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Evaluating A Massive Open Online Course (MOOC) as a Tool For Veterinary Professional Development in Animal Welfare.

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Background

In order to effectively improve animal welfare worldwide, we believe there is a need to use a range of educational tools, such as free online courses, to provide credible and accessible education resources to present the case for an evidence based approach to improving welfare standards. The ‘Animal Behaviour and Welfare’ MOOC (https://www.coursera.org/course/animal) was developed through the University of Edinburgh’s Jeanne Marchig International Centre for Animal Welfare Education (JMICAWE) in partnership with animal welfare researchers at Scotland’s Rural College. The course was advertised as a five-week university entry-level course with no background reading required. Apart from providing good quality educational material, one of the main objectives was to develop an understanding of how effective this form of education is for transferring information and promoting discussion as well as challenging viewpoints positively in relation to science and animal welfare. A number of articles have been written discussing the limitation of free education, and there was concern about the efficacy of MOOCs for achieving our objectives. This is because while MOOCs will regularly accrue many tens of thousands of signed up students, not all of these attend the courses and if they do, they don’t necessarily maintain a high level of engagement, with student retention rate to the end of the course typically ranging from 5-10%. This has been attributed to learners using the course differently depending upon their motivation, perhaps not wishing to sit examinations, or looking for some entertainment
rather than education, or even a perceived high student workload. In order to determine how effective MOOCs are for continuing professional development, and indeed how well the Animal Behaviour and Welfare MOOC has done in relation to our educational aims, we have been interrogating the Coursera analytics throughout the course’s presentation to provide an interpretation of judging MOOC success.

**Course Structure**

Each of the five weeks covered a different, but integrated topic as follows: What is Animal Welfare?; Measurements and Assessment of Animal Welfare; Companion Animal Welfare; Production Animal Welfare and Captive Wild Animal Welfare. The course was delivered in English with approximately 1-3 hours of contact/teaching time per week, delivered via short, documentary-style video lectures and interactive flash-based presentations created via Articulate (Articulate Global Inc., 2014, New York, The United States), supported by supplementary reading, website links and expert interviews. Each weekly topic began on a Monday and all materials for that topic were released simultaneously. A quiz was available for self-testing, and students were given three attempts to achieve a specified percentage pass rate of 65%. A weekly ‘Google Hangout’ Session occurred each Friday, where the week’s tutor would answer questions that had been commonly raised during the week on the student discussion forum, as well as discuss matters raised by the live audience. This was then recorded and archived for viewers.

**Course Size and Growth**

At the beginning of the course, on 14th July 2014, Coursera recorded 25398 students, which reached 33,501 by the end of the course. 849 (3% of total) learners had signed up for Coursera’s Signature Track program. While all learners who complete the assessments receive a statement of accomplishment, the
Signature Track ties the user’s identity to their own learning, for a fee of $49.00, and is what Coursera recommends for users who intend to use the course as professional development. Signing up for a MOOC appears to be easy, with relatively low investment, and many users appear to ‘window-shop’ a number of related courses before committing to a specific one. Of the total users of the Animal welfare MOOC, 58% of those who had signed up actually visited and engaged with the course pages (engaged learners). Of engaged learners, 48% stated their intention was to complete the course, 34% intended to audit the course, and 17% did not want to commit and were ‘just browsing’.

**Course Demographics**

The aim of recruitment for the ‘Animal Behaviour and Welfare’ MOOC was to target international audiences, and this was driven through the introductory video and course outline available to all viewers. The course demographics suggested that we achieved this, with 20% (of total users) coming from emerging economies\(^1\) and students signed up from 167 different countries, with Europe representing 40% of the total, North America 36%, Asia 13%, Oceania 6%, South America 5% and Africa 2%. Interestingly the majority of learners did not class themselves as students (67%), however 65% of learners already possessed a Bachelor’s degree or higher. From a continuing professional development perspective there did seem to be good engagement from professionals with 43% of learners stating they were employed full time, 20% employed part time, and 14% of learners currently looking for work.

We could broadly categorise many of our learners as seeking continuing professional development. This was particularly true of the professional veterinarians who engaged with the MOOC and participated actively in the discussion forum threads. It is also important to recognise the relevance of the MOOC to younger and retired people, 3% of users were in the 13-19 year old age bracket and 10% of users were

\(^1\) Under the World Bank’s Country and Lending Group’s classifications, also including Chile and Uruguay
in the 60+ age bracket. There was good evidence of the MOOC’s relevance for people like ‘Jac’, from a non-science background who reported:

“Really enjoyed the course, and coming from a non animal related college background, found it very informative, and a great introduction to the complexities of the subject. I’ve been volunteering at Battersea Dogs & Cats Home, for 8 months as a Kennel Support Volunteer with the dogs. I recently decided to apply for a full time role there as a Rehoming and Welfare Assistant . . . and found out this week that I got the job. I made sure that I mentioned my taking this course in both my application and interview, to show my dedication in learning more about animal behaviour and welfare. And have found it a great alternative way to learning, than just ploughing through a book.”

The diversity of users was also reflected in the 32% of users who responded to the pre-course survey whose native language was not English. Over 60 languages were reported in the survey, with Spanish (8%) and Portuguese (3%) being the most prevalent after English. This is mirrored by the many different study groups which have formed within the community, at present there are 25 study groups active on the forums, some for specific languages, regions, such as veterinary staff and T-Touch practitioners.

**Course Engagement**

The average score for the end-of-week quiz over the five week course was 90% (± S.D. 3.6 percentage points) with the average number of users taking each quiz being 5311 learners (± S.D. 1791.7). Retention rate of students is often considered to be the best measure of success for a course, but bearing in mind that 51% of engaged learners did not sign up with the intention of completing the final certificate, what might be a more informative indicator of reach? At the end of the course, 16% of our total students had received a certificate (29% of engaged learners), 17% of total learners were still using
the materials at the end of the final week (28% of engaged learners), and 21% of total learners were visiting the course in the final week (36% of engaged learners). In all measures, this MOOC met or surpassed the 10% target for retaining learners.

The Success of a MOOC as a method for CPD?

Our post-course survey found that 98.4% of the post-course respondents agreed or strongly agreed that the course was enjoyable and 97.9% agreed or strongly agreed that the course was a valuable use of their time. Our aims were to bring cutting edge animal behaviour and welfare research in reach of an international audience. Our demographics indicate the MOOC has clearly achieved this objective. One of the stand-out successes of the course has been its engagement with veterinary staff, animal charity workers, government and business advisors and animal volunteers internationally to help foster their professional development and develop their theoretical skills in relation to animal welfare. In the post-course survey 69.0% of students agreed or strongly agreed that the information they learned in the course would help them in their professional life. At this juncture we would conclude that the MOOCs true success lies in its ability to provide relevant and credible knowledge to audiences who want the opportunity to learn but are unable to take a traditional education route. It may be that, as well as general audience MOOCs, this is a format which will respond well to providing high quality continued professional development for targeted audiences. In combination with the community building that MOOCs generate among interested learners, through well managed discussion forums and live interactive chat sessions, they appear to be an excellent tool for providing large numbers of committed learners a novel and valuable (free) educational experience.