MOOCS FOR MOTIVATION: PROMOTING STUDENT ENGAGEMENT IN HIGHER EDUCATION STUDIES

Steven Warburton, Maria Fragkaki, Sophia Vahora, University of Surrey, United Kingdom

Abstract

In this paper we explore the relationship between factors that affect learner motivation to study and the potential value of massive open online courses (MOOCs) to stimulate student engagement with their core higher educational studies. The research has used a mixed methods approach to uncover quantitative and qualitative insights from a group of undergraduate level student ambassadors. In the first part, we explore whether using MOOCs as a supplemental study activity could enhance their engagement, motivation and confidence. In the second part we examine the pros and the cons of MOOC-style curricula and which student literacies, digital skills and level of self-regulation required to engage successfully with MOOCs.

Introduction

Student engagement in Higher Education is a challenge for most institutions, not only in the UK but in Europe and internationally. We have explored a number of factors that affect students' initial and overall motivation to learn, and their relationship with the positive impact that following a massive open online course (MOOC) may have on engagement with institutionally based study. Initial insights into this investigation were provided by research from the Faculty Survey of Student Engagement (FSSE, 2013) and the Beginning College Survey of Student Engagement (BCSSE, 2013). These studies indicated the following were important in engaging university students: the delivery of challenging courses; effective learning strategies; encouraging peer learning; courses which improved student understanding via high-impact practices; and collaborative campus environments. Other forms of engagement have been studied elsewhere, for example, the time spent studying and gaps in study skills. Here Norman and Hyland (2003) found that international students experienced low levels of confidence in their academic ability when compared to more traditional entry students. As universities have growing concerns about the engagement of students in online courses, we find that an increasing number of US institutions argue that both learning with technology as well as courses that use technology have a positive association in indicators related to academic challenge (NSSE, 2013).

One of the reasons that students perform better and are more engaged is when they feel motivated, confident and challenged by their studies, and are rewarded by success (Kuh et al., 2011). This could be achieved through the raising of aspirations for core study via the

successful completion of a short MOOC from a well-known institution. The positive emotional effect of studying within a diverse global community of learners and the value of the ensuing course completion could potentially boost student success on their core courses.

Currently there are no reports on the impact of additional study through MOOCs on student motivation, confidence and engagement in their core degree courses. That said, there are already examples of MOOCs being used within Higher Education Institutions to supplement undergraduate in-house courses, for example at the HAN University of Applied Sciences in the Netherlands (Köppe et al., 2015). However there are concerns about the increasing number of Higher Education students, particularly those from non-traditional backgrounds, regarding their confidence in their own ability to succeed (Pokorny & Pokorny, 2005). The University's UK's report (UUK, 2013) on MOOCs emphasises supports the need to investigate this aspect of MOOCs further and uncover "what part can online models of delivery play in improving the quality and value of online and traditional courses for students, employers and society". Furthermore, effort should be dedicated to determine how an institution can add value to the educational experience of students beyond the standard MOOC platform, and facilitate access to social and professional networks (UUK, 2013).

One primary attraction of MOOCs is the offer of *free* study. Free in a monetary sense but is also free from the pressure and risk associated with traditional paid for and accredited courses. This freedom of choice can be productive for both intrinsic and extrinsic motivation and could potentially have a positive impact on students in their core higher educational studies within their institution. Other research also indicates that motivation through studying MOOCs is an area of interest, particularly when participants are motivated by their passion to learn, and not purely for the quest of qualifications and certification.

More recently there has been a growing interest in understanding what knowledge skills and attitudes are required to succeed in online courses, particularly in light of the reported low completion rates for MOOCs (Jordan, 2014). Analysing the experience of learners on "Nand to Tetris" (a MOOC-like course), Shimon Shocken identified the *hacker mentality* as the essential ingredient for the successful students (BIS, 2013). In other research, self-regulation has been considered a critical factor for student success in MOOCs (Guàdia et al., 2013; Gutiérrez-Rojas et al., 2014). These are the "self-generated thoughts, feelings and actions that are planned and cyclically adapted to the attainment of personal goals" (Zimmerman, 2000; p.14). Self-regulating learning is a proactive and continuous course of progression which involves the learner setting specific, realistic and challenging goals after which they monitor, assess and reflect on their learning practice and constructively improve their method throughout their learning (Azevedo & Cromley, 2004). It is a self-directive process that facilitates a transition of mental ability into academic performance (Zimmerman, 2008). The importance of self-regulation has been emphasised greatly in recent years. The inability to self-regulate becomes a barrier to students during their online learning because they cannot access all of the components within the course (Jacobson & Archodidou, 2000). Zimmermann describes three phases: (a) planning; (b) performance; and (c) self-reflection; which are interconnected through affective, behavioural and cognitive sub-processes. These sub-

processes range from: cognitive factors (motivation, interest, self-reflection and self-evaluation), to behavioural factors (goal-setting and learning strategies), to self-efficacy and self-satisfaction (Fontana et al., 2015).

In summary, it seems that the educational benefit of MOOCs may extend to providing intrinsic and extrinsic motivational factors that can have a positive impact on a participant's core higher education studies.

Research aims

The two principle aims of this study are:

1. To explore the impact of using MOOCs as a supplemental study activity on students in terms of enhancing their engagement, motivation and confidence with higher education studies.

2. To discover the positive and negative aspects of a MOOC-styled curriculum, and in particular, to find out which level of student literacies, digital skills and self-regulatory practices are required to engage successfully with MOOCs.

Expected outcomes

The outcomes of this research will be used to create a curriculum roadmap for the incorporation of online learning through MOOCs. The results will also be used to identify student needs in relation to learning skills, previous experiences of online-based study, digital skills, level of self-regulation required, and the scalability and applicability of a *blended MOOC* approach for all student study. Indirect outcomes from the study will be recommendations for improvements in the design of MOOC-style curricula with the appropriate instructional design of the techno-pedagogical environment in relation to the students' educational needs, prior learning, ability to self-regulate, and the institutional support mechanisms.

Methodology

Rationale

Self-Regulated Online Learning Behaviour in an individual depends not just on the learner, but on the environment in which learning is taking place (see Bernaki, Aguillar and Byrnes (2011) for a comprehensive overview of the relationship). For example, an individual is unlikely to learn in an environment that complicates the learning process. Therefore, by developing the understanding of the pedagogical features for an effective learning environment, we can facilitate a successful teaching and learning process.

Research Design

The *explanatory sequential* mixed method research design has been used. This provides a defined procedure for collecting, analysing, and mixing both quantitative and qualitative methods (Creswell & Plano Clark, 2011) in order to provide a better understanding of the research problem and research questions than either method deployed individually. This model consists of two phases:

- Phase A: Researchers collect quantitative data and results which will provide a general view of the research problem;
- Phase B: This is followed by data collection through qualitative means that will further explain or elaborate the quantitative results.

The sample population in this study were from the university *widening participation* student ambassadors. These comprise undergraduates from a range of study years from level 4 to 6 and studying a range of undergraduate programmes.

Research Process

A nine-stage research process was used based on the explanatory sequential design described above. Initially, the research team determined the feasibility of the mixed method study (step1). Afterwards they identified the rationale for the selected methodology (step 2) and then, the data collection strategy was developed (step 3). The quantitative and qualitative mixed method research protocols were agreed (step 4) and a survey with open and closed questions was designed and loaded into an online questionnaire application. The link to the survey was sent by e-mail to the sample population of University of Surrey *student ambassadors* (step 5). 61 students responded to the questionnaire from a total sample population of 180. The quantitative data from the closed questions was collected and statistically analysed, with content analysis used for the open question responses (step 6). Finally, a world café workshop (see below) was run to investigate participant views on the advantages and obstacles to online learning. The outputs were gathered via observer note-taking and means and the qualitative data was organized and analyzed (step 7). Researchers then reflected on the quantitative and qualitative data sets, and discussed of the research results (step 8) leading to a report with conclusions and recommendations emanating from this multiple phase study (step 9).

Research Instruments

- For phase 1: An online survey was designed to measure a range of sub-processes across four phases of self-regulated learning in Higher Education and more generally in online education. The survey instrument comprised a structured set of 22 questions, each focused on the phases and sub-processes of self-regulated learning from Zimmerman (2000) and of the beliefs, usage and added value of technology in study.
- For phase 2: A *World Café* workshop was designed as a simple, effective and flexible format for hosting group dialogue. (Brawn & Isaacs, 2016).

Research Analysis

A convergent analysis design approach was used in this mixed method research. An analytic and interpretive procedure followed on from the data consolidation. Here, qualitative and quantitative were data combined to form new interpretive categories and the original quantitative categories were compared with qualitative themes to form new quantitative variables or indicators (Caracelli & Greene, 1993).

Results and Discussion

In this section we present the initial results from the quantitative research analysis. The results in this first section are linked to the three basic phases of the learning process – *forethought*, *performance* and *self-evaluation*.

- With regards to *forethought* and more specifically how they set goals, 66% set personal standards for their learning, 61% set short-term (daily or weekly goals), 54% set long term goals, 55% set goals to help manage their study, 36% set realistic deadlines and 2% of participants set a more specific goal for high grades.

- One key aspect of the *performance* phase is strategic planning. One measure of strategic planning is for students to understand how they learn best. We found that 67% of students organise study time to meet goals and 53% of students follow the structured methodology provided by the course to solve a given problem. Furthermore 50% of students recognise, adapt and apply strategies that have worked for them in the past.

- To understand the value students give to critical thinking strategies during the *performance* phase they were asked how they develop their critical thinking skills. Most of the participants (64%) agreed that they use course resources as a starting point to develop their own ideas. and 47% agreed that they connect their own ideas with course content.

- Another indicator of student performance is the level of student interest towards a course. When asked, 43% of participants agreed that the most satisfying aspect of a course was to develop a thorough understanding of course content and 48% of participants agree that they preferred engaging tasks which facilitate their learning.

- When participants were then asked whether they prefer learning material that arouses their interest - even if it is challenging, 37% agreed and 46% strongly agreed that providing challenging material enhances their interest in learning.

- The *self-evaluation* phase represents the ability of students to compare and evaluate their learning objectives with their learning outcomes. 61% of participants agreed that they measure their progress in relation to their intended goals. Moreover, 29% of the participants agreed that they evaluate their activity after completing a task.

The next stage of our analysis was to explore the development and utilisation of *literacy and digital skills*, and the extent and level of *self-efficacy*. The key results were as follows:

- We asked about student *literacies,* in order to understand which type of skills they had developed during previous study activity and whether these skills were applied in future learning activities. 59% responded that past experience had prepared them for new learning challenges, 55% of participants cope with new learning because they rely and trust in their ability and 43% prepare for demands they will face in the course. An average of 33% of participants believed their most relevant skill is the ability to find new methods to overcome a challenge. Furthermore, most students believe time-management to be the most important skill for efficient learning. Other respondents

found collaborating and discussing material in groups facilitated a better learning experience. A fewer number of students feel the revision of essay plans, setting realistic deadlines and self-discipline to be the most effective skills.

- However, self-discipline is a general term that could include, and lead to improving time-management and other skills mentioned here. Students were also asked to identify their effective learning method and 90% of them responded that to make *notes to become organised and develop greater understanding* is the most effective skill. 65% prefer to translate new information into own words. It was interesting to discover that 29% of participants actively change strategies when they perceive that they are not making progress in their learning. In relation to increasing retention of learning, two students preferred to present information visually (drawing or poster) or in an audio format (audio memos).

- In relation to *digital skills*, 63% of participants agree that good digital skills are fundamental for learning and no respondents disagreed. In addition, 33% of the respondents agreed that they needed to develop their digital skills in order to facilitate their learning with 24% who were happy with their current level of digital skills.

- We moved on to explore the student perspective and understanding of *self-efficacy*. We found that 57% of the participants believed that, to a moderate extent, self-efficacy leads to successful learning, while 2.5% of participants believed self-efficacy only plays a small role in learning success.

- The last question in this section of the survey attempted to understand how students *reflect after action*. 50% of the participants agreed that they often consider how their learning fits into the 'bigger picture' of their work or practice. Furthermore 57% of participants agree that they try to understand how what they have learned impacts their work or practice.

The final part of the survey explored students' expectations of online education and MOOCs in particular.

- Initially participants were asked what online education means to them. Most participants defined online education as "using online resources". Others felt the "learning or teaching through online courses" best explained this term. Some participants associated online learning to online testing methods such as quizzes and assessments and flexibility to their learning routine. Lastly, a small number of participants mentioned "mixed media" would be used in online learning to facilitate learning.

- Participants were then asked about their exposure to any online education experience. 11 participants reported using online training programmes for employment purposes including taking online courses and subsequent assessments. 12 of the participants reported having no exposure to online learning environments though a small number had used online resources. 6 participants have participated in open online university courses and have reported beneficial experiences such as having the opportunity to study at their own pace.

- Students were asked to give examples of technologically-based learning. The final question simply asked participants to list any tools, applications or services they use online to support their learning. Most of them have used Wikipedia, YouTube, their university's Virtual Learning Environment and online databases for journals (including Google Scholar) for study purposes. Some of them have also reported to using Twitter and Facebook to support their learning. Also mentioned were blogs, news websites, mobile phone applications, Google Documents, video recording, mind maps and forums to support of learning

- Participants were asked an open question to understand the student perspective on how online courses such as MOOCS, could offer added value to their learning. Almost half of the participants felt online education could only bring direct benefit in terms of the learning experience itself. Most of the participants agreed that online learning offers the flexibility to work from home and facilitate independent learning. Some of the participants believed online learning will make it easier to find relevant information for their course and will act as a good support for lectures especially during revision periods and when reviewing course content.

- The participants were asked a more specific series of questions in relation to their preferred characteristics for an online environment that would motivate them to learn better. 68% and 27% strongly agreed and agreed respectively that online learning environments should be accessible. 49% and 46% of participants strongly agreed and agreed respectively, that the online learning environment should be explorable and 70% strongly agreed that course content and navigation should be clear. When asked whether the course should be friendly, 44% of participants strongly agree and 46.34% of participants agreed with the statement. An average of 56% and 34% strongly agree and agree respectively that they need an interactive environment and 61% of participants strongly agree that online environments should be interesting. Lastly, 36% and 51% of participants strongly agreed and agreed respectively that feedback should be offered in online learning environments.

- The final indicator was to understand which technological tools students would select to best support their online learning. 81% of participants believe tools that will support the understanding of information (interpreting, summarizing, explaining and classifying) are the most beneficial, for example e-dictionaries, authoring tools and mind-map tools. 76% of participants feel tools that will support the memorization of information are important (i.e. recognizing, highlighting, bookmarking and listing), for example, video recording, tables, graphic tools, images and graphs. 54% of participants felt it is important to have tools that support them to evaluate the results of their analysis (i.e. checking, hypothesizing, critiquing, experimenting, judging and testing), for example shared documents, authoring tools, blogs, and social media websites. 49% of participants believed most important for them in online learning environments is to have tools to support the analysis of data (comparing, organizing, linking, deconstructing, integrating, validating), for example authoring tools, shared documents, tables, mind maps, e-portfolios and e-surveys. Next, 43% of participants selected the tools to support the application of information (implementing, carrying

out, uploading, editing), for example in blogs, Facebook, Twitter, authoring tools and online docks. Lastly, 27% of participants selected tools to support the creation of new data that rise from their study after their initial learning process (designing, posting, filming, constructing, planning, production, inventing and publishing) for example storytelling, shared documents, authoring tools, journals and presentations.

Conclusion

The analysis of the quantitative data from the first phase of the study has provided a general overview of the research problem. The results have provided insight into primary engagement factors that underpin motivation in relation to studying and learning. For example, as we might expect, it I possible to achieve improved levels of extrinsic motivation by providing challenging course materials and engaging tasks that are relevant to the students' learning expectations. The participants in this study also reflected a range of skills in the areas of planning, performance and self-evaluation of their learning. These become significantly positive traits when considered in the light of online study in MOOCs where self-regulation and self-efficacy are critical to success. Research has already shown that student self-efficacy is positively correlated with self-setting of goals and goal achievement (Zimmerman & Bandura, 1994). Although many students do plan their study, it appears advantageous to actively encourage all students participating in online learning environment to set learning goals. This positive study behaviour resonates with the finding that many of the students do evaluate their activities after completing a task.

The data analysis also indicated that good digital skills are recognised as fundamental for learning. In terms of the online learning environment, the participants proposed several attributes that promote students engagement and motivation. Most importantly, the learning environment should be fully accessible, clear and *interesting*. Additionally the participants indicated that any online course should be understandable. In other words that the course content should be available in forms that allow them to memorise it, to evaluate it, to support the analysis of the information, and facilitate the creation of new information. Our preliminary data also appears to indicate that intrinsic and extrinsic motivations can shift during the learning experience. Here, cognitive evaluation theory, which examines the factors in learning environments which cause variability specifically in intrinsic motivation (Ryan & Stiller, 1991), may help provide further insights into this affect. We also note that a sense of autonomy and competence in their learning can highly influence the student learning experience. During the second phase of this project more analysis, specifically through qualitative data collection, will follow around these domains of interest.

Most of the students responded positively when asked about the potential impact that following a MOOC-style curricula could have on their learning. At this stage, there is some confidence that the level of abilities reported in the three phases of the learning process (*forethought*, *performance* and *self-evaluation*) can be transferred to have a positive impact on successful online study (e.g. via MOOCs), particularly where it may be used as a supplemental study activity. The second phase of the project will further determine to what extent MOOCs

may provide positive motivation, to enhance student engagement and develop confidence in their core higher education studies.

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Acknowledgements