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If Moocs are the future of learning, they're still not without precedents or pitfalls, reports Tom Barfield



Credit: Kobal

Lonely learner not everyone wishes to study in isolation. The social element may be a key component, but not all Moocs provide it

Depending on who you believe, massive open online courses (Moocs) are variously the bright future of university education, its onrushing nemesis, or just about anything on the spectrum in between.

The basic structure of a Mooc is simple: a company or institution sets up a website where prospective students can register and peruse a list of courses. Once they have found one they like, they can sign up and "attend class" weekly, online and at a time of their choosing, watching recorded lectures and completing multiple-choice assignments, other relevant exercises, or short peer-graded essays.

As well as weekly recorded lectures from one or more course leaders, most will offer access to a discussion forum for students to collaborate, additional reading matter, relevant multimedia materials and regular assignments set by the lecturer. Currently, the best-known and most popular platforms are offering courses - many from internationally renowned universities - for free.

The University of Edinburgh is among the institutions evaluating one of the biggest Mooc platforms. In January, it will launch six free online courses - covering topics from artificial intelligence to philosophy - through the US-based platform Coursera.

Austin Tate, director of Edinburgh's Artificial Intelligence Applications Institute, will teach the artificial intelligence planning course.

His work as coordinator for distance education at Edinburgh's School of Informatics brought him into contact with Daphne Koller of Stanford University, who started Coursera with colleague and fellow professor of computer science Andrew Ng.

Professors Koller and Ng raised millions of dollars in venture capital funding to found their company after being inspired by the success of a machine learning course taught online to more than 100,000 students.

For Professor Tate, offering some of his course as a Mooc is second nature: he and his colleagues have been making their course materials freely available online for years.

"This is simply an extension of our outreach," he said. "The Mooc version is roughly half the content of our on-campus course, but we hope it will encourage the participants to read further."

Running the course is likely to be a further learning experience for Professor Tate and fellow course leader Gerhard Wickler. Assessment of distance-learning students is still difficult, particularly when answers beyond multiple choice or machine-readable programs are required.

"We will gain experience of online assessment techniques prior to the course starting by engaging as students on a number of Moocs ourselves, through discussion in our Edinburgh Mooc group, and trying out our own ideas in a 'playground' course area," said Professor Tate.

The constant experimentation that is part and parcel of running an online course is not without immediate benefits.

Professor Tate will also be sharing his experiences with colleagues hoping to experiment with "flipped classrooms" - assigning recorded video lectures to students as homework to free up taught hours for more practical exercises and one-to-one contact.

"We'll be using our experience to assist others in our own school and university, as well as colleagues worldwide," he said.

Another UK institution with prior experience in the area is The Open University, which offers material to millions of people a year through its own OpenLearn website as well as Apple's iTunes U. Martin Weller, professor of educational technology at the OU, had some words of caution about the latest much-hyped Moocs.

"It's sometimes portrayed as if these new platforms have invented online learning. There's a tendency in educational technology to forget everything that has come before," he argued.

Been there, done that, OU says

Others have pointed out that some of the features of Moocs stressed by Professor Koller - about organising content in digestible chunks, with assessment and reflection points built in - have been part of the OU's course materials for the best part of 40 years.

"Some of the content (on Coursera) seems a step back from this," said Professor Weller. "It doesn't have the integrated human support, because that's the costly element."

Professor Weller suggested that community-focused distance learning might be the making of a real revolution in online higher education.

"As Dave Cormier (leader of web projects at the University of Prince Edward Island), who coined the term 'Mooc', says, 'the community is the curriculum'. Learners in more experimental Moocs suggest assessments and tasks that others vote on. This gives learners a real sense of ownership, which you don't see with the more didactic broadcast models like Coursera."

This social aspect is one that Professor Tate also emphasised as a potential route to help online learning to break out of the focus on science, technology, engineering and maths subjects, which is dictated by the limited assessment options available.

"The social element of a Mooc is a key component," he said.

Professor Tate anticipated that some of the most valuable content on his own course would be "a growing repository of information and comments that participants can build for one another" and that live virtual meeting spaces (rather than message boards) could provide opportunities for students to work together in real time.

Professor Weller was cautiously optimistic about the opportunities presented by social learning.

"Whether automated feedback and assessment will work as well in the humanities is not clear," he said. "It has become increasingly sophisticated, though, and combined with the type of peer support that students create it does a pretty good job."

Patrick McAndrew, professor of open education at The Open University, noted that free course materials attract two kinds of users: the "students for free" and the "social learners", who use the material as a jumping-off point for meeting other students.

"Some of the more recent free large-scale offerings are attracting 'students for free' - however, there are also interesting approaches around more radical course design that leaves more of the structure to the participants," said Professor McAndrew.

Early leaders may not take the prize

There is no doubt that assessment, applicability to a broader range of subjects and many other kinks remain to be smoothed out in the functioning of Moocs, and it may not be the first big-name player who gets it right.

Two huge additional challenges lie in finding a way to provide bankable real-world credit for these virtual studies, and working out how to make the model pay for the businesses and universities involved.

In the meantime, Professor Weller said, "there is a fear that the university itself doesn't get much" in exchange for making its costly academics and their ideas available at no cost to the student.

However, there are signs that this may change. Coursera is known to be looking at different business models to try to bring in revenue for itself and its partner institutions.

There was also the news recently that the University of Texas system planned to offer degree credits for courses completed through Coursera's big rival - the edX online-learning platform - and to charge for such courses.

Ultimately, it is this experimental aspect that remains the defining feature of this generation of Moocs. But whether or not Moocs establish themselves as a viable concern, it is likely that academics will continue to experiment with new ways of reaching students eager to study online.