

Experiential online development for educators: The example of the Carpe Diem MOOC

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This article has been submitted for review to a special issue on MOOCs in the British Journal of Educational Technology (BJET) entitled 'Massive Open Online Courses (MOOCs): 'disrupting' teaching and learning practices in higher education'. The version reproduced here, with the permission of the publisher, is the pre-peer-reviewed version. It may vary substantially from the definitive version to appear in the journal.

Abstract We report on educators' experiences of a Massive Open Online Course (MOOC) focussed on the 'Carpe Diem' learning design process. The MOOC was developed in-house using Blackboard CourseSites by a university innovation and development unit, Learning Transformations, at Swinburne University Technology in Melbourne, Australia. We propose the potential of MOOCs as an opportunity to expose university academics who are taking part as participants in online learning to constructively change their teaching practice. We report on a study of their experiences with the Carpe Diem MOOC. Conclusions include illumination of MOOCs' value as professional development opportunities that can provide an authentic relevant experience for educators as well as promote new skills in learning design and delivery for their own teaching.

Practitioner notes

What is known about this topic

- Take-up of acceptable and effective professional development to address changes in academic practice in universities is challenging and progress is typically slow.
- Massive Open Online Courses (MOOCs) are becoming more commonplace in higher education.

What this paper adds

- MOOCs offer a new way of providing relevant, authentic and experiential academic development
- Explores best practice for implementation for a MOOC as a form of professional development.

Implications for practice

- Academics appreciate grounded experiential development through MOOCs and may, as a result adopt constructive and useful changes in their practice

Keywords

MOOCs, learning design, e-tivities, Carpe Diem, CourseSites, experiential learning, professional development

Carpe Diem context: Professional development for online and technology-enhanced learning

Educational institutions currently face a critical shift as students engage in more informal learning, access free and open courses, constantly use devices connected to the Web, download mobile applications (apps), and find information, regardless of whether or not they also attend campus (Daniel, 2012; Handal, MacNish, & Petocz,

2013; Porter, Graham, Spring, & Welch, 2014). However, in parallel, enabling academic staff to constructively but rapidly adopt innovative design and delivery of online learning, teaching and assessment is becoming a pressing and challenging issue in all universities across the world (Gregory & Salmon, 2013; Herman, 2012; Moe, 2014; Rizvi, Donnelly, & Barber, 2013; Voss, 2013).

Even when there are highly capable and committed academics working in universities with sufficient resources, the impact of professional development to date in new learning design and delivery has been slow (Lion & Stark, 2010). Creating a sense of urgency and interest amongst a large group of people is a critical factor in successfully achieving desirable change (Kotter, 2008). As Laurillard (2013) points out:

If there is a solution to be found, it will come from the teaching community collaborating to design, test, improve and share the pedagogies that achieve high quality student support and attainment on the large scale. To do it, we need all the attributes of learning design.

All higher education institutions are building training and development for academic staff, and some are recognising the need for a focus on the design of online, blended and mobile learning. However, there are continuing challenges to achieving viable, acceptable and scalable change in practice (Senge et al., 2014; Tyner, 2014) within rapidly changing external and technological environments.

By 2013-2014, MOOCs were becoming extremely wide-ranging (Mitchell, 2014), however, there was a lack of evidence to support the theory that academic staff involvement in MOOCs could directly promote changes in teaching practice (King et al., 2014). Some concepts were emerging at the time: for example, that MOOCs might somehow influence and improve campus-based education, i.e. a more modest but perhaps longer-term outcome beyond the ‘disruption’ or ‘game-changer’ hype (Christensen & Horn, 2013; Kassabian, 2014). At Swinburne University of Technology, there was a move towards delivering professional development online (Gregory & Salmon, 2013). For this reason, we wanted to investigate whether staff participation in a MOOC using a highly relevant and authentic topic – fast, collaborative learning design – could contribute to transformation (Gaebel, 2014) by promoting innovation in academic practice.

About Carpe Diem learning design

The Carpe Diem learning design process has been researched and developed over some 14 years (Salmon, 2014a) to serve several purposes. First, to enable academics to work in small multi-professional collaborative teams to embrace forward-looking learning design in a fast and effective manner, and appreciate the benefits of designing for learning rather than lone ‘writing’ of e-learning courses (Betts & Heaston, 2014). Second, to raise academics’ awareness of the potential of new approaches to student-centred deployment of learning technologies in their teaching; and third, to secure appropriate support for sustainable and innovative change in their teaching practices (Salmon, 2013; Salmon & Wright, 2014).

During 2013, a variety of efforts were made to increase the opportunities and widen the reach of Carpe Diem, including the publication of a Creative Commons licensed Carpe Diem Handbook (gillysalmon.com/carpe-diem). We were inspired by the idea of offering very different approaches to professional development (eg. Brock et al., 2014; Guàrdia, Maina, & Sangrà, 2013; McAndrew, 2013; Purser, Towndrow, & Aranguiz, 2013) and of MOOCs as providing an experience of online learning (Chen, 2013; Ghobrial, 2013). We aimed to make the experience as authentic and engaging as we could (Herrington, Reeves, & Oliver, 2014) and to promote the increased understanding and the deployment of Carpe Diem methodologies. Swinburne University of Technology had previously offered student-facing, knowledge-focussed MOOCs (open2study.com), but wished to explore the potential of MOOCs for contributing to the development of educators and their ability to embrace new learning designs. In late 2013, we took the decision to provide a MOOC based on the Carpe Diem learning design process, using the Blackboard Learning Management System (LMS) with which we, and many other higher education academics were familiar (www.coursesites.com).

The Carpe Diem MOOC Design

Throughout the design process of the Carpe Diem MOOC (CD MOOC), we kept three key intentions in mind:

- 1 To provide a viable, engaging online experience for educators, promote collaboration and support across disciplines, sectors and professionals, and enable the use of newer technologies including social media (Beetham & Sharpe, 2013; Donnelly & McSweeney, 2009; Johnson et al., 2013);
- 2 To provide an embedded experience of engaging with Carpe Diem methods of learning design, and demonstrate well-rehearsed and easily adopted approaches, including e-tivities and the Five-Stage Model as a pedagogical scaffold (Salmon, 2011, 2013); and
- 3 To explore whether a MOOC experience could offer a way of expanding knowledge and translate to practice for technology-enhanced learning design.

The content of the CD MOOC was based on the six stages of the Carpe Diem process: write a blueprint, design a storyboard, build a prototype, reality check, review and adjust, and build an action plan (Salmon, 2014b). We designed the CD MOOC to embrace scaffolding opportunities for team work (Salmon, 2013), peer review (Thomas, Chie, Abraham, Raj, & Beh, 2014) and light motivation and representation of achievement through digital badging (Abramovich, Schunn, & Higashi, 2013; Alberts, 2010; Deterding, 2011; Lokuge Dona, Gregory, Salmon, & Pechenkina, under review). Each group of approximately 30 MOOC participants was guided by an e-moderator who provided support to participants over the six week period.

The CD MOOC study

In total, 1426 people registered for the CD MOOC, with 1022 commencing in March 2014. The global cohort comprised a majority of participants from Australia – the country hosting the CD MOOC – followed by the United Kingdom, New Zealand, Malaysia and the United States.

A post-CD MOOC questionnaire was completed anonymously by 155 participants. The questionnaire consisted of six five-point Likert scale question statements and two open-ended questions designed to gather additional feedback, as well as participant demographics questions. We were also invited to use a blog by one participant who made this site known to us via the questionnaire. As the data used in this study comprised responses from the 155 participants who completed the course, the size and specificity of the cohort should be taken into account when assessing the demographic data provided in Tables 1 to 4 below.

The age range of participants, given in Table 1, reveals that the largest group at 37% were aged between 46 and 55 years of age. The second largest group was those aged between 36 and 45, accounting for 27% of all participants.

Table 1: The age ranges of CD MOOC participants

Age range	Percentage
26-35	11
36-45	27
46-55	37
56+	25

We compared our results with an analysis of 35,000 enrolled Coursera students (Christensen et al., 2013) where approximately 40% of MOOC participants were under the age of 30. The students reported on in Christensen et al.'s (2013) study were enrolled in Coursera courses offered by the University of Pennsylvania as part of its Open Learning Initiative. Students who had watched at least one lecture online were counted. Essentially the CD MOOC participants were older than the typical Coursera MOOC, reflecting the interest from adult working educators.

The gender division of CD MOOC participants given in Table 2 show that 67% of all participants were female. These results also differ considerably from Christensen et al.'s (2013) findings where 43.1% of participants were female.

Table 2: Gender distribution of CD MOOC participants

Gender	Percentage
Female	67
Male	33

Christensen et al.’s analysis of the Coursera students found that 79.4% of students held a bachelor degree or higher. The CD MOOC attracted even higher qualified participants. Our MOOC was pitched at, and clearly appealed to, academics and educators. Over three quarters of the participants held post-graduate qualifications (Table 3).

Table 3: Levels of education held by CD MOOC participants

Level	Percentage
Bachelor	14
Postgraduate	78
Other	8

Table 4 reveals that approximately three quarters of the CD MOOC participants were in full-time employment, while a fifth was employed part-time. These findings contrast with those of Christensen et al. (2013) where approximately half of all participants were in full-time employment. The CD MOOC recruited working educators, most within higher education.

Table 4: Employment status of CD MOOC participants

Employment	Percentage
Full time	73
Part time	20
Retired	4
Student	2
Other	1

Findings

The CD MOOC data was examined based on the three main intentions of the MOOC, and accordingly, the findings are presented in three parts. The first key intention explores how well the MOOC provided a viable and engaging online experience for the educators participating in the course. The second key intention examines whether the MOOC provided an embedded experience of engaging with Carpe Diem methods, and how these may be adopted in the participants’ approaches to teaching. The third key intention investigates whether the CD MOOC experience and knowledge was taken up by the course participants and used in their own practice. We further provide evidence of institutional collaboration between participants as a result of the CD MOOC.

Key intention 1: To provide a viable, engaging online experience for educators

Participants typically enjoyed collaborating and sharing with peers and felt this engagement to be the most useful aspect of the CD MOOC. Some “liked the community discussion forum which expanded the discussion to the whole learning community instead of a small group”, while others appreciated the diversity of the learning community cohort, stating that they “really enjoyed participating online with like-minded people across the world with a common goal” and also that they “enjoyed the international quality of the participants”. Another participant’s experience, however, was that “collaboration was very poor, although the general community forum compensated for that”. One participant commented on the international aspect, that “the synchronous collaboration times were good, although due to time zones, I only attended two” but “introduction to new people and tools” offered compensation for this. Note that this comment refers to the ‘Carpe Horam’ – sessions which took place in real time, using the Blackboard Collaborate virtual classroom – rather than the asynchronous discussion and collaboration that took place on forums and boards.

Some participants noted that sustained collaboration with others was challenging due to group members unexpectedly dropping out. However, there were benefits for participants who were motivated to persevere. One participant stated that despite being very slow to establish itself, the “group discussion was the most useful way for my learning”. Another participant also reflected on the issue of MOOC learners’ attrition affecting the collaboration process that, as with most MOOCs, many learners disappear from the MOOC and collaboration therefore dies down... “there was an ...attrition of members and so there were fewer and fewer participants to draw on to collaborate and learn with/from”. Hence, some participants found the variability of others’ contributions and dropout rates a hindrance to their successful participation in the CD MOOC. One participant had the experience that at first, “the small group forum/collaboration was useful and engaging, [but] this did not continue in subsequent weeks” making “learning much more individual and isolating”. This particular participant found “the MOOC Community forum too big and impersonal”. Several participants mentioned issues with large numbers, stating that “maybe due to large participation numbers [the CD MOOC] didn't engage with individual students” and that “the ‘Carpe Horam’ Collaborate sessions were very good to alleviate some of the uncertainties I experienced but [I] didn't have adequate confidence to post a question in this large space”. One participant spoke of the reality of engaging with those that remained: “I had heard about the drop out percentages in MOOC” but found that “the few team members who remained kept me engaged”. These issues are relevant to all MOOC designers and will inform our future work in this arena.

Participants rarely commented on the use of technology or whether they had gained new technical skills, although one of the few comments was that “learning from peers and using learning platforms such as discussion boards, wikis, MOOCs and others enhanced this [Carpe Diem] process and helped make this happen”. It is likely that the educators participating in the MOOC were reasonably familiar with the environment and therefore, it did not provide a steep learning curve. Another participant who works in learning design “enjoyed both experiencing and learning about and using new online learning design tools”. One participant offered advice regarding the technology in Carpe Diem, recommending that the use of a wiki would be better than using the discussion forum to build group consensus. Interestingly though, this participant reported that the experience had provided them with “a learning point for designing [their] future e-tivities”. For us, it confirmed that it was particularly worthwhile using an LMS that our target cohort felt comfortable with, thereby avoiding the usual amount of time and effort required for developing familiarity with the tools.

The use of social media in connection with the MOOC was rarely commented on by participants, though one participant stated that they enjoyed using “the Editor Tools in Blackboard allowing social media content as resources”. Another participant explained that they had joined the CD MOOC Facebook page, and were following its Twitter account in order to keep in touch with other participants and be informed about the discussion around this course. In this instance, the Facebook page was found to be helpful, but the use of Twitter did not work as the participant was not accustomed with this form of social media.

Participants assessed certain elements of the MOOC as particularly valuable and worthwhile – these were e-tivities, videos, online resources and digital badges. These results are presented in Tables 5 to 8 below. All questionnaire responses ranged from “Strongly agree” to “Strongly disagree” on a five-point Likert scale. Blank responses were deleted from the total count for the results presented below, however all partial responses were included.

Participants were asked whether they found the videos informative and relevant to the course, of which 85% agreed or strongly agreed, as shown in Table 5. These quantitative results confirm the open-ended questionnaire responses, where many participants listed the videos as the most useful aspect of the course, with one stating that “more video material could have been useful”. Another participant “was interested in the design process and found the videos and e-tivities very useful”, adding that they would use them in their own future work. Despite the huge effort put into the collaborative learning design for the MOOC, we were a little surprised that the participants seemed to value the videos above all the resources. This indication of popularity provided strong support for ensuring that these resources were widely available and accessible on Swinburne Commons and YouTube.

Table 5: Participants' attitudes to the videos

Videos are informative and relevant to the course	Percentage n=153
Strongly agree	39
Agree	46
Neither agree nor disagree	10
Disagree	3
Strongly disagree	1
No response	1

Participants were asked whether they found the online resources (such as the Carpe Diem handbook, e-tivity templates and various help guides on relevant learning technologies and web applications) helpful and suitable to the course. As presented in Table 6, participants valued the online resources, with 87% agreeing and strongly agreeing with the statement that they were helpful and suitable to the course.

Table 6: Participants' attitudes to the online resources

Resources are helpful and suitable to the course	Percentage n=153
Strongly agree	39
Agree	48
Neither agree nor disagree	7
Disagree	4
Strongly disagree	1
No response	1

In response to the question of whether participants enjoyed having the option of earning badges, 75% of participants agreed or strongly agreed, as shown in Table 7. The open-ended questionnaire responses confirmed this finding, with comments including, "I like the 'earn badges' aspect which serves as an extrinsic motivation to all the participants to submit their homework". The link between badges and motivation was a common theme in the questionnaire responses, with comments such as "badges have really kept me motivated", and "earning badges is a good way of motivating and encouraging". For further discussion of the effects of badges on motivation and MOOC completion, see Lokuge Dona et al. (under review).

Table 7: Participants' attitudes to earning badges

Enjoyed being able to earn badges	Percentage n=153
Strongly agree	41
Agree	34
Neither agree nor disagree	18
Disagree	3
Strongly disagree	2
No response	2

The opportunity to take part in a collaborative online course was considered by many to be valuable to the subsequent design of online or blended courses within their own practice. One participant reflected that "the most useful aspect by far was the opportunity to be a learner in the online environment". This particular participant will be designing and implementing blended learning courses for the first time this year, and they found the opportunity to be 'in the shoes' of the student invaluable. Another participant, who may not necessarily get the opportunity to plan a fully online course in the near future, will instead apply what they learned to their blended teaching by integrating online and classroom activities. We conclude that the MOOC was seen as a valuable, relevant experiential and authentic learning experience for the majority of participants supporting the concept that being an online learner contributes to an academic's professional development of

becoming a technology-enabled designer or teacher. However, there were expectations of MOOCs too - particularly the ability to drop in and out at will and the valuing of online freely available resources such as short videos.

Key intention 2: To provide an embedded experience of engaging with Carpe Diem methods and easily adopted pedagogical approaches

Many participants engaged positively with the Carpe Diem learning design process and course materials, reflecting that they “really love the content and this method of learning design”, and that “it's simple, straight to the point and best of all fun!”. One participant stated that they “thought it was a course with something to teach first and foremost” and that “the Carpe Diem approach is useful for educators looking to develop online learning” due to “the practical learn-by-doing method.” Another participant commented that they were “inspired to write a MOOC” and reflected that “without your course I would never have felt confident and competent enough to even dream of it”, adding that “it will be so helpful for others when the rest of higher education catches onto online learning!”. These positive comments suggest that the well-rehearsed and researched pedagogical methods will be adopted beyond the conclusion of the CD MOOC.

Over a quarter of the participants stated that the e-tivities improved their understanding of the Carpe Diem learning design process. One participant commented that “without doubt the e-tivities [were the most useful], hands-on learning, engaging with peers from discussion forums and exploration of online tools - all helped in getting the Carpe Diem concepts ingrained!”. Some, however, found the e-tivities too easy, with one participant stating that they “found it hard that most of the MOOC e-tivities were so overly simple”. Another participant commented on his blog that “the e-tivities were engaging and easy to participate and contribute to”, were “very light hearted but had meaning”, and that they were ideal for online learning. Importantly, participants found the e-tivities relevant and useful to their own practice. One stated, “I was able to connect the e-tivities with my daily practice. As a result, they were very meaningful for me”.

Encouragingly, participants expressed that participating in e-tivities improved teaching practices immediately, with comments such as “the e-tivities were useful, and have already improved my course design”, that the experience “had been useful in helping [to] better understand different dimensions to consider when designing an activity”, and that it was “a learning point for designing [their] future e-tivities”. One participant, who was planning to incorporate e-tivities into their own practice, stated “E-tivities - good to have more practice. I had intended to develop e-tivities to use with my [...] class next semester so the practice is invaluable to me. Also I liked the template which I will continue to use”. Another commented, “I was interested in the design process and found the videos and e-tivities very useful and will take them into my own work”.

As part of the CD MOOC questionnaire, participants were asked whether they found the e-tivities to be engaging and worthwhile. Table 8 shows that 81% of surveyed participants agree or strongly agree that the e-tivities were engaging and worthwhile. Although e-tivities have been utilised for over ten years (Salmon, 2002), the CD MOOC was the first opportunity to implement them within a MOOC on a large scale to over 1000 educators. As such, this provided a unique opportunity to deliver innovative professional development.

Table 8: Participants' attitudes to e-tivities

E-tivities are engaging and worthwhile	Percentage n=153
Strongly agree	30
Agree	52
Neither agree nor disagree	11
Disagree	6
Strongly disagree	1

A number of participants commented on the Five-Stage Model, introduced over a decade ago (Salmon, 2000, 2004, 2011), as being a positive method of guiding learners through online and blended courses, and could be

valuable for the learning design of their own units in the future. One participant stated that they found “the basic scaffolding concept of the Five-Stage Model really helpful, not only in the online learning but also in other types of learning plans”. Another enjoyed “the ordered nature of the five stages, the structured building of a MOOC, the emphasis on student centred learning and the reality checker feedback to culminate into a workable ... plan”. The MOOC made the Five-Stage Model available en masse to participants, who were then able to adapt or contextualise the model to suit their own purposes.

Participants commonly stated that they had gained valuable knowledge of the Carpe Diem process, and were looking forward to using it in their own future design of online courses, and further disseminate the Carpe Diem process to others in their professional circles. Comments given include: “I think it will be very useful when designing a new course for my organisation” and “learning the Carpe Diem methodology has been very useful. I'm looking forward to using it in the future to design a test online course for construction professionals”. One participant commented that “being a participant is a reality check on how to plan similar activities”. Further comments included that the participant “took a lot from it [the MOOC] which I will use for my own planning and designing activities and share with my organisation”, with another stating that “learning about the Carpe Diem process will be useful for my day job when it comes to designing online courses and helping teaching staff design them themselves”. This feedback shows that the CD MOOC has the potential to successfully influence or embed the Carpe Diem process into a participant's teaching practice. We conclude that MOOCs are a valuable, new approach to introduce and demonstrate established pedagogical techniques and frameworks to academics.

Key intention 3: To explore whether a MOOC experience could translate to practice in technology-enhanced learning design

The underlying question throughout our research was whether the participants' experiences with the CD MOOC learning process has impacted their own academic teaching practice, and if so, to what extent. The number of free and accessible MOOCs focusing on training academics to teach online and develop their own online courses is growing.

Due to the specificity of the CD MOOC appeal and the uniqueness of the cohort of participants it attracted, our learners were perhaps already pre-disposed to take away the elements of the CD MOOC that they found the most useful, and apply those elements to their own practice. For example, in the questionnaire, participants wrote about implementing the Carpe Diem planning and design activities in their classrooms, while others mentioned using digital badges as an additional motivational component in their teaching.

It has not currently been determined whether participants have indeed gone on to apply what they have learned to their own learning design and the development of their teaching since finishing the CD MOOC. Such evaluation is notoriously difficult to determine (Guskey, 2000), although we intend to continue to treat the MOOC experience as a process and pursue investigations to understand its ongoing impact. However, the participants' questionnaire responses did shed some light on whether they themselves anticipated any long-lasting effects from the CD MOOC in their own practice. The findings discussed here are based on the analysis of data collected via the online questionnaire.

Overall, participants assessed the technological aspects of the CD MOOC as successful. They enjoyed learning and using motivational tools such as discussion boards, wikis and digital badges. While CD MOOC aspects such as group collaboration and peer engagement emerged as the most popular among the participants, cohort diversity, group cohesion, and the opportunity to work alongside international colleagues were all particularly commended. Others reported that their group work experience was negatively affected by drop-out rates and the resultant group inactivity. The CD MOOC process, like all other MOOCs, suffered from the inevitable casual approach to commitment from many participants. This proved to be a problem where we were attempting to demonstrate how to motivate and engage learners in group work and knowledge construction. Essentially, the MOOC experience may have tainted rather than promoted online group work.

Some participants were looking for even more clearly defined and specific structures than were offered, while some experienced confusion in navigating the CourseSites LMS/Virtual Learning Environment. Others were unsure as to what the MOOC e-moderators expected of them, or stated that they had expected more from these facilitators. One participant said that she “didn't understand what [they] needed to do and without a facilitator driving the group to reach consensus [they] felt overwhelmed, very behind and just made a decision not to continue”. Hence, a presence of engaged and highly skilled e-moderators could be a crucial driver of participant success where participants are used to having teacher support and direction.

However, many participants commented on how they planned to use what they had learnt in the CD MOOC for their own teaching practice, with some stating that they planned to promote the Carpe Diem method or the pedagogical frameworks to other teaching professionals in their collegial circles. These intentions to knowledge share are interpreted as an indication that the MOOC was successful in achieving its aim of disseminating the Carpe Diem process, and perhaps in having direct positive impact on academic practices in future.

Institutional collaboration of CD MOOC participants

Institutional collaboration via participation in the CD MOOC was not an anticipated outcome, however several groups worldwide used the MOOC as a means to promote local support and change in their professional development and academic practice. At the host institution, Swinburne University of Technology, 101 staff from the Melbourne and Malaysian campuses enrolled to take part, predominantly academics with some information specialists and learning technologists. The MOOC created what one participant described as a ‘buzz’ across the institution, making Carpe Diem frameworks a topic of conversation. Some participants started networking and meeting in person as a result of the MOOC to support them in applying the concepts in their own teaching.

From the University of New England, a group of educators participated as a team and are currently integrating elements of the Carpe Diem process into their professional development space, which caters for a diverse team. Another group that enrolled in the MOOC with the intention of taking part as a team was from the Sri Lanka Institute of Advanced Technological Education (SLIATE), which comprised of ten participants who treated the CD MOOC as a professional development exercise. For many of these participants, the concept of a MOOC was new. There are already several reported outcomes, with SLIATE participants currently conducting research and trials into how MOOCs can be used as a professional development environment, with support from the Education Ministry. Further outcomes are that they are using the Carpe Diem principles for designing units for students (Warusawitharana, 2014, July 13). At Massey University in New Zealand, a collaborative group was formed. Local organisers initially reported that whilst some staff were a little ‘bewildered by the concept of co-creating knowledge or by online group work’, others were ‘determined to complete and out to get every badge’. The academic developers organised local meetings where they discussed topics such as how to use the Five-Stage Model in courses, and how to deploy learning outcomes in course design.

Conclusions: MOOCs for the development of academics

The growing MOOC literature acknowledges that, with a few exceptions, MOOCs bring an impetus of reform, research and innovation to universities from a variety of policy, business and pedagogical perspectives (Department for Business Innovation and Skills, 2013). However, one key element as yet unacknowledged is that MOOCs provide an easily scalable and effective means of exposing university academics and professional staff to the experience of learning online, to research, collaborate and potentially change practice on a wide scale. We believe we have demonstrated that this extraordinary potential is as yet untapped, and may ultimately be the best game changer.

In the case presented here, the MOOC has allowed for large-scale dissemination of knowledge and skills to participants, and provided participants with a model of easily established pedagogical frameworks and well-rehearsed and researched learning design processes. A MOOC offers a fresh, useful and embedded way of engaging with popular and established pedagogical models for participants who are both new and experienced

academics. Whether or not it is feasible to use a MOOC, to enable sustained changes in teaching practice, is an area for future research.

The CD MOOC enabled participants who were based in the same institution to establish networks, and use the online learning process as a vehicle for shared understanding, working together and sustaining their ability to apply concepts. Ultimately the group work experience was a motivator and pathfinder for contextualising participants' learning, and directly and collectively impacting on their teaching practice. We recommend that this opportunity be built into future MOOCs aimed at educators. In addition, we propose that a friend finder, either based on shared interest or co-location, be offered to enable participants to form groups. Future professional development MOOCs may also be offered directly to staff development units, in addition to individuals.

We tentatively conclude that MOOCs as a professional development opportunity can scale, expand, and illuminate a wider approach beyond the educator's own regular experience, enabling new and experienced academics and teachers of all kinds to benefit from well researched and well-rehearsed, successful, online learning design and delivery techniques and methods. Educators can use their MOOC experiences to improve their on-campus, blended, and mobile teaching, and by the continuing provision of resources, share and apply knowledge in their own networks. This is authentic, experiential academic development for the future.

Ethics

All data used in this study was de-identified to ensure the confidential and anonymous treatment of participants' data. The project was approved for human research ethics by 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 MOOC or the Graduate Certificate in Learning and Teaching, which is offered by the Swinburne University of Technology and which some participants may have later enrolled in, and by de-identifying the participant data prior to researchers accessing the primary data. 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.

Acknowledgments

The authors would like to thank all the CD MOOC team at Swinburne University of Technology for their dedication, all participants for their collaboration and feedback, researchers Drs Ekaterina Pechenkina and Anne-Marie Chase for their data analysis, and Linden Clarke for her support in editing. We would also like to specially thank colleagues and participants from the University of New England, Australia, Massey University, New Zealand and Sri Lanka Institute of Advanced Technological Education for their additional feedback on local groups studying together on the MOOC.

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