Going massive: Learner engagement in a MOOC environment

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The 2014 Horizon Report identifies one of the challenges facing higher education as being how to keep education relevant (Johnson, Adams Becker, Estrada, & Freeman, 2014). In light of the growing number of free online learning opportunities, universities need to innovate in order to engage and connect with new learning landscapes.

Student engagement is obviously a key element of designing in an online learning environment. As the EDUCAUSE "Top ten IT issues 2014" highlights educators must not simply consider *whether to engage students* online but *how to engage students (*Grajek, S. & EDUCAUSE, 2013–2014 IT Issues Panel, 2014*)*. Engagement in online courses poses a number of challenges and has a long way to go before it matches levels of engagement in face to face courses (Johnson et al., 2014). It requires new approaches, new understandings of what constitutes engagement as well as new metrics of levels of engagement (Vu & Fadde, 2014).

Student engagement challenges in the online environment are exacerbated in the 'massive' environment of a MOOC, not only because of the diversity of learners enrolled but also because of the voluntary nature of the MOOC and lack of summative assessment. The differing culture and subject backgrounds, motivations, interests, language proficiencies, skills, learning needs and behaviours of learners can make engagement more challenging (Milligan, Littlejohn, & Margaryan, 2013).

This paper addresses issues of student engagement on a massive scale. It uses the case study of one of the University of Auckland's first MOOCs, describing the design principles implemented to enhance learner engagement. The "4Cs" principles ("consume, connect, contribute and create") were applied to the course design (Littlejohn, Milligan, & Margaryan, 2011, p. 26).

This paper will focus on the following:

- understanding and application of the "4Cs" model of engagement
- theoretical and pedagogical underpinnings of student engagement in the MOOC environment: connectivism, constructivism, social learning
- importance of research and learner informed design
- role of the educator and learners in an online community of learners.

By sharing our experience, we hope to contribute to the current conversation on best practice for student engagement in a 'massive' online learning environment.

Introduction

The New York Times dubbed 2012 "the year of the MOOC" (Pappano, 2012). Since then, MOOCs (Massive Open Online Courses) have become even more prevalent, particularly in higher education institutes (Johnson et al, 2014). The proliferation of MOOCs can be attributed to various factors - a general shift to online or blended learning approaches (Johnson, Adams Becker, Estrada, & Freeman, 2015), the globalisation of education and learner demand for any time/any place learning.

The rise in the number of universities developing MOOCs may also be seen as an attempt to remain relevant in the digital age and make effective contributions to the development of open educational resources. In addition, MOOCs provide opportunities to market an institution or programme to prospective students; "experiment with emerging technologies, platforms and pedagogies" (Kinash, 2013, p. 57); and deliver content to a large number of learners in a cost effective way (Stewart, 2013).

The 2014 Horizon Report identified student engagement in the online environment as a key issue, pointing out that online learning is still a long way from reaching the equivalent of face-to-face learning in terms of student engagement (Johnson et al., 2014). EDUCAUSE also highlighted the issue of student engagement in the online environment. In its "Top ten IT issues" for 2014, it asserts that educators must not simply consider whether to engage students online but how to engage students online(Grajek & EDUCAUSE, 2013–2014 IT Issues Panel, 2014).

The University of Auckland in New Zealand developed its first two MOOCs in collaboration with FutureLearn (a MOOC platform provider owned by the Open University in Milton Keynes, England) in 2014. One of these is Academic Integrity: Values, Skills, Action (AI MOOC). This course was developed based on the existing compulsory academic integrity (AI) online course at the University in order to meet the needs of international interests.

The AI MOOC consists of 4 modules (4 weeks). The course was offered for the first time in November 2014. There were over 6,700 learners from 88 countries enrolled in the course. Of those 564 (8.4%) completed all four modules. This is higher than the average completion rate of 3-5% reported in a previous study (Gallagher & Garrett, 2013). A total of 1,925 learners (28.7%) visited at least one section of a module. By the end of the course, there were a total of 7,370 comments posted by the MOOC learners. 884 of those learners (13.2 % of those enrolled) posted at least one comment.

The AI MOOC project team was established in February 2014. It consisted of four module owners, a graphic designer, the project manager from Libraries and Learning Services, and a lead educator from the Faculty of Education. In addition to developing the AI MOOC, members of the project team also took on the role of course educators and moderated the course discussion posts. The AI MOOC will be offered four times in 2015, the second run of the course started on 2nd Feb 2015.

This paper presents a case study on the design, development, and implementation of the AI MOOC. It reflects upon the authors' experience as MOOC designers and MOOC moderators (educators) – observations on student engagement, participation, and the role of the educator. It also explores designing for engagement.

Literature Review

Literature on learning theories, particularly in the digital environment, provide key theoretical models for understanding engagement in the MOOC setting. In 1998 Sfard identified two key metaphors for the way in which learners obtain knowledge: *acquisition* and *participation*. Acquisition denotes a linear process whereby knowledge is transferred from educator to learner; in the participation metaphor the learners create their own knowledge through interaction with the educator, content, resources and other learners. The participatory metaphor has particular relevance in the digital environment where the traditional *acquisition* approach may not be applicable.

Siemens (2005) expanded on the participation metaphor highlighting the idea of "connectivism". He pointed out that with the advent of e-learning environments educator directive acquisition theories were no longer adequate. This was due to the "shrinking half-life of knowledge" (para. 3), to the recognition of different types of learning particularly those which were socially constructed, and to personal networks or work-related tasks. New technologies and media which made social or interactive learning more possible also contributed to the adoption of connectivism as a key theoretical model for understanding learning in the digital age (Siemens, 2005).

Kop and Hill (2008) also recognised the importance of a connectivist approach to encourage engagement in the digital learning environment. They argued that aided by new technologies learners are becoming more autonomous with most learning occurring through self-directed connection to knowledge and interactions with educators and other learners. As such, the directive roles of educators are somewhat redundant as they do not mirror the way in which most contemporary learners learn. In order to meet learners' needs in online learning environments educators must encourage self-directed and active learning.

Patterns of engagement in MOOCs

Underpinning the participation metaphor, Kop (2011) identified four key activities which take place in the connectivist MOOC (cMOOC): *aggregation, relation, creation* and *sharing*. Expanding on this, Littlejohn et al. (2011) propose the following four activities which learners undertake in knowledge acquisition: *consume, connect, create and contribute* (4Cs). These have application in a cMOOC and impact on engagement particularly in the online environment.

In a further study Milligan, Littlejohn, and Margaryan (2013) highlighted three key patterns of engagement in MOOCs: active, lurking and passive participation. Active participants actively engage in MOOCs, participating in course activities, commenting and engaging with MOOC educators and other learners. Lurkers do not actively engage in this way, however they still gain knowledge from being part of the course. Passive participants cannot or do not engage with the course, either due to an inability to connect or because they cannot not see the value of the course.

According to Milligan et al. (2013) a lack of confidence in sharing online was a key factor in lurking and passive participation behaviour in MOOCs. Active participants were more likely to have prior experience in a cMOOC and were more motivated to participate.

Designing for engagement in MOOCs

Having an understanding of different learners and the factors affecting participation can aid MOOC developers in ensuring the success of MOOCs. Littlejohn et al. (2011) suggested that while many learning environments concentrate on providing opportunities to *consume* information and *connect* with resources and people, more emphasis needs to be provided on allowing learners to *create* and *contribute* to collective knowledge. They recommended providing opportunities for learners to learn through experience, discussion, self-study and by teaching others.

Coffrin, de Barba, Corrin, and Kennedy (2013) advocated a number of key features which promote student engagement in MOOCs. They recommend the use of incentive (e.g. badges); automatic recognition of, and response to, students who are struggling; facilitating the use of forums and discussion boards.

Vu and Fadde (2014) suggest that lack of engagement in MOOCs is often due to the mismatch between learners' expectations of MOOCs and what MOOC providers expect of their learners. People enrol in MOOCs for different reasons, therefore MOOCs need to embed a "differentiated instruction philosophy" (p. 244) to meet those varying needs.

Hew's (2015) study suggests that MOOCs should provide active learning opportunities such as the use of social media, discussion boards, peer to peer feedback, interactive components such as quizzes, and the use of practical real world examples.

Specific design elements to engage learners

It is important that MOOCs provide engaging multimedia content. David and Glore (2010) emphasised the importance of using images to succinctly get across complex concepts, improve understanding and encourage peer to peer communication and collaboration.

Poor video content and production can also affect engagement in online courses including MOOCs. Shorter videos (3 to 7 minutes) are optimal (Guo, Kim, & Rubin, 2014; Rose, 2009, Vest, 2009). Vest (2009) also highlighted the importance of high production values, relevance to audience and use of closed captioning (subtitles) in videos to ensure disabled participants are supported and to aid discovery by Google search. Guo et al. (2014) emphasise the need for the educator to talk to the camera in an enthusiastic and personal manner in order to stimulate interest and engage learners. The importance of quality video content in online learning was echoed in Draus, Curran and Trempus's (2014) study which found that instructor-generated video content influenced satisfaction with, and engagement in, online courses.

The role of the educator

As Stewart (2013) has indicated the educator "should not and cannot be the sole focus of a student's experience in a MOOC." (p. 236). This is particularly true of cMOOCs where much learning occurs through interacting with other learners and internal/external networks as opposed to a one–way transfer of knowledge. This sentiment is echoed by Ross, Sinclair, Knox, Bayne, and Macleod (2014). They believe that in the self-directed environment of the cMOOC the educator's key role is to facilitate and promote knowledge acquisition through connection with resources, other students and with internal and external networks. This leads to the creation of new knowledge and contributes to the overall learning community. However, they also acknowledge the importance of the educator identity and educator experience in MOOCs. Both these factors impact upon student engagement and retention rates.

Hew (2015) highlighted the importance of a strong educator presence, noting that in order to engage participants an educator should be knowledgeable about their topic and genuinely enthusiastic about teaching the course. They should interact meaningfully and consistently with participants and take a genuine interest in their progress. Engagement is also aided if the educator is seen as an "academic celebrity" or "respected authority" (Morrison, 2013, p. 60).

Retention

Retention in MOOCs is typically low. Gallagher and Garrett (2013) in a study of Coursera MOOCs identified course completion rates of between 3% and 5%. Yang, Sinha, Adamson, and Rosé (2013) reported a 91% to 93% dropout rate for a course offered by Duke University. Glance, Barrett and Hugh (2014) indicated a 5% to 10% completion rate was typical.

Nawrot and Doucet (2014) identified poor time management as the primary reason for non-completion of a MOOC, followed by attractiveness and suitability of the MOOC to the individual learner.

Pedagogical approaches to our MOOC design

It was imperative to design a MOOC based on sound theoretical and pedagogical principles identified in the literature and by other MOOC developers. The project team took an informed approach throughout the AI MOOC design, with consideration of the 4Cs. The team also recognised and embraced the diverse backgrounds and learning styles of the MOOC learners, understood the role of MOOC educators/moderators, incorporated specific design elements to support pedagogical principles, and encouraged engagement during all stages of the MOOC.

Informed approach

The design of the AI MOOC was informed and based on best practice identified in the literature and exemplified in existing MOOCs. The project team:
- undertook research on pedagogical and theoretical principles of student engagement and learning in the online and MOOC environment
- investigated a number of MOOCs, past and present
- enrolled in FutureLearn (FL) MOOCS in order to investigate what other institutions were doing within the platform - how content was delivered, what functionalities were used to engage learners, the dynamics of the learner community, the role of educators and learners, etc.

4Cs design

The AI MOOC was developed as a cMOOC. A 4Cs approach was taken to ensure that learners had opportunities to **consume, create**, **connect** and **contribute** (Littlejohn et al., 2011). The course encourages learners to consume and to create their own understandings and connect through moderated interaction with the content, each other, the educators and external sources. Emphasis was placed on key linkages between work, life, and education.

At the same time learning was self-directed and educators intervened at point of need. Learners were encouraged to contribute by reflecting on how core content applied to their own situations and then contribute their ideas / opinions / observations and share with others / comment on others' contributions.

In summary, learners:
- **Consume**d by watching videos, viewing short readings and comments from other users, participating in quizzes, and accessing PDF guides related to key study skills
- **Create**d their own understandings by contributing their own thoughts in discussions and through contextualising their own situation and experiences. For example, understanding how they might apply the principles of academic integrity in their own lives
- **Connect**ed through interacting with other learners and the educators in the discussion posts. Other students' comments provided reference points from which they started to form their own opinions and gave students the opportunity to create a community of learners as well as create their own understanding of topics
- **Contribute**d to the course as a whole by starting with where they are, who they are, and what they know, and by encouraging learners to share thoughts throughout the course.

Understanding our learners

A number of studies have highlighted the importance and challenges of designing an online course when working with a diverse range of students (Hew, 2015; Vu & Fadde, 2014). In a MOOC where anyone can enrol, one size definitely does not fit all. In the AI MOOC, over 7,000 learners from 88 countries enrolled. Learners came from different countries, cultures, religions; were of different age, work, educational and socioeconomic backgrounds. The challenge was to ensure that the course catered to individual needs but also that different participants felt welcomed and comfortable to participate and contribute.

To accommodate this, and acknowledge where students were coming from, the project team included discussion points and self-assessments to enable learners to examine their own level of understanding and reflect on their own cultural background. Learners were encouraged to connect the course content with their own experiences throughout the course. For example it was not possible to provide information about every referencing style which students might use so learners were encouraged to reflect on their own experiences and where they might go to get help in their own learning environments.

Recognising that many of the MOOC learners use English as an additional language, plain English was used and regional/national colloquialisms were avoided throughout the course.

Personae

Although the AI MOOC could not cater for all learners, certain key characteristics are common to many learners. With this in mind four key personae were developed to represent archetypal learners. Personae were used as way of engaging learners and providing relatable characters. These personae did not only inform the design, but also used in videos and activities to engage learners. Throughout the course, learners followed these student personae as they navigated through various situations where academic integrity comes into play. Personae featured in common situations which students experienced at university. Narratives and storytelling were used so that learners would identify with the personae and the scenarios they found themselves in. Learners learned along with the characters.

The four AI MOOC personae were as follows:
- Josh: first year, young, busy social life, procrastinator, lazy with his academic studies
- Ali: mature postgraduate student, family obligations
- Sophie: first year, high achiever, organised, pressure to do well at university
- Bo: international student, English is an additional language, hardworking but struggling.

Usability testing

To ensure that the MOOC was learner-informed and engaging, two rounds of usability testing were undertaken at different stages of the course development. International students (with English as an additional language), local students, first year students and postgraduate students participated in usability testing.

Students were asked to complete associated tasks, including discussion questions, and "think out loud" and talk as they completed each task. Students were also asked to point out any words or phrases which were difficult to understand. Upon completion of the course students were asked for more general feedback.

Overall results from usability testing indicated:

- students liked the real scenarios - "I can absolutely relate to this"
- students could relate to the personae characters in the videos - "that's me"
- students thought the course was interesting, clear, helpful
- they liked the quizzes
- the pitch was about right (not too easy, not too hard)

They also pointed out areas for improvement and content was revised based on their suggestions and feedback.

Designing for engagement

It is extremely important to establish and maintain a community of learners in MOOC environments. The key activities and the specific design elements to form the community of learners in the AI MOOC are outlined below. These encouraged learners to consume, connect, create and contribute.

Laying the groundwork for a community of learners

Two key features were included at the beginning of the course in order to establish a social community of learners. "Meet the team" introduced the course educators to the learners. A photo of all the educators plus a link to each educator's profile was included. This helped students get to know the educators, their background and interests. Students responded well to the "Meet the team" activity.

"I am happy to meet such a wonderful, creative team of scientists and educators! Great course and great ideas!"

The second feature was an activity where learners were asked to "Tell us about yourself". Learners were asked to introduce themselves to the other learners and share one interesting fact about their country. This helped create a social environment and allowed learners to start forming the online community. The activity proved very popular with learners, with 841 postings. Learners also used this as an opportunity to reply to other learners from the same country. It was encouraging to see connections being made as participants connected with others in their country or region or asked questions about others' situations and experiences.

"Hello! I am XXX and I am from XXX. I became very much interested in this course since I first read its posting. I look forward to sharing our experiences and diverse points of view on this matter."

Role of educators in the AI MOOC

The AI MOOC was facilitated and moderated by project team members. In the FutureLearn MOOC environment moderators/facilitators are known as course educators.

Educator presence was integrated throughout the course and the majority of the videos included the lead educator who offered advice or reflected on scenarios faced by the student personae characters. The lead

educator managed to convey his sense of enthusiasm about the subject both through engaging camera conversations and through participation in discussions.

All educators were actively involved in discussions in order to contribute to the community of learners. However, they were also aware of providing opportunities for learners to interact with each other. Their primary role was as a facilitator rather than to provide top down information and content. The role of the educators was to actively foster the 4Cs, providing opportunities for learners to consume, connect, create, and contribute. Below are examples of the role educators played as facilitators. Educators were there to:

- Welcome, include and encourage learners

"Welcome! Taking part in this course is a great way to improve your already impressive English language skills and to share your thoughts and ideas about academic integrity with others. We hope you find the course useful and the community of learners supportive"

- Encourage dialog and a sense of community between learners

"Thank you everyone for sharing your tips and techniques for time management. Some fantastic ideas coming through here which will be really beneficial to others on the course."

- Encourage further reflection or information seeking

"You may also find the following helpful:
http://www.aquinas.edu/library/pdf/ParaphrasingQuotingSummarizing.pdf"

- Clarify areas of confusion or respond to specific academic integrity issues where required

"The term "academic integrity" is one that some people find confusing-especially if we've grown up hearing about "plagiarism" or "cheating". The move from those phrases to a more comprehensive term such as "academic integrity" is born out of a desire to describe the subject in a more positive way"

- Draw out key threads and summarise key points

"I've noticed that the thing that most people are neutral or not confident about concerns the values that underpin academic integrity. This isn't surprising and one of the reasons we created this course! "

- Make connections between course modules

"That's right Joseph and you will learn more in Week 3 about how to acknowledge sources you use in your work"

- Troubleshoot problems with using the course

Sorry to hear you can't play the video. There is a link underneath the video where you can report any problems

Each week of the course was designed for learners to work through together. However learners could join the course at any stage during the four weeks. As mentioned by Yang et al. (2013) late joiners can feel on the periphery and find it hard to jump into online discussions. Therefore extra care was taken by the educators to welcome, include, and encourage those who started later to contribute.

Specific design elements

The project team worked within the FutureLearn platform parameters to utilise its functionalities including: videos, images, quizzes, discussions.

Videos

Videos were a prominent feature of FutureLearn MOOCs and were interspersed throughout the AI MOOC. The initial video for each week functioned as a way of introducing students to the topic of the week by presenting a common academic integrity scenario. Other videos were included throughout each week as a way of engaging learners in real situations they may encounter and to encourage discussion. The final video presented a humourous account of what happened to the four personae, thus bringing the narrative to a conclusion. The videos often included the lead educator talking to camera as research has shown this helps to foster a sense of "the expert" and engage students (Ross et al., 2014).

The duration of the videos was very short as feedback from research and usability testing indicated that learners do not like (or watch) long videos (Guo et al., 2014; Rose, 2009, Vest, 2009). A professional video production team undertook video filming and post-production to ensure videos were of high quality. Closed captioning (subtitles) was also included to aid disabled students or those for whom English was an additional language.

Images

Images were essential in creating an attractive, engaging online learning environment in the FutureLearn platform. As well as being visually appealing, images needed to be relevant to content and reflective of student's genuine experience and environment. Each week included either images of students in academic environments, symbols of abstract concepts or ideas, or signified activities and practices associated with academic integrity.

Discussions

Discussions were included throughout each week of the course. These were designed to engage and connect learners, build a community, and allow learners to create their own understandings and contribute to the community. Meaningful discussion questions were essential to foster this. For example, some discussions asked the learners to share what they would do in a particular situation, other questions asked them to think about their own environment or find out what their university policies were ("what would you do", "tell us about your situation…", "look at your own university site and share….").

Throughout the course learners were encouraged to respond to each other's postings and "Like" each other's comments. This helped build an online community. In addition to the formal discussion activities, learners were able to post comments at any stage of the course. At the conclusion of each week, students were encouraged to continue to engage by thinking about the upcoming week and share their thoughts.

Quizzes

A number of quizzes were developed to ensure students actively engaged with the content and create an understanding of academic integrity. The quizzes were scenario-based and provided instant formative feedback for the learners to think and learn.

Reflections

Designing and moderating a MOOC course was a valuable experience for the project team. The following section includes reflections and observations on the first run of the AI MOOC. These reflections and observations are based on the project team's dual roles of MOOC designers and MOOC educators.

Student centred design

Consideration of different learners' backgrounds, learning preferences, and levels of English language proficiency though usability testing and creation of typical student personae was beneficial. The project team recommend this process to other MOOC developers as a way of ensuring the course meets the needs and expectations of learners.

In terms of catering to those with differing levels of English language proficiency, the student centred design approach worked particularly well with screening text for colloquialisms and other words with which learners who have English as an additional language might be unfamiliar. The project team endeavoured to ensure a balance between using language that would expand learners' vocabulary without creating a barrier to understanding.

Usability testing also ensured an appropriate level of difficulty. None of the feedback indicated that the level of language was too difficult with most respondents in the post course survey indicating that the level was "about right." Feedback also suggested the course flowed well and that the variety of learning activities fostered engagement.

The use of personae to represent typical students had the desired effect of encouraging engagement with content. Learners liked the use of narrative which unfolded throughout the videos with feedback suggesting that they could relate to the situation which the actors found themselves in:

> "The student actors, who played the individual situations, for the learning videos. It feels just like being there, right in the situation."

Forming a community of learners

The initial activities to establish a community of learners were successful. The "Tell us about yourself" activity was the most popular activity in the course with 822 comments posted. It was gratifying to see connections being made between learners coming from the same country.

It was also beneficial to include photos and profiles of the educators as a way of enabling students to get to know the course educators. In addition, the educators had a number of students 'following' them further suggesting that students were keen to learn from, or be guided by, what the educators posted online.

The project team, in their educator role, also regularly provided encouraging comments to motivate the students, provide formative feedback, and ensure adequate educator presence. In the post-course survey 89.9% of learners indicated that the educator was engaging.

An average of 2 hours per day was spent monitoring the MOOC and posting comments/responding to questions where appropriate. At times it proved challenging deciding when to intervene and respond to discussion postings resulting in much discussion between team members to decide if intervention was needed before responding. In many cases students solved the issues themselves, but in other instances it was apparent when a team member needed to respond. When other learners answered questions, monitoring of the exchange was all that was required.

It was necessary to read all the comments even though it was not possible or desirable to comment on all of them. One limitation of the MOOC platform was that there was no way of searching for particular learners' posts except by using the "follow" function. The team tried to use open ended comments to encourage ongoing discussion.

It is worth noting that in the second run of the AI MOOC (February 2015) the discussion dynamics more closely resemble a true exchange. At this stage it is uncertain whether this is as a result of the team "growing into" the educator role, or whether it can simply be attributed to a different cohort and is therefore coincidental.

Accommodating the MOOC platform

As mentioned previously the project team was required to work within the boundaries of the MOOC platform. This proved challenging as the original Academic Integrity course developed at the University of Auckland provided a wider range of e-learning capabilities and design features including cartoons, fill in the blanks activity, drag and drop functionality and interactive glossary features. Overall the project team was able to effectively utilise the design functionality provided by the FutureLearn platform. The inclusion of quizzes, videos and discussion forums provided good opportunities for participants to engage with each other, with the content and with their own situations.

Collaboration

Collaboration was essential to the success of the AI MOOC. Being part of a large organisation meant that the project team included expert staff who contributed to developing a high quality course. For example, the lead educator for the MOOC was an expert in the area of academic integrity and was able to contribute his knowledge to the course content and discussions.

The project team also worked closely with the media unit at the University. This ensured videos were professional and of a high quality. Collaboration with the media team also enabled other project members to develop new skills such as script writing and video production.

Collaborating with a graphic designer added enormously to the aesthetic appeal of the course and ultimately served to encourage and engage learners. The graphic designer spent approximately 250 hours developing images for the MOOC.

The project also allowed for collaboration with the University's copyright officer, referencing experts from the Library, as well as other experts in the area of academic integrity.

Future considerations

As the AI MOOC will be offered four times per year, consideration needs to be given to the amount of time involved in moderating MOOC discussions. In the capacity of educators, the project team note that an average of 1-2 hours per day is required to monitor and respond to discussion postings and queries. The 24/7 nature of MOOC communication also means that the course educators are unable to respond in real time in some instances. Should the project team be involved in future MOOC developments, staff time and resources required to ensure adequate facilitation and learner engagement would need to be taken into account.

In addition, the fact that the AI MOOC has multiple educators moderating the course necessitates good communication between the educators to avoid duplication of responses. This has been addressed and the moderation process and communication between the educators in the second run of the MOOC is running much more smoothly.

The project team is keen to explore further ways of increasing student engagement. For example, one MOOC learner suggested that the course could include partner dialogues or small groups. The FutureLearn "Peer Review" function may be reviewed for possible inclusion in future versions of the course. Several team members had favourable experiences with this function in other FutureLearn courses and appreciated the potential for detailed, individual and personalised feedback.

An additional area the project team is keen to explore is in using course data to help measure engagement. Whilst user generated metrics cannot guarantee learner engagement in the course, they can paint a fuller picture than project team or educator observations. Linguistic analysis of discussion posts could also be used to measure learner engagement and overall satisfaction.

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