# Opening up higher education through a low-cost MOOC model.

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**Abstract**: Many believe that MOOCs may not survive because they are both expensive to produce or do not represent high quality learning experiences. However, there is evidence that low-cost content on the Internet can generate high user satisfaction and more particularly, in the case of educational content, actually facilitate effective learning. The success of a relatively simple and low-cost form of online distance learning from Institute of Technology Sligo also suggests that it is possible to enable effective learning without excessive expenditure. In this paper the author is proposing that by applying this model of online distance learning to MOOCs it will be possible to deliver effective open learning at reasonable cost levels. In addition, by reusing the content of such MOOCs for various purposes these costs can be justified and a MOOCs may sustainably emerge in almost all domains of learning. Combining this with the increased availability of challenge examinations based on a competency based education model could result in the significant reductions in the cost of higher education, truly opening it up to many who previously could not afford it.

## Cost as an Access Issue

The problem of access to higher education has been effectively solved from a technological point of view. It is now possible to put virtually any course of study, either completely online or into a blended format with much reduced attendance requirements. All that remains to be done is for higher education institutions to widely adopt online educational practices that have been shown to achieve similar if not better outcomes than traditional methods. It could be argued that it will not be long before almost all programmes of study will be available online from some institution in the world. However, that will not solve the problem for many who will be unable to afford the fees for these online courses. Unless accredited online courses are available at low enough prices, they will continue to be beyond the reach of many.

Massive Open Online Courses (MOOCs) at first sight, seem to hold great potential to reduce the cost of access to higher education. After the first wave of publicity for MOOCs, it was correctly observed that these courses do not generally carry credits from the institutions delivering them and were thus of limited value to many. This, in fact, is being addressed very quickly with several universities and other institutions offering to assess students on their learning from MOOCs (Fain, 2012), and the American Council for Education's research into the possibilities for granting credits for MOOCs (American Council for Education, 2012). This separation of the delivery of courses from assessment and accreditation, a phenomenon known as *disaggregation* (Wiley and Hilton, 2009) holds significant potential for reducing unit costs in higher education.

The disaggregation, or unbundling, of delivery and assessment is being enabled to a large degree by a competency-based approach to learning, where there is a move away from measuring inputs such as "seat-time" to defining competences and using well designed summative assessments, to verify the achievement of the defined competences or learning outcomes. (Herzog, 2013) This is now being described by many university presidents in the US as having greater significance for disruptive change in higher education than the much hyped MOOCs (Lederman, 2013). If MOOCs become quite commonplace and many institutions offer to assess and offer credit to students who have taken MOOCs, some course fees could drop almost to the cost of assessment alone.

However, the cost of delivering MOOCs is currently quite substantial, and there are many who question the financial

sustainability of MOOCs. Coursera have estimated that it costs around $40,000 to prepare and deliver a MOOC (Parr, 2013). Institutions who are developing MOOCs are currently justifying it on the basis of improving their brand recognition and recruitment of fee-paying students into both full-time and online programmes. However, at this level of cost many institutions may not be able to justify the development of MOOCs and the promise of free online courses covering all disciplines may not materialise.

The author would like to propose that it is possible to reduce the cost of development and delivery of MOOCs and by doing so and by using MOOCs to reduce teaching costs and generate income, the problem of sustainability can be addressed.

## Reduction of Development and Delivery Costs

Institute of Technology Sligo (IT Sligo) has been delivering a form of online distance learning since 2003 that is primarily based on streamed live online classes. Rather than invest a significant effort into alternative instructional designs, lecturers have used a low-cost conferencing system to deliver live online classes, without technical support, in an approach that has more in common with the classroom teaching they were used to than the heavily asynchronous approaches that had been common in online learning previously. (Mulligan, 2009) The provision of a modest level of technical and pedagogical support to lecturers has allowed them to respond to learner feedback and continuously improve their online teaching over time, resulting in high levels of student satisfaction in these courses. During that time, improvements in screen capture systems has also allowed lecturers to develop reusable learning objects with very little effort and easily replace live learning with asynchronous approaches where most appropriate.

The resulting courses have much in common with the transmission MOOCs (xMOOCs) that have been developed recently by Coursera and Udacity. Even though IT Sligo courses contain significant opportunities for learners to discuss issues with their lecturers and peers, as well as to submit assignments and receive useful feedback, they are based around a core of learning materials that are relatively easily produced by a lecturer without assistance, in a manner that is not all that different to the way they have always taught. The most significant extra effort by lecturers has been for those who have chosen to add online objective tests (multiple choice quizzes) to their courses. However, many have chosen to do this because of the improved progress monitoring it enables and the actual continuous assessment workload reduction it delivers with larger class sizes or over a number of years.

## Quality

An important way in which these courses do differ from the offerings of the commercial MOOC providers is in production quality. However, as has been demonstrated by the popularity of home-made videos on Youtube, consumers seem to be well able to distinguish between the entertainment quality of content and the quality of production, and appreciate such content, even when it is not necessarily produced to a high level of quality. However, Youtube contains much popular educational content as well as entertainment. The most well known educational content from the Khan Academy illustrates the point. These original videos were in the very simple format of audio and screen capture most of which was quite amateurish drawing on a simulated blackboard. However, these low production quality videos proved to be pedagogically effective for very large numbers of people.

In online courses from IT Sligo, the live sessions and short screen capture objects are rarely edited before publishing. The knowledge of the lecturers and their experience in presenting to learners is easily transferred online and their first efforts are almost always considered to be of good enough quality for release to classes that range in size from 10 to 100 students. These live sessions and recordings along with additional learning materials, either created by lecturers or sourced as free materials from the web, and with forums available to enable peer-support, have resulted in courses

with high levels of student satisfaction and requiring relatively modest levels of support from the lecturer. This leads on to the question: If a course is delivered to a group of 30 learners who are happy with the quality of content contained in the course, would that content not also be useful to thousands of others?

## A low-cost Development Model for MOOCs

If higher educational institutions are confident that their regular online teaching is of a standard that they are prepared to allow anyone to see, then they can effectively reduce the cost of production of a MOOC to the cost of production of their regular online courses. This can vary between institutions but the model described above is one where there are very little development costs above those of normal teaching of fee-paying students.

So if we accept that a regular online course could be delivered as a MOOC by allowing anyone to enrol, the author would like to suggest the following approach:

- MOOCs can be developed and delivered as regular online courses using an xMOOC mode approach, where full classes can be delivered live and recorded, or short learning objects can be recorded and published easily using screen capture techniques.
- A certain amount of assessment can be built in to such courses with minimal incremental costs, using online objective tests and/or peer assessment.
- Certificates of satisfactory completion can be automatically generated based on automated and peer assessments.

## Sustainability through income generation and reuse.

Even if MOOC production costs can be lowered significantly, the costs will still have to be justified or recovered in some way. The following are proposed as justifying these costs.

### Free Online Learners

If an automated method of enrolment is then used, this can be delivered free to large numbers of learners with modest delivery costs. Although this does not generate income, it can have a significant marketing impact and departments may be able to fund this activity from marketing budgets or justify the activity on the basis that it will improve brand awareness for the institution and increase enrolment in other fee-paying courses. This justification is predicated on the assumption that the quality of such low-cost MOOCs does reach a minimum standard that would not reflect badly on an institution. Give the unexpected success of content of low production quality on the Internet it may be reasonable to say that it is too early to say what an acceptable level of production quality is.

### Fee-paying online learners

Institutional MOOCs can be reused for other groups, either to reduce teaching costs for existing students or to generate extra income. Existing fee-paying distance learners can enrol on these courses and be separately provided with tutor support, feedback on assignments and more rigorous summative assessment. The resulting reduction in delivery costs can be used to reduce fees in such online courses.

### Campus based learners

Such courses can also be simultaneously used for campus based students, on one or multiple campuses, using a

blended flipped-classroom model, where the students are expected to cover materials from the MOOCs in their own time and attend tutorial sessions separately, thus reducing contact time and teaching costs for such campus based courses.

### Competency based learners

Student who attend as free learners and do not avail of tutor support or assessment feedback may wish to receive full credit for their learning. The MOOC provider may generate income by providing competency based challenge examinations (or other competency based assessment) on a fee paying basis. Although it is well known that MOOCs can be taken from anywhere, it is less well known that there are now excellent examination proctoring services that can supervise examination candidates anywhere in the world. This increases the potential for income generation significantly.

## Summary

It is plausible that it may emerge that MOOCs can be made to be sustainable by reducing the cost of production and delivery to that of regular online courses that institutions may already be delivering, and by saving tuition costs elsewhere through simultaneously using these MOOCs for their fee-paying online and campus students, and by generating extra revenue from free online learners who may be interested in having their learning assessed and accredited. If such a model proves to be educationally effective and does no damage to institutional reputations, it may be widely adopted, particularly for niche courses resulting in a huge increase in the availability and variety of free learning on the Internet. In addition, if the concept of competency based education becomes widely accepted and practiced, particularly in the availability of challenge examinations, accredited higher education will become truly open to millions who would otherwise be unable to access it.

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