Babson report by Allen and Seaman (2013) shows that more than six million students in public, private and for-profit educational institutes in the United States took at least one online course in the fall 2011 term. Other key findings from the report include low completion rates is barrier for the growth of online learning and 88.8 percent of academic leaders surveyed believe that student lack of discipline in online courses is an obstacle to growth. Cognitive, psychological and emotional connections to feel, think and behave are required for the online environment (Lehman & Conceicao, 2010). Concerns for motivation and factors for engaging learners have to be taken into consideration to help students stay motivated online. It is understandable that a few common reasons for student dropout are related to feelings of isolation, technology disruption, lack of support from faculty, lack of clarity in instructional direction, lack of social interaction and so on.

> Learners in the twenty-first century have been Web consumers for much of their lives, and are now demanding online instruction that supports participation and interaction. They want learning experiences that are social and that will connect them with their peers.
>
> West & West, 2009, p.2

It is also important to understand learners' characteristics, their learning behaviors and skills in the 21st century. The ECAR Study of Undergraduate Students and Information Technology, 2012 (EDUCAUSE, 2012) indicated almost 9 in 10 students own laptops, more than 60% of the students own smartphones and 15% of the students possess a tablet in United States. In a survey conducted by Infocomm Development Authority of Singapore (2014) in the year 2012, 99% of the individuals in the age group between 15 - 24years old who have used a computer and used the internet for the past 12 months. This reflects the behaviour of the generation of learners born in this digital era. Changes in student behavior due to technology usage bring new demands for learning and teaching. Students in the 21st century are IT savvy and are comfortable with technology. The use of Internet has become a norm and may be a way of life for students. They demand greater autonomy of their own learning and the addition of technologies has met their learning needs and preferences (Prensky, 2005). The infusion of information and communication technologies in teaching and learning has open up a wide range of opportunities for creating new kinds of learning activities and experiences. Technology is no longer the problem, but what to do with them to succeed in the new learning environment in this digital era (Carr, 2011). The advancement and adoption of technology for teaching had also transformed the role of the teacher. Kearsley (2000) wrote that the role of the instructor in online classes is to ensure high degree of interactivity and participation through careful design of learning activities which result in engagement with the subject matter and with the students. We felt that there is a need to explore ways to motivate and engage students to help them succeed in the online classroom.

2. Purpose of the Study

Motivation is one of the critical success factors leading to course completion in MOOCs. Motivated learners are more likely to engage in learning activities, participate in online discussion and ultimately, succeed in the course. Thus it is important to understand what motivates online learners, especially academic staff. In this study, key factors that influenced academic staff in their motivation and engagement in MOOCs and how these factors were embedded in the design of learning elements in MOOCs would be investigated. Furthermore, the contributing factors that have motivated academic staff to complete or have hindered their learning progress in MOOCs would be discussed as well. With these in mind, the research questions explored in this study are as follows:

1. What were the contributing factors that led the academic staff to sign up for MOOCs?
2. What were the contributing factors that led to successful completion of MOOCs among the academic staff?

3. What were the contributing factors that caused academic staff to drop out of MOOCs they had signed up for?
4. How had the instructors of the MOOC adapted to the different learning needs of participants?

3. Methodology

3.1 Method

Semi-structured interviews were used to collect data for this research. This qualitative inquiry is well suited for educational research as it enables deep exploration. Interviewees have the freedom to share their experiences and the interviewer retains control of the interview at the same time (Drever, 1995). It also provides the interviewer the freedom to explore general views or opinions in detail (Robson, 2002). Prior to the interview, pilot interviews were conducted to ensure that the set of questions used was effective in fulfilling the purpose of this study.

3.2 Participants and Settings

This study took place at a polytechnic, post-secondary institute, in Singapore. This is one of the five polytechnics in Singapore. There are six schools of study in this polytechnic each offering several diplomas in their specific domain of study. Purposive sampling was used to choose the sample consisting of participants who were appropriate for the study to provide rich information for researcher to develop a detailed analysis on the central phenomenon under study. The research participants were categorized into two groups; those that obtained statements of completion for the MOOCs they signed up for, we call this group of participants the "Completed" group; and those who went through at least 10 hours of the MOOC they signed up for but did not obtain statements of completion, we term this group of participants the "Attended" group. All participants were academic staff from the same school at the polytechnic, each teaching different subjects offered by the school.

Sampling was done according to the matrix as shown in Figure 1. We selected at least three participants from each category to ensure that each category was represented. Each category consists of a fair mix of appointment and non-appointment holders. Appointment holders refer to academic staff who hold an academic appointment like course manager, course coordinator or section head for the course. Non-appointment holders refer to academic staff whose main focus is on teaching. Both appointment and non-appointment holders are heavily involved in academic related matters, from course planning, course design to delivery, we believe that their inputs would be beneficial to this study. In all, 14 staff members were interviewed for our research.

Staff Type	Completed Group (Obtained Statement of Completion of any MOOC)	Attended Group (Completed more than 10 hours of any MOOC)
Appointment Holder (Managers/Coordinators/ Section Heads)	At least 3 participants	At least 3 participants
Non-appointment Holder	At least 3 participants	At least 3 participants

Figure 1. Quota sampling criteria of research participants.

4. Findings

Our participants enrolled in MOOC for a variety of reasons, some have more initial interest in upgrading themselves than others. A key principle to the framework of self-determination theory (Ryan & Deci, 2000) is that individuals enjoy activities when they believe they have autonomy over some

aspects of them. Individuals who are self-determined perceive they have ability to make choices over their actions and have been shown to have augmented conceptual learning, positive attitude towards challenging tasks and increased motivation to attend lessons which resulted better performance (Filak & Sheldon, 2008). When it came to the motivation for signing up for learning via MOOC, there were noticeable differences between the "Completed" group and the "Attended" group.

Many of the academic staff who completed their MOOCs cited professional curiosity as one of the factors that prompted them to sign up for MOOCs. They were keen to find out how a course could be delivered in a fully online mode, to a large number of participants; operational details such as how lessons were organized and delivered and how assessments were administered and graded, how queries could be responded to were also on their lists. In short, they showed enthusiasm to find out how MOOCs worked.

While most academic staff from the "Attended" group signed up for MOOCs with the initial intention of completing it, all eventually did not complete. Only 1 interviewee from this group had foreseen that he would be unable to complete the course when he signed up for the MOOC, but did so anyway with the intention to explore the subject matter. The group of academic staff who did not complete the course mainly took on learning via MOOC because they believe this mode of learning suited their own work schedule. They also saw MOOCs as a rich source of up-to-date materials for subject area of their interest.

Some common motivational factors among the two groups of academic staff include fulfilling work-related goals, taking MOOCs as a personal challenge and as a form of self-enrichment. Only 1 of the interviewees mentioned that he signed up for learning via MOOC because it was free. This suggests to us that the flexibility of choice and convenience of having learning delivered via the Internet outweighs the draw that MOOC was delivered at no costs. Studies have shown that students' motivation is affected by their perception of the usefulness of what they would have been taught (Tabachnick et al., 2008). It was also found that students with long term goals or involved with long term projects who are able to see the significance or bearing in their learning with their future are more motivated as compared to those having short term goals.

The Venn diagram below summarizes the factors that prompted academic staff to sign up for learning via MOOC. There were no noticeable difference between appointment holders and non-appointment holders.

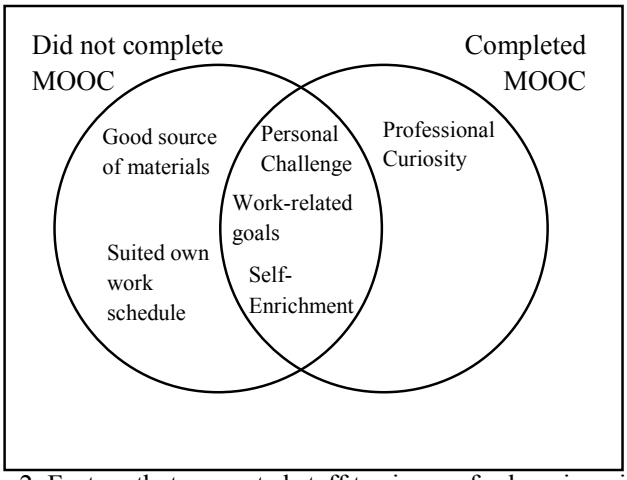

Figure 2. Factors that prompted staff to sign up for learning via MOOC.

We asked our interviewees what motivated them to sign up for the particular MOOCs they did. Even though the topic areas of the MOOCs they took ranged quite widely, the reasons why they chose what they did were fairly consistent when we fed the captured interview transcript into a word cloud generator.

Word cloud shown in Figure 3 was used to identify the prominent terms that were gathered from the interviews. Featured prominently were terms like "reputable", "university", "interest", "subject matter" and "relevance" which suggested that our participants preferred MOOCs offered by reputable institutions on subject matter that were related to their area of work or area of interest.

Figure 3. Word cloud showing why our participants chose the MOOCs they did.

For the group of academic staff who completed their MOOCs, we asked them what helped kept them going, we classify these into intrinsic and extrinsic factors. A summary of the factors, both intrinsic and extrinsic, that helped academic staff we interviewed complete the MOOCs they took can be found in Figure 4.

Intrinsic Motivation Factors	Extrinsic Motivation Factors
- Sense of achievement upon completion. - Relevance and applicability of subject matter to own work area. - Interest in subject matter. - Sense of being challenged by the MOOC. - Curiosity of how the MOOC will end. - Peer and social support.	- Certificate or badge received upon completion. - Regular email reminders of upcoming tasks. - Availability of course calendar showing important dates. - Organization and design of materials. - Sequencing of topics. - Right pitching of demands of assessments. - Timeliness of feedback on how to improve. - Alignment of course schedule to own work schedule. - Passion of instructors / tutors.

Figure 4. Factors that helped academic staff to complete MOOCs they signed up.

The most cited intrinsic factors were the anticipated sense of achievement upon completion of the MOOC and the relevance and applicability of subject matter to own work area.

The most cited extrinsic factors that kept them going were the alignment of the MOOCs' schedules to their own work schedule as well as the course design elements such as the organization and design of materials, sequencing of topics, right pitching of demands of assessments. Course administrative tools such as regular email reminders and availability of course calendar also helped our interviewees plan their schedule ahead to accommodate important submissions and to manage workload for their MOOCs.

For the group that did not complete their MOOCs, we found out what were some challenges they faced. These are classified into 2 categories, personal and course-related as shown in Figure 5.

Personal challenges	Course-related challenges
- Work commitment got in the way.	- Course had too many assessments. - Demands of MOOC were misrepresented. - Coverage of MOOC was misrepresented. - MOOC assumed prior knowledge which staff did not have. - MOOC turned out to be uninteresting. - Assessments were too complex. - Could not understand instructor's accent.

Figure 5. Challenges faced by academic staff.

Unsurprisingly, many of our interviewees who did not complete their MOOCs failed to do so because of work commitments, this was particularly apparent for the appointment holders among the interviewees. Recall that all our interviewees were academic staff, which meant that there was less flexibility in making time for MOOCs since they were bounded by their own teaching time-tables and the general academic calendar. Some interviewees also made conscious decisions to give up on MOOCs which they felt were misrepresented in terms of time commitment, assessment demands and/or topics covered.

Based on their experience of learning via MOOCs, both categories of our interviewees agreed that at present, MOOCs are not able to adapt to the different needs and learning styles of learners. We then asked our interviewees for suggestions on how they would design MOOCs such that different learning needs and styles could be catered for. Their recommendations were summarized in the next section.

5. Recommendations

In this section, some recommendations based on the academic staff experience as a learner of MOOCs are collated from the research findings.

5.1 Provide flexible start dates for MOOCs

"Most of our students today are older, are working and need more flexible schedules" (Palloff & Pratt, 2001, p.109). At present, MOOCs are either self-paced or institution-paced. In the former, students can choose to start the course at any time, there are often no deadlines for assessments and all materials are available to student once he begins the course. The drawback of this is that students would be at different stages of completion compared to his peers. The social learning aspect of MOOC would diminish. There will also be no reminders on upcoming tasks or deadlines. In the latter arrangement, institution offering the MOOC will decide when the course will start. The problem with this design is that students' busy period may coincide with the submission deadlines of the MOOC. Our research participants recommends for MOOC providers to consider providing courses with flexible start dates but not on a self-paced mode. This meant that students would have the flexibility to choose when they will start the MOOCs, once started the platform will work out a personalized calendar based on the MOOC's original design. This would give students greater autonomy in deciding when they would embark on their learning. This would not only increase learner's motivation through autonomy-supportive practice (Reeve & Jang, 2006) but also mitigating the problem of schedule clashes.

5.2 Provide flexible duration for MOOCs

An alternative to having flexible start dates for MOOCs is for MOOCs to have flexible durations. Presently, all institution-paced MOOCs also have institution determined duration. Our research participants recommend that MOOC providers allow different students to have different course duration for the same MOOC. The duration could be self-determined, based on learner's assessment of the demands of the MOOC and their own aptitude; or it could be determined based on students' performance for a diagnostic test, administered in the early weeks of the course. This provision of perceived control over the duration of the MOOC they are taking would be beneficial for students to stay motivated in their learning (Ryan & La Guardia, 1999).

5.3 Provide different track of study

Our research participants recommend that MOOC providers allow learners to determine their desired track of study with differing levels of difficulty. A learner who wishes to have a gentle introduction to the subject matter could opt for an introductory track while another who wishes for in-depth knowledge of the subject matter could opt for an advanced track of study. Learners have autonomy or sense of choice and feel controlled over their actions are more self-determined (Reeve et al., 2003). Some

aspects of the materials and assessments could be over-lapping; students of different tracks could interact and learn from each other through the existing collaboration platforms such as discussion forums.

5.4 Standardize instructional and presentation format

Many of our research participants had taken more than one MOOC. Feedback received indicated that different instructors organize their materials in vastly different manner. Our research participants recommend for MOOC instructors to adopt a standardized format by which materials are organized. Our participants believed that this consistency in structuring how course information and materials are presented would have a positive impact on their learning. Having a standardized and consistent instructional or presentation format will make it easier for learners to create a mental image of what to expect from the course and help them manage course workloads. We recognize that this would require extra organization effort by the instructor to rework and restructure instructional style but believe that this would be a worthwhile endeavor since an organized learning environment that provides relevant, consistent, practical and timely materials to meet learners' needs, following the principle of easy to use and simple to use are important aspects to keep learners motivated.

5.5 Provide transcript for video lectures or audio lectures

Aside from recommending standardization of presentation and instructional format, our research participants also recommend that MOOC instructors consider providing a variety of learning materials. At present, materials for MOOCs mostly take the form of video lectures and lecture notes. Our research participants suggest for audio files and transcripts of video lectures to be made available as well. The former would be more suitable for people who prefer to learn on the go, using their mobile devices while the latter would cater to the group of learners who prefer to read rather than watch videos. Certainly, more effort would be needed to prepare the materials and it is more difficult to make any changes to the materials in future.

5.6 Create more opportunities for collaborative learning

> The learning community is the vehicle through which learning occurs online. Members depend on each other to achieve the learning outcomes for the course.
>
> Palloff & Pratt, 2007, p.40

Instructors could consider incorporating more opportunities for collaborative learning in the course design. In the constructivist perspective, learning is being viewed as an active process whereby construction of knowledge takes place through social interactions and collaborative work with each other (Vygotsky, 1978). Students grasp their own understandings and construct knowledge through interactions based on what they already know and believe (Richardson, 2003). Moreover, students should be able to choose their collaborative learning partners. They were more motivated if they have the freedom to choose their working partners as compared to group assigned by the instructor (Ciani et al., 2008).

5.7 Provide intelligent progress tracking

Presently, most MOOCs do not track the progress of individual students. Progress bars are typically associated to the course schedule rather than students' progress and email reminders are generally time-based rather than activity based. Our participants recommend for more intelligent progress tracking so that personalized reminders which based on individuals' completion of task could be delivered by the system. While we foresee this leading to greater administrative challenges for MOOC instructors, we also see the potential for the same set of triggers to be used for adaptive delivery or adaptive assessment.

5.8 Leverage on M-Learning

Finally, our research participants recommend that MOOC providers leverage on the potential of mobile learning and the pervasiveness of mobile devices among students. This could be the provision of mobile

application linking learners to the MOOC platform and courses, syncing course dates to the calendar in learner's mobile devices; or taking advantage of existing collaboration tools such as group messages.

6. Limitations of Research

A limitation of this study is its possible lack of generalizability. Though the sample size is large enough for such qualitative study, the findings are typically relevant to the specific group of learners under investigation with its own characteristics. While this study is academic staff-specific, our goal is to share recommendations on the development of MOOCs for those who are interested to offer courses via this mode. We recommend for further studies to be done on more samples of MOOC learners to gain more objective inputs.

7. Conclusion

There are many factors that motivated learners to sign up for learning via MOOCs and successful completion for their choice of MOOC subjects. Instructors could promote individual interest by (1) providing learners with opportunities to have control over their learning (2) relating the usefulness of content to achieve their goals (3) creating a warm and personalized presence to help learners feel connected and engaged (Osborne et al., 2007).

The growth of online learning options continues to increase and will have an impact on the shape of higher education. Learners in the 21st century want learning experiences that support participation and social interaction that will connect them with their peers.

In this study, strategies on how MOOCs could be made more engaging and adaptive to learners with different learning needs and styles were made. We hope that these strategies and methods could help instructors design an online learning environment that meets the needs and learning behavior of students in the 21st century. By integrating support, instructor could help learners to have greater insights about effective time management, prioritizing and stay motivated throughout the course. In addition, they could help learners with different learning needs to identify a pathway for successful online learning.

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