HOW DIGITAL TECHNOLOGIES, BLENDED LEARNING AND MOOCS WILL IMPACT THE FUTURE OF HIGHER EDUCATION

Neil P. Morris

School Of Education, University Of Leeds, Leeds, Ls2 9jt, UK

ABSTRACT

Digital technologies are revolutionizing all parts of society, including higher education. Universities are rapidly adapting to the prevalence of staff and student mobile devices, digital tools and services on campus, and are developing strategies to harness these technologies to enhance student learning. In this paper, I explore the use of digital technologies to support blended learning in universities, and discuss how massive open online courses (MOOCs) can be improved through better understanding of successful use of technology, communication and collaboration in such scenarios.

KEYWORDS

Blended learning, higher education, learning, digital technology, online courses, students.

1. INTRODUCTION

The academic community has largely accepted PowerPoint and Virtual Learning Environments essential tools of the trade, but we face new opportunities and challenges. For example, our students are bringing mobile devices into the classroom and using them to access information and communicate, and we have lecture capture systems recording our classes. Massive Open Online Courses (MOOCs) are available to our students to supplement their learning and personalised learning environments and use of learning analytics are set to transform education. There are expectations from our students of a blended education and expectations from governments and policy makers of increased integration of technology in our approach to education. All of these issues provoke vociferous discussion in academic settings, as we all grapple with the rapidly changing landscape of learning in a digital age.

In this paper, I will explore the nature of these changes, the implications for teachers and students and the challenges and benefits of a holistic approach to digital learning for a modern university. I will also look forward to the future of education in our connected society.

2. THE ERA OF THE DIGITAL STRATEGY

The nature of student education is changing. Information is easily accessible via the Internet on PCs, laptops and mobile devices, and the challenge for teachers has shifted from one of information transfer to a role supporting students to curate, filter and critique information, and use it to solve real-life problems. This shift has been rapid and unprecedented. The notion of the lecturer as the custodian of knowledge is hard to overturn, particularly when the alternative means re-thinking curriculum design, teaching delivery, student activities, assessment and feedback. But we must adapt the ways that students are taught and learn in Higher Education as this will impact on their skills, competencies and ability to contribute effectively in a digital workplace and society. The world is now digital and higher education must reflect this, and indeed should be at the vanguard of the revolution leading the way for other sectors to follow.

Many universities are recognizing (at a senior level) the need to revolutionize higher education in this changing landscape, with many introducing 'e-learning', 'blended learning' and more recently 'digital' strategies to support the changes in curriculum design, academic practice, infrastructure and training and

support necessary to deliver higher education in a digital age (Garrison & Kanuka 2004). Take for example the author's institution, which has a 'Digital strategy for student education' and a 'Blended learning strategy'; the former sets the overall agenda for the digital ecosystem at the University, prioritizing investment in seamless, user-focused content, tools and services to support education and student services. The blended learning strategy sets the pedagogical framework for appropriate use of online resources, technologies and tools to support face-to-face interaction between students and teachers. In combination, these strategies position the University as an open, content-rich, digitally connected environment where face-to-face interaction is supported by online multimedia content, digital tools and services. In this environment, teaching spaces are digitally equipped, and the VLE is just one of a range of online tools for providing students with learning resources and opportunities for interaction and collaboration. External digital learning channels are well populated with openly available content, and the University is offering the full range of face-to-face, blended and fully online courses.

3. BLENDED LEARNING APPROACHES

Staff in universities are using an increasing number of digital approaches to support student learning, drawing on a growing pedagogical literature evidencing the effectiveness of technology to enhance learning outcomes, student engagement and enjoyment (Sharpe et al. 2006). The following approaches are growing in use within universities by both staff and students: event capture, mobile learning, mobile voting, eBooks, social media, e-assessment and use of open educational resources. Each has its own literature base expounding the benefits and challenges of adoption for teachers and students, and all are supported by a plethora of technical solutions. As we continue to understand the potential of the connected web to support and enhance learning, students and teachers will expand their use of participatory, collaborative and networked learning approaches.

The availability of these blended learning approaches has reignited the debate about the most appropriate sequence of events when supporting students to acquire new knowledge, skills or competencies. Advances in technology and online repositories have made the concept of the 'flipped classroom' a realistic and viable option for the majority of educators (Sams & Bergmann 2013). In essence, the flipped classroom overturns the traditional sequence of events and requires students to engage in conceptual understanding of key facts and information using online resources and tools prior to interacting with educators and learning mentors. Imagine a course where the traditional 'lectures' have been digitized using an event capture system, edited into chunks or bite sized learning units and provided to students online with some introductory materials, instructions and opportunities for online interaction and discussion between learners. The original lecture time is replaced with tutorial or seminar style sessions where students undertake problem solving, discussion, Q&A or other collaborative activities using mobile devices, to reinforce understanding, challenge misconceptions and deepen knowledge; a very active learning approach.

A holistic, seamless and well-integrated blended learning approach using pedagogically appropriate tools can enhance student learning and the quality of the student experience. Combining the flipped classroom approach with integrated use of mobile devices containing multimedia interactive eBooks and apps to support learning, along with access to online learning resources and tools for student collaboration and interactivity would satisfy many educators and students. However, this solution brings with it a number of challenges, including digital fluency, technical skills and factors affecting the adoption of technology, including perceived ease of use and usefulness (Venkatesh et al. 2003).

4. HOW MOOCS CAN LEARN FROM BLENDED LEARNING

Since 2008, Massive Open Online Courses (MOOCs) have dominated the higher education headlines, with promises of educational revolution and global learning, and worries about the end of physical universities, an abundance of cheating and plagiarism, and superficial education. None of these prophecies have yet materialized, but MOOCs offered on the major xMOOC platforms (e.g. Coursera, Edx, Futurelearn) have gained a seat at the table of higher education, as one of a number of routes available to learners, alongside blended learning, face-to-face and traditional distance courses. However, there is room for considerable

improvement in the pedagogy of massive open online courses as they evolve and morph (Siemens 2013), drawing on the experience gained in distance education and blended learning.

MOOCs that engage, stimulate and provoke learners to meet their learning goals require consideration and understanding of the following elements: (1) course design, navigation and accessibility (learning design); (2) participants' learning goals, pre-requisite knowledge and digital literacy skills (learner skills) (3) opportunities for interactivity, communication and collaboration between learners and with subject experts within the course (social learning); and (4) the methods of assessment and feedback (learner outcomes). These are critical elements of well-designed traditional face-to-face, blended and online courses, but there is one key difference: MOOCs attract an audience which is often not predefined, from 16 year old school students, current undergraduate and postgraduate students, through to professionals and leisure learners. MOOC participants are all at different levels trying to reach a clear learning goal from the same materials within a defined learner journey.

It has become clear that the majority of MOOCs attract well-qualified, professionals seeking to learn something new. However, most courses have very low retention figures with high drop-out rates early in the course (Koller et al. 2013), which probably results from a combination of the following factors: (i) curious learners with no intention to complete, (ii) learners who only needed or wanted one aspect of the material to meet their learning goal, (iii) learners with good intentions but lack of time or commitment to study online, (iv) disengaging learners who were taught in a face-to-face environment who struggle to transition to an online environment and (v) learners who do not respond well to the teaching style (be that didactic or participatory). Clearly, future online courses will need to address these issues to encourage a greater proportion of participants to stick with the course through to the end, in order to achieve the course's learning outcomes. It is worth noting that most face-to-face, blended and wholly online courses normally offer learners support to make the most effective use of the resources e.g. course map, learning journey etc. and provide study skills advice about how to study effectively online e.g. how to communicate, how to learn from multimedia resources, how to provide peer feedback etc. (Morris et al. 2014). The majority of MOOCs do not offer this support to learners, and it may be a contributing factor in the large dropout rates observed.

The constructivist or 'c' MOOC encourages learner centered, non-linear learning experiences where problems, ideas and solutions are developed through sharing the best of the web, creating materials and communicating through a variety of channels, including social media networks (Brennan 2013). However, the cMOOC is seen as inaccessible or daunting to some learners, particularly those lacking expertise in the subject or lacking confidence and skills in a digital environment. The answer, the xMOOC, where the focus is on tutor-generated content, a linear learning experience and more structured opportunities for communication, appeals more to the masses, but may not offer the best deep learning experience, due to lack of active and participatory learning.

It is rapidly becoming apparent that the distinctions of c- and xMOOC are unhelpful, and the challenge to MOOC developers is to offer the best of both scenarios, so that the subject expert and the learners contribute problems, ideas and solutions equally, using the best of the web and through creation of digital materials, and offering opportunities for rich conversation in structured, accessible and appropriate ways for learners with differing needs. Conversation drives learning, through clarifying understanding, problem-solving, building mental representations and fostering deep learning (Laurillard 2002), and this must be better represented in online courses. The challenge for MOOCs, and indeed any online learning opportunity, is to provide learners with regular, authentic, accessible, and structured opportunities to engage in conversation with other learners about the course materials supported by subject experts.

5. FUTURE OF ONLINE LEARNING

Laurillard has recently argued that learning technologies are "hopelessly underexplored" (Laurillard 2014), due to the fact that most online learning experiences don't take account of the theories that underpin effective education. Therefore, we should now begin to explore the potential of learning technologies to offer a participatory, active, networked and personalized online learning experience that delivers real improvements in learning for learners at all levels, and with differing learning needs.

MOOCs could offer high quality learning experiences for all types of learners, but at present they are too linear and one dimensional to fit the needs of all participants. So, let's consider a MOOC that adapts to the

individual. In order for this to happen, the platform will need to understand the learner in advance of the course. This information could come from a pre-course survey, in which the participant reports on the experiences, prior modes of learning, social learning preferences etc., or the system could interpret their behaviors from analysis of their social networks, if the participant provides account details for Facebook, Twitter, Google etc. upon registration. Algorithmic and social network analysis could be used to predict if the participant is likely to prefer a teacher-focused or learner-focused experience, adjusting their participatory exercises accordingly. Once the course has begun, learner analytics should dynamically adjust the learning experience, based on the participants' behavior (e.g. choice of media format, page navigation, dwell times, social activity), constantly checking with the participant that the changes are suitable. In this way, participants will receive a personalized and dynamic online learning experience suited to their preferences, which would be likely to enhance their engagement, enjoyment and ultimately the quality of their learning.

Of course, this model doesn't address the challenge of effective participatory and collaborative learning at scale, with thousands of learners and only a few tutors. Many have argued that this is a fundamental flaw of MOOCs, but given that many courses have well qualified professionals enrolled and participating, it may be possible to use their collective knowledge to mentor and support other learners, in a similar way that discussion forums use validated expert contributors to answer questions.

6. CONCLUSION

In this paper, I have explored the current use of digital technologies in blended learning approaches, and outlined their benefits and challenges. I have also attempted to suggest how massive open online courses could be improved, by drawing out proven benefits of blended learning which could be applied to such courses, and I have described how online courses might evolve in the future to capitalize on learner analytics and personalization. Of course, massive open online courses are only one route for learners to enrich their learning online, and they must evolve to cater for individuals with differing goals, background and skills if they are to have a long-term future for the masses.

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