Reflections of an early MOOC provider: Achievements and future directions

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The origins and development of MOOCs at the University of Edinburgh

The University of Edinburgh was an early entrant into offering MOOCs. In only two years, it has developed an extensive portfolio of free and open content and educational activities. We first partnered with the US Coursera platform in 2012 and a year later, in 2013, joined the UK FutureLearn. While this early decision to offer MOOCs and establish ourselves at the leading edge had distinct advantages for the University, it came with the added challenge of having to reach some difficult choices early: ‘What should our steady-state, including our MOOC sustainability, look like?’, and ‘What sort of future do we envisage for our open education, in the short and the longer terms?’. Our decisions, and those of our fellow early adopters, may provide a path to follow for later adopters. The questions we asked, such as deciding whether to join in and how to support MOOC design and delivery, should be informative and illuminating to others. We, and several other universities, have published reflections on various stages of the MOOC experiences (MOOCs @ Edinburgh Group (2013); Hollands & Tirthali, (2014)).

From the start of our MOOC adventure, we have been clear on why we are offering them. Over the past 20 years, the University of Edinburgh has built up a reputation for innovative use of technology in education. Without a doubt, offering MOOCs helps us to enhance that reputation. We also have a strong focus on outreach and MOOCs offer us a way to reach new audiences and perhaps to reach those in more disadvantaged settings. Moreover,
given that the universities offering MOOCs in 2012 were our international peers and research partners, the potential for wider collaborations was evident. We could also see that producing and teaching MOOCs was fun and stimulating for the faculty who were involved. Another major reason for our involvement in the MOOC experience was that the emerging MOOCs space provided an opportunity for exciting educational R&D for the whole university’s benefit. It also supported the University’s research agenda. To be effective, therefore, it was important that the processes were transparent and open. We have recently explored our processes for early decision-making in detail (Haywood & MacLeod, 2014) and have also reported on our MOOC development process, our recruitment statistics, and our learner demographics (MOOCs @ Edinburgh Group (2013); Harrison, (2014)).

Briefly, we see that our MOOC learners are mostly well-educated, in the age range 25-45, and come from all over the world. However, this generalisation hides significant differences such as the fact that some of our MOOCs attract more young learners and some attract fewer highly educated learners. Figures 1 and 2 show the age and qualification patterns of the learners from our first six MOOCs. These patterns in recruitment appear to be generally stable over the early iterations of each course, although signs of change also exist; for example, the number of younger learners in the Astrobiology course grew appreciably.

Figure 1. Highest previous academic achievement for learners on two iterations of six Edinburgh MOOCs (January 2013 – January 2014)
As of August 2014, the University of Edinburgh had 18 MOOCs that have been offered once or more. By August 2015, we expect to have 30 MOOCs available, with none having closed. All Edinburgh MOOCs have a minimum lifespan of 3 years. Hence, we can
safely predict that the earliest point for us to ‘gracefully’ cease offering MOOCs would be mid-2018, i.e., six years from the initial decision to join Coursera.

To reach this stage has required significant institutional investment. Throughout 2012, a regular question from the media, and from colleagues considering developing MOOCs, was: ‘What does it cost to develop a MOOC?’ A consensus has emerged that the ‘lifetime cost’ of a single MOOC is approximately USD $50K, excluding start-up costs and associated senior staff time (although we found the latter to be crucial to extract the maximum value from the initiative (Haywood & MacLeod, 2014). Thus, we estimate that an investment of USD$1.5M to USD$2M over 6 years will be required to develop and support our projected portfolio of MOOC courses. This investment has funded a new dedicated video production service (facilities and staff). It has also provided the resources needed for a small central team in the Vice Principal’s Office to manage the operational relationship for the MOOC platforms, support the academic teams, and ensure high quality outputs. Importantly, it also funds the initial salary and training costs of the teaching assistants on each MOOC.

Additional resources came from the Academic Schools who provided their faculty time ‘free’ (a significant investment estimated at 30 faculty working days per MOOC), and committed to supporting their MOOCs for 3 years or, in effect, 3 iterations.

Although the total investment is relatively modest compared to the University’s annual turnover (USD$1.3Bn pa), it is still significant. Naturally, we needed to ensure a return on that investment (ROI) of funds that could have been used many other ways. Fortunately, the University has benefitted considerably; in fact, in some important respects, the benefits have been different to those originally anticipated. It is for this reason that support to continue developing new MOOCs remains high.
In this chapter, we will explore the ROIs and other benefits of our MOOCs. We will also summarise what we expect to be doing in the open education area over the next few years.

**Returns on investment**

Figure 3 shows the different ROIs that might be realised by a university from the investments made in MOOCs. In this section, we shall discuss some of the most important ROIs to the University of Edinburgh in light of the evidence gathered to date that has enabled us to be confident that sufficient returns are being made.

![Figure 3. Possible returns on investment to a university from its MOOCs](image)

**New experiences for experienced online teachers**

Several of our early MOOC teams were already well acquainted with teaching online. They found the experience of ‘designing for the unknown learner’ stimulating and scary at the same time (MacLeod, Haywood, Woodgate, & Sinclair, 2014). None of them had previously taken such an open and hands-off approach with thousands of learners. In contrast, they had always worked with tutor:learner ratios of around 1:25. These new experiences stimulated a
rethink of online pedagogies and, as a result, other courses taught online have simultaneously benefited from the influence of MOOCs. For instance, some have used MOOCs as part of on-campus programmes, and MOOC videos for on-campus classes. A particularly novel development has been the use of MOOCs as courses taught by other institutions; something which is quite rare for traditional education. For example, the ‘Critical Thinking’ MOOC has been used in Rwanda (Bartholet, 2013) as well as in a Gates Foundation-funded experiment by the University of Maryland State System (Griffiths, Chingos, Mulhern, & Spies, 2014). It is now also being used in an international collaboration (see below).

### Online newbies and appetite for further online education

In the early days of our MOOC initiative, we knew there would be interest in developing a MOOC from a few faculty. At the same time, we were unsure as to just how many others might wish to be involved, especially as the amount of work involved became known. However, a ‘queue’ of faculty teams quickly formed from all areas of the University who wished to explore open online courses. During the early adopter phase, everything was new and faculty members and support teams learned together. Now, we have a well-honed process in place that supports faculty from the initial idea stage through to delivery and to repeat runs. With this process in place, we can simultaneously manage approximately 10 MOOCs at various stages of development. Colleagues at other universities report similar developments, e.g., the MOOC Factory at École Polytechnique Fédérale de Lausanne (EPFL - http://moocs.epfl.ch/mooc-factory).

The support process involves an early discussion between our central admin and course production teams with interested faculty, so that we can better understand their
thinking and begin to inform them about what will be involved. We have not used a formal proposal and application process. Instead, we prefer an iterative dialogue approach as it enables us to shape the MOOC design before it ‘gels’ in a faculty member’s mind. We recommend small teams of faculty (3 or 4) to encourage self-support and knowledge sharing as well as to spread the workload and scheduling. The head of their school must formally agree to make the MOOC a school responsibility and then run it a minimum of 3 times over a three year span. They must also agree to submit a ‘light touch’ business plan that we require for all MOOCs.

We help the academic team with course and instructional design. In addition, we provide access to the video and multimedia production services and are responsible for all the administration duties associated with the chosen MOOC platform (Coursera or Futurelearn). In addition, we pay for the teaching assistants for the first iteration of a MOOC and for their modest involvement in course construction. Importantly, we also train everyone involved in the MOOC process. The support described is managed from within a central service (i.e., “Information Services”) and involves the University of Edinburgh’s academic development unit. We have actively supported a community of practice by ensuring that, insofar as possible, new entrants learn from more experienced MOOCers, and also from their newbie colleagues.

Initially, control over which MOOCs are released as well as the overall quality control rested firmly with the central team. This decision to centralize MOOC administration and quality control was made in recognition that the risks were high, especially in the early months. This ‘grip’ is now being eased as we gain confidence in our procedures and outcomes.
The institutional investment in MOOCs has enabled us to support faculty members from almost all subject areas and disciplines at the University of Edinburgh, many of whom had never been involved in fully online learning before (although, of course, all have used technology with on-campus classes). These have been successful and exciting experiences for such faculty as they have gained knowledge about course design, online education, and open education. Some are now using their MOOC materials with their residential classes, whereas others have begun to create online master’s degree programmes to add to the University’s existing portfolio of online degrees (around 50 as of August 2014). This effect has not been limited to the faculty teams involved but has often caused a wider discussion within a particular school about online education. To broaden that experience, sometimes a school decides it wishes to offer more than one MOOC. We have also seen a small but very important positive impact on the career prospects for faculty members and teaching assistants involved in MOOCs.

**Sparking a debate about digital education**

From the outset, we have maintained a strong dialogue with the governance processes of the University as well as with faculty interested in educational innovation. Our governing board, University Court, was involved in the initial decision to join Coursera and to offer MOOCs. Fortunately, it has maintained its interest and support since that adoption. As a result, the MOOC Project reports into the governance of the University through a high level committee called the “Knowledge Strategy Committee,” thereby engaging senior members of faculty and administration in the debate. Senatus Academicus, our top level academic governance body, has discussed online education and MOOCs as part of its business. From the outset, MOOCs have been subjected to a formal course approval and quality assurance (QA)
process, which has been a light version of the QA process employed for traditional, credit-bearing, courses. Initially the course approval process was led by a Vice Principal (i.e., by a member of the university senior management team), but now, as confidence rises, it is beginning to be devolved to the academic schools to manage themselves, as they do for traditional courses.

All these actions have led to a vigorous debate about MOOCs and online education more broadly. Although there are some members of the university with legitimate concerns about costs, reputational risk, and sustainability, the debate has generally been in favour of a well-managed expansion of the number and diversity of MOOCs offered. There is also encouragement to learn and disseminate as much as we can from the experience.

MOOCs and research – citizen science/communities

An unexpected development has been that some faculty now regard MOOCs as a part of their personal research. We have seen grant proposals funded that promise MOOCs as part of the outputs, both as simple dissemination and impact enhancements, and also as part of the research process (i.e., ‘citizen science’). An example of the latter was in behavioural economics where a large audience was sought, via a MOOC, to participate in an analysis of European dietary choices. Similarly, for their MOOC, the astrobiologists have created a large international community of people interested in research into life on other planets. More recently, a MOOC on Scottish Independence, “Toward Scottish Independence? Understanding the Referendum,” offered by the School of Social and Political Science, provided not only valuable data for the citizens of the United Kingdom, but also engaged others in the analysis. It seems likely that such examples will grow as faculty members become aware of the new possibilities offered to them to engage in research with very large
numbers of MOOCs learners, that until now, they would have found it difficult, if not impossible, to reach.

**Enhanced international collaborations**

From the outset, we have seen participation in MOOC platforms as a route to strengthening existing partnerships with peer universities and to forming new ones. Some concrete examples of this have already emerged:

- Working with our existing partners in the global alliance Universitas 21 (see [http://www.universitas21.com/](http://www.universitas21.com/)), one of our existing MOOCs will be used as a closed online course (i.e., a SPOC or “Small Online Private Course”) with students from around 15 universities worldwide learning together online;

- Our MOOCs have been franchised to other universities (e.g., the University of Maryland State System), and we have learned from their experiences.

- Our strong relationships with many top European universities are leading to explorations around joint MOOC creation, targeted toward areas such as academic staff development and research methods.

- We share learner analytics and course design data with many of our partners. That sharing enables us to help our own faculty improve their MOOC design and delivery.

**Impacts on student recruitment**

Reports in the press and elsewhere suggest that the purpose of MOOCs for many universities has been to promote traditional (and fee paying) education - this has not been a core objective for Edinburgh nor our MOOC partner institutions with whom we have discussed this issue. Clearly, if MOOCs do result in more qualified students enrolling at the University of
Edinburgh that would be welcome. However, with an annual intake of around 7,000 students, to make a significant difference, MOOCs would have to be extremely effective marketing tools, and probably designed primarily for that purpose.

Given this situation, we have attempted to ensure that our MOOC learners are aware of our other MOOC offerings and other related online and on-campus degree programmes, though this has not been a ‘hard sell.’ As part of these efforts, on our university website, we have placed MOOCs in the same area as our taught online master’s courses, since prospective online learners may be interested in either or both formats.

There is evidence of a small number of direct ‘conversions’ from MOOCs to online degree programmes. While such conversions are just beginning, it is likely that MOOC learners (and particularly their families) are more aware of Edinburgh’s courses as a result of MOOCs. There has been a generalised enhancement of our reputation for innovative online education amongst potential students. Others have also reported some direct conversion (e.g., Grainger, 2013).

**Enhancing the University’s reputation**

Enhancing the University’s reputation for innovation in learning and teaching has been a major objective for our entry into MOOCs. Fortunately, there is good evidence that this has been achieved; in particular, in Europe.

Since July 2012, when we announced our partnership with Coursera, staff from the wider MOOC team have presented at major conferences, seminars, and invited sessions about technology in higher education. These invitations have come from a wide range of organisations and individuals including the European Commission, university alliances and mission groups, quality assurance agencies, and numerous universities (including finance
directors). While the rate of invitations has not slowed over time, the nature of the events has ‘matured’ as the reality of MOOCs has become clearer and some of the hype has subsided. There has been substantial attention from the UK government and its agencies, and within Europe (particularly from the European Commission), as a consequence of our early adoption of MOOCs. From this interest, there has been some research funding as well as opportunities to influence policy towards online education. Our early MOOCs covered diverse topics, at a time when the focus of most MOOCs was in topics related to computer science and technology. This diversity of MOOC topics attracted some very influential ‘learners’ who wanted to explore MOOCs and also see what our university was doing in this space. As far as we can determine, their experiences in these MOOCs were of high quality. Such positive experiences will continue to enhance our reputation for some time.

Colleagues from many organisations and other universities have visited us to learn more about our MOOC experiences during the past couple of years. We have been able to share our experiences with them as well as learn from theirs. Many of these visits have offered explorations and collaborations that will bear fruit over the coming years. It is now quite common for interviewees for both junior and senior faculty posts to mention Edinburgh’s MOOCs during their interviews. Although hard to evidence unequivocally, it does appear that our activities in this area have led to some individuals to apply to work for the University of Edinburgh. And, most certainly, many are thinking about innovation in learning and teaching as part of their preparation for an interview.

Ever since we began our e-learning provision for residential students back in the 1990s, we have had a research strand alongside it that has both learned from and informed the appropriate use of technology in support of credit-bearing courses. This research has continued as we have added fully online taught master’s programmes, and now MOOCs to
our portfolio. These efforts have resulted in further publications, research collaborations with partner universities, doctoral and master’s studentships, grant applications, and modest funding.

**What next?**

As we come to the end of 2 years as MOOC providers, we are now facing up to some difficult questions and options. Our thinking in this area is shown visually in Figure 4.

![Figure 4. Options for universities in future uses of MOOCs](image)

Given the cost of MOOCs, how many should we hold in our portfolio overall? We will soon have 30, but should we stop there or increase to say 100 or even 300? Should we offer all of them together, just some of them in any single year, or should we ‘retire’ a MOOC after 3-4 years (based perhaps on first-in-first-out, or those with lowest success on some measure)? Should we balance our portfolio between Coursera and FutureLearn, or are there good reasons for using a particular platform for a particular MOOC? How do we cover the costs of repeat offerings? Will a slicker production system reduce costs? Is it time to cease central funding and leave that to the Schools? What action do we take when a key
faculty member retires or leaves for another (perhaps MOOC-offering) university? Lastly, can we find ways to use our MOOCs more purposefully towards the original goal of widening participation and outreach?

We do not have answers to all of these questions, but our internal discussions have suggested a few possibilities. For example, it is unlikely that we shall create more than about 50 MOOCs from central funding, although research grant-funded MOOCs might push the final number higher. A total of fifty MOOCs represents approximately two per School. At present, there are no signs that Schools have set their sights on more; indeed, at some point, the opportunity costs begin to outweigh the gains. There is some evidence that paid-for added-value items such as certificates might generate enough income to cover the modest costs of teaching assistants. Moreover, options such as offering MOOCs as on-demand, untutored courses might enable us to remove current limits on the frequency of repeat runs. A self-paced MOOC may also solve the problem of faculty who ‘lose interest’ after a short time. A key faculty member, who led one of our first MOOCs, has now moved on. In that instance, we negotiated an arrangement that that MOOC will be offered again; however, have yet to formalise that informal arrangement to cover future instances.

Significant thought and effort is being focussed on how we reach audiences, such as younger learners and those in disadvantaged settings. One attempt has been to develop MOOCs with a wider appeal such as our new Football MOOC, produced by the School of Education and designed for young adults. Similarly, a joint venture with Universidad ORT in Uruguay to create Spanish and English versions of one of our MOOCs (i.e., basic computing and app development) targeting at teenagers is underway. Developing MOOCs to support local communities is also a priority. For instance, we are working with our students in their
regular volunteering scheme to provide support to people in Edinburgh who wish to study online but need help in getting going.

Even though some aspects of MOOC production and administration have become more routine and formalized, the future still looks quite exciting and fun. Ideas from our faculty keep flowing; although some stretch the limits of what we can presently offer, we will continue to support them because it will be from such explorations that creative insights and vital research into the wider digital education agenda at the University of Edinburgh and other institutions will come.

References


