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The Future of Massive Open Online Courses (MOOCs) in Education

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Introduction

Thank you so much for the invitation to give this public lecture at UTM. It is many years since I was last in Johor Bahru and it is a pleasure to be here again.

My title today is *The Future of Massive Open Online Courses (MOOCs) in Education.* MOOCs are currently the big fad in higher education. Whether they have a future in education generally will depend on whether they can help us to surmount the challenges that society and education face.

I shall begin by identifying the greatest problem that the world faces today and then look at the difficult issues emerging in higher education in the United States. This will set the scene for exploring whether MOOCs can help to address either of these challenges.

Generation Jobless

Earlier this year *The Economist* newspaper devoted its cover article to youth unemployment. I consider this the greatest challenge that the world now faces.

The Economist article concluded:
"Policymakers know what to do to diminish the problem – ignite growth, break down cartels and build bridges between education and work. New technology gives them powerful tools too."

We shall ask whether one of the tools that technology provides: Massive Open Online Courses (MOOCs) can be helpful.

First: some figures. This chart, from *The Economist,* shows the number young people who are neither employed nor in education or training. The world total is nearly 300 million – or one quarter of the world's youth. The situation is bad enough in Europe but, even in percentage terms, South Asia, the Middle East and North Africa fare much worse. Yet at the same time employers complain that they cannot find graduates with the right skills and competences. There is a serious gap between education and the job market.

What is higher education doing – and what should it be doing – about this huge problem?

UNESCO's 2009 World Conference

UNESCO organizes world conferences on higher education every ten years. In 2009 the conference participants identified the new dynamics impacting on higher education. The predominant trend is increasing demand, much of it unmet, especially in the developing

world. To address the challenge the range of providers is diversifying. They range from so-called 'world-class' universities in an elite tradition focused on research to vibrant new and different providers more focused on developing skills and competencies. The private for-profit sector is playing an increasing role and nearly all providers are making use of ICTs and eLearning, some of them to teach across borders.

We also see the emergence of what we shall call 'post-traditional' higher education. New curricula and shorter qualifications attempt to address the crisis in the relationship between higher education and the labour market. How do MOOCs fit into all this? I shall return to that question.

Higher Education in difficulty

Meanwhile, systems of higher education are in difficulty in some parts of the world. Let me illustrate this with the case of the public university system in the United States. This widely admired system has inspired developments all over the world, yet it now faces challenges that I shall summarise in 13 points. If this great national system is in serious difficulty the situation in other parts of the world may also be problematic.

1: Enrolment declined last year for the first time in 15 years – down by 2.3%. That means a quarter of a million fewer students.

2: Tuition fees have increased at more than five times the inflation rate for 30 years. This has been an accelerating process.

3: Adjusted for inflation, the average middle-class family earns $400 less than it did in 1988. But:

4: In 2012 universities raised fees by a record 8.3% making a 46% increase over the last ten years. Of course, one reason for this is that:

5: State funding declined a record 9% in 2012, down 30% per student since 2000. For that reason:

6: Tuition fees as a share of total public university revenue rose 62% over the last decade. Increasing fees is the easy way to try to balance the books.

7: In June 2013, the total of discounts given for tuition fees exceeded the total amount paid by parents. This is a 50% reduction from posted rates. Nevertheless:

8: Student debt has doubled since 2007. This is a now huge factor in the US economy because:

9: Student loans have topped one trillion dollars, more than all the credit card debt, total car loans or total household debt in America. Furthermore:

10: This year default rates on student loans reached a high of 17%. In the US a student loan is one form of debt that you cannot wipe out by declaring bankruptcy. Some students will drag this debt to their graves. Because:

11: A record percentage of recent college graduates are unemployed, 53.6%. Therefore to save money:

12: 45% of recent college graduates are now living at home with their parents. For graduates aged 18 to 34 the numbers living at home have grown from 13% to 21% in the last decade. And to cap it all:

13: 46% of U.S. college students do not graduate, although the extra income you get by having a degree is higher in the US than in almost any other country.

In summary, these are turbulent times, not only for US public universities but also for much of higher education globally.

So the world has a desperate problem of young people who are neither employed nor in education or training; the world's most powerful university system is in bad trouble and the media think MOOCs are a revolution in higher education. How do we fit all this together? Can MOOCs really help?

Last year I spent a month as a fellow of the Korea National Open University in Seoul and wrote a paper with the title: *Making Sense of MOOCs: Musings in Maze of Myth, Paradox, and Possibility.* That title is a summary of my views on MOOCs both then and now. There are lots of myths and contradictions in MOOCs but also possibilities. I shall explore these with you.

My timing was lucky. My essay on MOOCs was one of the first publications to look at MOOCs in the round and was widely read. You can find it in various places on the Web. I draw your attention to the quote from the famous psychologist Hans Eysenck about Freudianism that I put on the cover: 'what is new is not true, and what is true is not new'. That applies to MOOCs too and I urge you to approach the hype about MOOCs in a sceptical frame of mind.

I shall structure these remarks about MOOCs using the simple questions: what, when, where, why, who, how and so what? What, if anything, should UTM do about MOOCs?

<u>What is a MOOC?</u>

So what is a MOOC? It is, as you know, a Massive Open Online Course. We can unpack that by looking at the first MOOC that really hit the headlines, MIT's 2012 course on *Circuits and Electronics.*

With over 150,000 enrolments it was **massive** – at least by the standards of MIT – although you should remember that the open universities here in Asia have student numbers far in excess of that, going into the millions.

It was **open**, meaning that it was free and anyone could take it. There were no pre-requisites, no admission process and no fees.

It was **online** and only online. No books, no face-to-face teaching or meetings, no telephone contact with the teachers.

Was it a **course**? This is the biggest issue. Most university courses lead to credits that are steps on the way to a qualification. But last year's MOOCs were not for credit. You could sometimes pay for a certificate of completion but that was it.

This is nicely illustrated by the case of a 15-year old boy in Mongolia who was one of 340 people to get a perfect score in the examination, which the MIT course director said was 'very hard'. This Mongolian boy was later admitted to MIT as a regular student and started there this year. However, even he will not be given credit for the MOOC course in which he got full marks. He will have to take it again on campus if he wants to count it towards his degree, which is a nice example of the contradictions in MOOCs.

Ask yourselves what is higher education? It is not only teaching and learning; it is the award of credentials that assure society of the knowledge and skills that the student has mastered. Since these are absent in MOOCs, they can hardly be called a revolution in higher education.

MOOCs – When?

Let's now look at the question 'When?' MOOCs hit the headlines last year when Harvard, MIT and Stanford started offering them. But the term was first used in 2008 for a course at the University of Manitoba, Canada. That course, *Connectivism and Connective Knowledge,* was presented to 25 fee-paying students on campus and 2,300 other students from the general public who took the online class free of charge.

Those early MOOCs, which are now called cMOOCs (for 'connecting' MOOCs), are rather different from the MOOCs that attracted media attention last year. These are called xMOOCs after edX, the MIT, Harvard and UC Berkeley consortium that is offering them. One writer said that xMOOCs are 'at the intersection of Wall Street and Silicon Valley' and they have little relation to the pioneering cMOOC courses in their educational philosophy.

But we should note earlier steps in the movement that led to MOOCs. Open Educational Resources were the long fuse that created the explosion of MOOCs. The notion of making academic content freely available for re-use and adaptation made news in the late 1990s when MIT started putting its lecturers' course notes on the Web. This was the extension to learning materials of the idealism that had already inspired open source software and open access to research materials.

UNESCO held a forum in 2002 to explore the implications of MIT's initiative for developing countries. The Forum coined the term Open Educational Resources and

defined them as educational materials that may be freely accessed, re-used, modified and shared.

Ten years on, last year, UNESCO held a World Congress on OER. A set of recommendations on OER was developed and approved by acclamation at the Congress as the Paris Declaration. Its key recommendation – the punch line if you like – is to encourage the open licensing of educational materials produced with public funds. There are signs that some governments are already taking the Paris Declaration and the economic benefits of OER seriously. For example, my own home province of British Columbia will now offer free, online open textbooks for the 40 most popular postsecondary courses.

Open Educational Resources go back over ten years, but of course the tradition of open universities goes back much longer, to the creation of the UK Open University 44 years ago. This has inspired many other open universities, including OU Malaysia. These open universities operate at scale and, most importantly, award recognised credentials to successful students.

Given this background it is rather surprising that the MOOCs from MIT, Harvard and others caused such a stir. Their MOOCs are basically learning resources with some computerised feedback. In terms of pedagogy their quality varies widely, from very poor to OK. But the news media sat up when MOOCs appeared because it was such a paradox to see universities that have always put scarcity at the heart of their business models suddenly embracing openness.

At a stroke open, distance and online learning, which had hitherto been viewed by many as second-rate forms of higher education, became respectable. Suddenly everyone thought they should be doing MOOCs. Animal analogies come to mind. This is a copycat phenomenon. Universities are acting like a flock of sheep, fearing being left behind. Although, since they are called MOOCs, a stampede of cattle may be the best metaphor.

MOOCs – Where?

Let's now look at the question 'where?' Where are the students and where are the providers?

The students are everywhere. The MIT MOOC had learners in 160 countries, mostly outside the US, with large concentrations in China and India as you might expect. The locations of MOOC providers are multiplying. It began as a North American phenomenon but there are now other providers.

FutureLearn is an ambitious British MOOCs play that was launched in September. It claims that it will draw on the experience of the Open University and the BBC to bring

much better pedagogy to MOOCs. It also says that it will give credible recognition to student learning.

OpenUpEd is a venture of the European Association of Distance Teaching Universities and offers 60 courses in 12 languages.

Schoo is a Japanese MOOC platform, funded with venture capital, which aims to capture one million learners by the end of December.

Open2Study is a partnership of eight Australian universities offering an eclectic range of courses.

Veduca, in Brazil offers a MOOC from the University of Sao Paolo and curates educational videos from the US, adding subtitles in Portuguese.

Iversity offers ten MOOCs in Germany and offers prizes for the best proposals.

NPTEL, in India, brings together the prestigious Indian Institutes of Technology and Science (IITs and IIScs). It already offers 200 courses, has 1,000 planned and will certify students on a large scale.

However, what I find even more interesting and encouraging is that many organisations are now offering one or two MOOCs in their areas of expertise. A nice example is the alliance between my former organisation, the Commonwealth of Learning, and the Indian Institute of Technology, Kanpur. The course is on *Mobiles for Development.* It started a month ago and is still going on.

Dr. Balaji, the course director at COL reports that:
"At the time of launch we had 2282 registrants from 116 countries. The top five are: India, Nepal, Mauritius, Grenada and South Africa. The large presence of registrants from two small countries (totaling 187) was not expected. We have about 500 registrants in all from Sub-Saharan African countries and the Caribbean. From the Pacific, Solomon Islands has a noticeable presence."

This seems to me a very intelligent use of MOOCs and the course is clearly reaching its intended audience. However, it is interesting to note another comment from Dr. Balaji: "Our original intention was not to have quizzes. There is a constant demand for that kind of assessment of progress and so we have offered a quiz (MCQ)."

Although this is not the same as the formal credentialing I mentioned earlier, it does show that students want the assurance that they have learned something, if only for their own satisfaction.

MOOCs – Who?

To the question 'Who is taking MOOCs?' the answer is that the audiences are steadily diversifying. Many of those taking the first MOOCs already had degrees but as MOOCs

multiply they are reaching different audiences, as we see in the example of the course on Mobile Technology for Development that I just mentioned. Indeed, the key point is that MOOCs are evolving quickly, leading one joker to remark that the meaning of every letter in the acronym MOOC is now negotiable.

MOOCs – Why?

So why are institutions offering MOOCs?

We should not look for any profound explanations. Earlier this year I talked to a senior officer at MIT who told me, 'I keep asking colleagues why we are doing MOOCs and no one has yet given me a satisfactory answer'.

Mountaineers say that they are motivated to climb a mountain 'because it is there'. Computer scientists designed the first MOOC platforms when they realised that it was possible to use IT to deliver educational material to large numbers. The fact that the design was done by IT specialists rather than education specialists explains why the pedagogy in the early xMOOC platforms was rather primitive. Since then, as I noted earlier, the herd instinct has taken over. Institutions that think of themselves as 'elite' don't want to be left behind by Harvard and MIT and, for higher education generally, MOOCs have made online teaching respectable.

However, there is as yet no business model for MOOCs. Even a basic MOOC costs a university between $30,000 and $50,000 to produce. They also have to pay the platform providers, which I will talk about next. Yet MOOCs are offered free, so the university has no revenue to set against these costs.

In my paper *Making Sense of MOOCs* I listed some activities that the MOOC platform companies think might generate revenue for MOOCs, However, the striking aspect of these add-ons is that the organisation that would make money would not be the university but third parties offering facilities like a global network of examination centres.

MOOCs – How?

I turn now to the question 'how'? Then I will tackle the question 'so what?' and suggest how institutions should take advantage of the MOOCs phenomenon.

How do universities offer MOOCs? Because of the scale of the enrolments the computer systems required to offer MOOCs exceed the IT capacity and skills of all but the largest open universities. Therefore, universities partner with companies that have this expertise and pay them to put their MOOCs online.

These are for-profit Silicon Valley companies like Coursera and Udacity and not-for profit companies like edX and FutureLearn. As I mentioned, other platform providers are jumping in and Google is going to join them, which will produce healthy competition.

I note here that even if a university is not planning to offer online courses at the scale of a MOOC, it may still have an interest in partnering with a private company. I am an advisor to Academic Partnerships; a US-based company that helps universities go online with some of their regular credit programmes.

I joined Academic Partnerships or AP because their aim of offering quality higher education to everyone at low cost matches the convictions that have led me to spend much of my career in open universities and in international intergovernmental bodies committed to widening access to education like UNESCO and COL. AP's focus is on quality and viability. When universities take their regular programmes online they have the opportunity – I would even say the moral obligation – to scale them up and cut their tuition fees in order to make them more accessible.

The case of the BSc. Nursing programme at the University of Texas at Arlington is a good example. The University wanted to expand the programme to respond to the strong demand for BSc-qualified nurses and to quote them:
"to achieve its goal of producing an innovative, highly accessible, affordable and scalable programme, the college chose to team with Academic Partnerships, a global higher education company that assists universities in converting traditional degree programmes to online delivery as well as in recruiting and retaining qualified students through graduation".

The result of the partnership is that from a campus programme with 137 students, the University has moved to an online programme enrolling 5,000 students. Nearly 4,000 have graduated so far with a retention and graduation rate of 90%. The University could not have achieved this result without the partnership with AP, whose real contribution is not so much technical help with the conversion of courses to online formats but the recruiting and retention of qualified students using cost-effective marketing techniques and a strong system for tutoring and supporting all students.

These BSc Nursing courses are not MOOCs but regular courses, taught online, that lead to credit and awards. However, the University of Texas at Arlington and other AP partners have also created an initiative called MOOC2Degree. This allows students to take the course free and to get credit for it. If they succeed they can continue into the regular fee-paying programme. In other words, they can see if the programme is for them at no financial cost. As is the case for MOOCs generally, the University and AP do not get any revenue for this course. However, the cost of offering it free can be amortised against the revenue that they will make in the subsequent courses that the successful MOOC students take.

MOOCs – So what?

This brings me nicely to my last question about MOOCs: so what? What are the implications of MOOCs for an institution like UTM? What is their future in education?

My advice is ‘don’t just join the herd of cattle offering MOOCs’. The media interest in MOOCs has passed its peak and any reputational benefits that you will get by offering a MOOC now are likely to be small – even if your MOOC is good.

So, second, I urge you to have a university-wide discussion on why you might offer a MOOC or MOOCs and use it to develop a MOOC strategy. The discussion should involve all staff members who might be involved in or affected by the offering of a MOOC. Apart from respecting the academic tradition of shared governance this is also a pragmatic precaution.

In many of the elite US universities that launched the MOOCs frenzy the decision to offer MOOCs by-passed the usual academic approval processes simply because the MOOCs were not credit courses. Today, because of the intense press coverage of MOOCs and the desperate search for a business model, those universities are finding that short-circuiting their normal decision-making processes was a mistake. It is too early to talk about a faculty revolt, but many professors are unhappy at the way that MOOCs are changing their institution’s image. So take the time to get everyone on board in advance!

Third, ensure that any MOOC initiative are fully integrated into your University’s strategy for online learning. Moving online in a cost-effective and academically effective manner will be the greatest challenge facing you in the coming years and grappling with MOOCs can advance that discussion. You have various choices to make.

You may wish to offer some one-off MOOCs in areas where you have special expertise in order to reach a particular group that interests you. The COL-IIT Kanpur MOOC on Mobile Technology is a good example. You will lose money on the MOOC but it may be worth it to create a favourable impression among a particular group of stakeholders. On the other hand you may wish adopt the MOOC2Degree approach and offer a free MOOC, for credit, to attract more people into your regular online programmes.

Fourth, in discussing both MOOCs and your regular online programmes you should think hard about costs and the future viability of the University. In some parts of the world, especially the US, many universities face grim decisions as state financial support continues to decline and the market is forcing tuition fees down. Things in Malaysia may be easier, with good state support and reliable fee revenue, but don’t assume that will continue forever.

Moving into online learning is not just a matter of putting the old wine of the curriculum into new bottles. See it as an opportunity to cut costs and fees while raising revenues by operating at larger scale. Think through your financial strategy. At present, for example, it is fashionable to talk about blended learning. The idea is that students and academics will learn and teach using both classroom and online methods. That’s fine except that it almost certainly raises the cost of operating the university without any commensurate increase in revenue.

Furthermore, as students get more and more comfortable with learning online they may decide to use more of the time that they would otherwise spend on campus to make money in a job. They may also find fully online providers that are less expensive than you are.

Finally, you need to ensure that the quality of your online offerings is as good or better than your campus teaching. In that context we worked earlier this year with two South African authors, Neil Butcher and Merridy Wilson-Strydom, to develop a *Guide to Quality in Online Learning*. It includes examples of good practice from all over the world

Academic Partnerships published it in June in both English and Chinese. We are especially pleased that both versions are Open Educational Resources under a Creative Commons CC-BY-SA license. The main aim of the Guide is to help the process of bringing online learning into the mainstream of higher education. We hope that MOOCs, despite their current contradictions, will prove to be a catalyst for that process.

Conclusion

So my answer to the question 'what is the future of MOOCs in education?' is that MOOCs have a past rather than a future. They are just one more step in the process by which education is moving from teaching in classrooms to enabling learning across space and time. One key step was the invention of printing in the 15th century; a second was the development of railways in the 19th century. When printed materials and letters could be transported rapidly correspondence education was born. The 20th century added media like radio, film, television and computing, which enabled the open universities to offer multi-media distance learning to millions.

In this century the Internet came into its own, making the distribution of learning materials instantaneous and almost cost-free. Nevertheless, learning in campuses and classrooms was still considered the more respectable option. But when they jumped into MOOCs the elite campus universities suddenly made online learning mainstream and respectable. But MOOCs are not higher education. Today's challenge is for institutions like UTM to offer online higher education with credentials – and to do it at scale and at low cost. MOOCs will have been an important milestone on the way to that goal.

I wish UTM well as it follows that path.

Thank you

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