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## How to Run Amok—Or Is It a MOOC?

By Simon Boxall

**A**n email comes through from my Head of Department: “Simon, are you getting involved in the Exploring Our Ocean MOOC this year? You don’t want to miss out!” I try to figure out whether this is a typo and also what it is that I don’t want to miss out on. Has her cap-lock key got stuck? What letters are close to M, O, and C that she actually meant to type? Another email grabs my attention, and I decide I have too much to do to worry about decoding an email, which is either mistyped or in a hitherto unseen language. A week later as I walk down the corridor, there it is again. A bright and engaging poster with images of the deep ocean proclaims: “The University of Southampton MOOC on Exploring Our Ocean goes live in October 2014, register today—don’t miss out!” As I study the poster, a passing student asks if I am starring in the MOOC this time around—he was surprised I wasn’t involved in last year’s. Last year’s? I suddenly feel like someone who fell asleep in the 1980s comfortable with the fax, VHS tapes, and a mobile phone that occasionally made phone calls, and woke up 20 years later to discover emails, online movies, and the iPhone.

Rushing back to my office in a state of confused panic, I type in MOOC on the search tool to discover a new world of online learning, that a MOOC is a Massive Open Online Course, and the resources out there are indeed massive. Just take a look at [www.mooc-list.com](http://www.mooc-list.com), which offers a directory of just about every MOOC across the globe. You can do a MOOC in any subject you can imagine, from marine biology to oncology, from gaming animation to Shakespeare’s Hamlet. This quiet revolution in how we learn and educate ourselves has grown rapidly in the

past two years, and a wealth of providers is producing material in many different languages across the world. The providers work with universities and research institutions that produce the intellectual input—the academic content—and the providers then enable webinars, produce short films, and develop exercises for MOOC students to view and participate in. This is not a passive information tool like Wikipedia; it is an online learning facility, a complete package, aimed at students of all ages and all backgrounds. What is even more impressive is that it is free at point of delivery—you can register for a MOOC (or many MOOCs) and learn all you ever wanted to know for free.

The MOOC differs in many ways from other online learning experiences, and each organization’s MOOC is itself different from the next. In the United States, for example, one provider, the World Mentoring Academy (WMA), collaborates with Open Courseware from MIT, UC Berkley, UCLA, Yale, and many other leading US universities to produce courses that students study at their own pace, with online resources, blogs, and course exams. At the successful completion of the course module, the credits can go partway toward a bachelor’s degree, though for those credits to count, there is then a fee...it is not a free pathway to a degree, I’m afraid.

In the UK, the Open University runs Future Learn, which works with a number of universities in both Britain and abroad as well as the British Museum and the British Library. These courses differ from WMA in so far as they have a start and a finish date. The whole course is not online from day one, and you work your way through it as it builds up week by week. The material stays live throughout the course once it is posted, allowing

students to catch up if they miss a week, but shortly after the course is completed, the whole course goes offline. Students are expected to spend about three hours a week studying their chosen subject to fully benefit from the course. As with all MOOCs, there is a mix of video, text, activities, and assessment, and the overall appearance is engaging. The video clips do, at times, have a feel about them of the Open University television programs of the 1980s (for our US readers, think public information films of the 1980s), but they are good learning resources. At the end, students can, if they wish, purchase a certificate to show that they participated in the course—everyone likes a certificate.

The other big benefit of a MOOC compared to browsing other online resources or books are the mentors, webinars, and chat rooms. Students taking the same course can ask each other questions and have access to mentors to help explain areas they find difficult. In addition, academics and postgrads will do live Q&A sessions on a regular basis to deal with FAQs at intervals throughout the course.

For all of that, it is still hard to identify exactly what a MOOC is, who it targets, and most importantly why produce them—what are the benefits to my department or university? While in some countries you can use the courses as partial credits toward a degree, this is not, at present, the main purpose of a MOOC. They are at a halfway point between a distance learning degree and the classic adult learning “evening class.” It is learning for fun, to extend the mind, to do something outside your daytime career. It is a truism that an educated populace is both a prosperous and healthy one—look at Sweden where education is free to all, right through to degree level. It is a chance to expand your

knowledge in your own area of expertise to cover some of the peripheral issues; as oceanographers, we might consider international marine law or social impacts of climate change. But it is also about trying out a subject you have never experienced before, and this aspect of MOOCs, in particular, appeals to school-aged learners. A student in high school gets little exposure to a subject like oceanography and is often inclined to remain with familiar subjects when choosing a degree. A MOOC provides an opportunity to explore and try new subjects before committing to three to five years of expensive and intensive undergraduate study. Most MOOCs provide guidance on what career paths a degree subject offers as well as the high school qualifications needed for taking a particular course.

A MOOC is not just about attracting future students. The European Space Agency (ESA) has just commissioned Imperative Space, a media and communications company, to create a major MOOC that will provide learning resources around the extensive work on Earth observation that ESA undertakes. Such PR for a publicly funded body is important in raising awareness as to where tax dollars are used and the important science that comes out of such work.

So a MOOC is *edutainment* for the participant and an important shop window for the contributors—the MOOC now starts to make sense, very good sense. A MOOC needs investment in time and resources. It needs to be multimedia, with good film footage, exciting and engaging written material, and exercises that are not only very relevant to the topic but are also self-contained. Few members of the public have their own research vessel, let alone a stretch of ocean to play with. It is important that online help is always available and that students can discuss topics with mentors and each other, much the same as they would in the physical classroom environment. A poor MOOC would do more damage than no MOOC to a person's perception of a subject. Once produced, a good MOOC does have a

reasonable shelf life. With minor essential updates, the initial investment of resources could continue to pay off for a number of years, with ongoing support and input from mentors.

As mentioned, WMA in the United States offers the option of counting some of the modules as credits toward a degree. Is this the way forward for education and MOOCs? If we were to use this alongside the growing use and development of AUVs (autonomous underwater vehicles), could we see a new generation of armchair oceanographers?

At the National Oceanography Centre, Southampton, the Marine Autonomous and Robotic Systems (MARS) facility is in the midst of a major expansion and is one clear direction our industry is heading. MARS personnel have recently completed a major exercise called MASSMO, which involved a fleet of seven AUVs heading off into the Atlantic to the southwest of the UK. The ops room was along the corridor from my office, and the scene did resemble a group of teenage gamers huddled round their Xboxes. It was a very different approach to observational oceanography, and while AUVs are a long way from replacing our research fleets, the concept of a MOOC group following and maybe even controlling an AUV is an interesting one.

Will the MOOC replace the university course as we know it? There is some great benefit to be had from a well-designed MOOC, and as a part of a traditional university course, a MOOC could enhance the learning experience. Students in Southampton could, for example, learn about tropical ecology from a MOOC designed by the Bermuda Institute of Ocean Sciences. However, the lack of hands-on practical experience and the ability to interact directly with staff and fellow students face to face does take something away from the whole educational experience. And while exercises such as MASSMO show the potential for working remotely, when they graduate, few students will be able to continue their professions from their home computers.

So—am I getting involved in the MOOC, and is it an opportunity I don't want to miss? I did an online webinar, or more correctly a “live Google hangout,” linked into the University's Exploring Our Ocean course that has run for three months. A panel consisting of myself and three colleagues chatted around a selection of questions put forward by the students taking the course, from how tides work and why is the ocean salty, to what do oceanographers do when they graduate. Rather disconcertingly, as we huddled around a screen-top camera for the hour-long event, we could see thumbs-up or thumbs-down icons appear along the bottom of the screen as viewers gave live feedback as to how they felt we were dealing with their questions—not something I now plan to introduce to my live lectures. For the current course, we have over 8,000 global participants ages eight to 82, over a third of whom are coming up to decision time as to what and where they want to study for their university degrees. Chatting with some of them, they don't just see the MOOC as an opportunity to try a subject before committing to it, they also see it as exciting and as a useful addition to their CVs when they do eventually apply for their degree courses.

I have also had some very small input to the ESA MOOC due to go live in 2015. The hard work is done by the production company, and the effort by the academics and scientists is relatively easy. The material produced can even be used in your existing courses as stand-alone items. I have also signed up to be a student on a course that is not oceanography, and I am really enjoying it. Many of you will be reading this wondering how can anyone have missed the MOOC concept for so long? But for those who, like me, wondered what was MOOC, you are now, I hope, slightly the wiser. If you want to delve deeper, there is even a MOOC about MOOCs! ☺

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**Simon Boxall** (srb2@noc.soton.ac.uk) is Associate Fellow, University of Southampton, National Oceanography Centre, Southampton, United Kingdom.