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Where are MOOCs taking Higher Education?

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Abstract

Although they draw on a long history of open and distance learning, MOOCs took the world by surprise in 2012 because they were offered by elite institutions that had pinned their reputations on exclusiveness rather than scale and on selectivity rather than openness. Even though MOOCs still lack a viable business model, the cat is out of the bag and attempts to house train it will lead higher education into interesting times. The presentation will put MOOCs in context, explode some myths and explore the possibilities that will open up once current paradoxes are resolved.

Introduction

It is a pleasure to be back at Penn State University. My last visit here goes back to 1997 and a memorable World Conference of the International Council for Distance Education. Indeed, because of diary conflicts, the only ICDE conference I have managed to attend since then was in Hong Kong in 2004, days after I had learned of my appointment as President of the Commonwealth of Learning and was preparing to leave UNESCO.

Your ICDE conference here was held one year before you created Penn State World Campus – and I suspect that there may have been a link between these two events, both of which helped to establish this University's global prominence in distance learning.

In that context I hope you it will not be invidious if I single out two of your colleagues for special mention. Gary Miller and Michael Moore have added lustre to Penn State and have contributed much to the development of distance education as scholars and practitioners. It is an honour to pay tribute to them as I begin this lecture. Their work over many decades is a reminder, which I'm sure is not needed here, that distance learning in higher education did not begin with the subject of my lecture today, MOOCs or Massive Open Online Courses.

Nevertheless, we should be grateful that the frenzy about MOOCs has seared distance learning into the consciousness of the US news media in a way that nothing has done before. You could say that the emergence of MOOCs has thrown a very large rock into the already turbulent world of higher education, causing waves that seem to be rocking plenty of boats. Here at Penn State you are now players in the MOOCs game, so you will be beginning to experience some of the waves – or at least ripples, that it creates.

So my title today is simply: *Where are MOOCs taking Higher Education?*

Where do I stand?

Let me start with a few words about my own background and biases. Where you stand on an issue depends on where you sit!

I mentioned that MOOCs have brought distance learning into American public discourse in a way that nothing has done before. The only comparable phenomenon, which occurred in Europe over four decades ago, was the creation of the Open University in the UK. That was where my own initiation into distance learning began.

My full-time higher education took place in medieval universities, with Bachelor's and Master's degrees from Oxford in Metallurgy and a Doctorate from the University of Paris in Nuclear Metallurgy. I have to confess that during my short career as a metallurgist I was partly responsible for debasing your currency. Back in 1965 US quarters and dimes were made of silver and had become more valuable as silver than as coins – always a bad thing for any currency! I worked as a very junior member on a project to develop the three-layer sandwich coins that you have now.

My job was to develop a method of quality control, so as to ensure that when you tossed a coin it came down in one piece, not three. There's a link with Penn State, because Engineering Professor Don Koss was a postdoctoral fellow at Oxford at the time and helped me to get this interesting summer job before starting my doctoral research in Paris.

By a nice coincidence I received my doctorate just weeks before the ceremony on July 23, 1969 at which the Open University received its Royal Charter. And by another nice coincidence that event took place just three days after Neil Armstrong stepped on to the Moon, saying: 'That's one small step for a man, one giant leap for mankind'.

A new era in our cosmic awareness had dawned. A new era in higher education had begun too, heralded by Chancellor Geoffrey Crowther's statement, which defines the Open University's mission to this day, that the new University would be 'Open as to people, open as to places, open as to methods and open as to ideas'. I watched the moon landing in Minnesota with my wife's relatives but I was not aware of the creation of the Open University at the time.

I had just taken up my first academic job as an assistant professor of Metallurgical Engineering at the Université de Montréal's École Polytechnique. Within a year I decided that now that I was an academic I should learn something about Education to make me a better teacher. I later realised that this was a deviant idea for a young engineering professor. But by then I had enrolled in a part-time Master's degree programme in Education Technology at what was then Sir George Williams University – later to become Concordia University.

This programme required an internship and by 1971, when I wondered about where to do it, the higher education press was suddenly full of stories, rather as it is today with MOOCs, about an amazing British innovation, the Open University.

I've always believed in going to the source when something interests me, so I arranged to become an unpaid intern at the Open University for the summer of 1972. It proved to be a life-changing experience, for I returned to Canada 'no longer at ease in the old dispensation' (in the words of T. S. Eliot). Shortly afterwards I joined the distance

learning revolution by going to work for the new Télé-université, Québec's Open University, in Québec City.

Having started a biographical digression I should put my cards on the table and complete the confession. It took me 25 years to complete the Master's degree that I began back in 1970 and by the time I completed the thesis for the programme I had become vice-chancellor of the Open University. This thesis became my book *Mega-universities and Knowledge Media: Technology Strategies for Higher Education* and gave me a new lease of life as a scholar after 12 years as a university president.

My next move as a global nomad took me to UNESCO where my task was to coordinate the global campaign for Education for All. This gave me the inspiration and the material, when I got to my next job at the Commonwealth of Learning, to produce a book on distance learning at the school level: *Mega-Schools, Technology and Teachers: Achieving Education for All.*

Finally, after I left COL, the Korea National Open University kindly took me on for a month as a visiting fellow last September. They wanted a research paper so I plunged into MOOCs and was very lucky with the timing of my paper *Making Sense of MOOCs: Musings in a Maze of Myth, Paradox and Possibility,* which made the rounds on the Internet very quickly.

With this background as a forty-year veteran of distance learning I bring three beliefs to the discussion of MOOCs.

First, big is good. My collection of publications about mega-universities, mega-schools and mega-courses means that I like enrolment figures with lots of zeroes behind them, whether in open universities, open schools or open online courses. I have devoted my career, in both universities and international organisations, to opening up access to education at all levels.

But second, I believe in access to success. Ordinary people want their educational achievements to be recognised by society. Open universities and open schools provide that recognition to successful students. Most MOOCs do not offer such recognition, which, to me, is their fatal flaw – or at least it presents those offering MOOCs with the challenge of being totally honest in their marketing so that hopeful learners in faraway countries are not led up the garden path.

Third, I believe that using technology is the only way to enable wide access to successful learning at reasonable cost. I won't explain my metaphor of the iron triangle in detail today but it starts from the fact that the challenge in expanding education is always to strike a balance between access, quality and cost. The triangle represents these as three vectors. The aim is to stretch the iron triangle of access, quality and cost like this: higher quality, wider access, and lower cost. Only by using technology can you do this because in a classroom situation any attempt to move one vector in the desired direction tends to make the others worse.

This was put in another way by Darrell Velegol, Professor of Chemical Engineering here at Penn State, who said: *Sometimes the constraints of a traditional classroom structure can limit what we can accomplish and how many students we can educate. MOOCs bring*

in a whole new group of students that have as much ability to re-create this world as anyone.

The key point here is that technology has already reconfigured the iron triangle in most areas of life – both products and services. You might say that MOOCs represents a dramatic application of the same principle to higher education. But as a 40-year veteran of educational technology I have seen fads come and go. MOOCs are a fad that has come. It may not soon go, but it will certainly evolve into different manifestations.

So before I plunge into the detail of MOOCs I shall stand back a bit and look at patterns in the adoption of technology in society generally. This will give us some perspective. I shall then try to update you on where the MOOCs boom has reached. Ironically this is not as easy as it sounds, because although MOOCs are massive and public, institutions can be a bit close-mouthed about their experience of offering them or their future plans – especially their economic experience and aspirations. I look forward to hearing your experience from the five MOOCs you are now offering.

I shall then re-visit briefly the myths, paradoxes, and possibilities that I pointed up in my earlier paper on MOOCs and present a revised view of where MOOCs are taking higher education. Is this the direction in which higher education should be going?

Technology cycles

I start with technology cycles.

When I wrote *Mega-universities,* I drew on Moore's technology adoption life cycle. Its key feature is the chasm that can occur between the early adopters of an innovation and take-up by the early majority. For some innovations things seem to start well, exponential growth begins – and then suddenly it all stalls and falls into the chasm.

Today the talk is more often about the Gartner technology hype cycle, which MOOCs illustrate nicely. Right now, as more and more universities around the world pile into MOOCs, we must be nearing the peak of inflated expectations. I say that because despite the bluster from the venture capitalists, there is no real business model for MOOCs and little sign of revenue flows for the universities taking part. They may well be investing inflated expectations in the reputational benefits of offering MOOCs.

My fellow Vancouverite colleague Professor Tony Bates, a perceptive observer of the online learning scene, thinks that MOOCs will head into the trough of disillusionment before the end of this year but, to quote him: 'I doubt they will hit bottom until 2014, when evaluation reports start to roll in, and the universities participating decide whether the business model works for them. I think there is enough momentum to carry them through 2013'.

It is useful to juxtapose the technology adoption and technology hype cycles and to ask whether the coming trough of disillusionment will create a chasm of reduced MOOCs activity. Some institutions may decide that the reputational advantage they hoped for is not worth the cost – or even that there is reputational damage – and some potential newcomers to the flock may conclude that the game is not worth the candle.

But what happens then? Online learning is an important part of the future of higher education. Both an early and a late majority of institutions must eventually get online,

partly to attract students, partly to get costs down and partly to benefit from the academic advantages of the knowledge media. But how will universities climb the slope of enlightenment by adopting online learning to reach the plateau of productivity that beckons in the hype cycle?

For most institutions the plateau of productivity will mean a hybrid model that combines significant online learning with opportunities for face-to-face teaching and support. This is a large step from where most institutions are now, although those already offering some courses and programmes through open and distance learning should find it easier to take that step, not least because some of their students will already be mixing and matching learning in both modes. I assume that applies to Penn State.

An important question for us today is whether offering MOOCs will help institutions climb the slope of enlightenment towards this plateau of sustainable productivity and a hybrid teaching model. It is not entirely obvious that it will. Indeed, some cynics argue that elite universities are offering MOOCs to give an impression of modernity while actually protecting the rest of the institution from the hassle of having to go online.

That's an extreme view, but might the little videos that are commonest feature of MOOC pedagogy really be doing more to nurture the megalomania of the academics involved than to move the institution towards a hybrid teaching and learning model for its regular award-bearing programmes? That's another heretical thought!

The MOOCs boom

Let me turn now to the MOOCs boom and try to summarize where the MOOCs movement has come from and is now going. This is a fast changing scene so whatever I say will be out of date but let me try anyway.

cMOOCs

A little history never comes amiss so let me start with the pre-history of MOOCs. That means going back five years! The term MOOC originated in Canada. Cormier and Alexander invented the acronym in 2008 to describe an open online course at the University of Manitoba designed by George Siemens and Stephen Downes. The 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.

The course title gives you its flavour. It was inspired by Ivan Illich's philosophy, in his book *Deschooling Society,* that an educational system should 'provide all who want to learn with access to available resources at any time in their lives; empower all who want to share what they know to find those who want to learn it from them; and, finally furnish all who want to present an issue to the public with the opportunity to make their challenge known'

In this spirit 'all the course content was available through RSS feeds, and learners could participate with their choice of tools: threaded discussions in Moodle, blog posts, Second Life and synchronous online meetings'. You can see that these courses were a logical development of the Open Educational Resources movement that had been gathering momentum for ten years by then.

xMOOCs

These early MOOCs, which are called cMOOCs (for 'connecting' MOOCs), are very different from the next phase of MOOCs that caused a media frenzy last year. This next phase was called xMOOCs after edX, the MIT, Harvard and UC Berkeley consortium that is offering them.

Those first xMOOCs had nothing to do with Illich's liberal educational philosophy. 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. Some of the creators of cMOOCs forecast last year that with time the xMOOCs movement would return to some of their methods and philosophy and indeed, later last year MIT began, timidly, to connect its students in this way.

Here at Penn State you have a nice example of how this is now happening more widely. I quote Anna Divinsky who is leading the course *Introduction to Art: Concepts and Techniques* to which over 17,000 students signed up. She says: *"unlike a traditional class setting, MOOC students will have to be self-directed and learn to rely on each other for feedback instead of continual guidance from an instructor. The students will have the opportunity to share their creative process and receive suggestions from others enrolled. The on-going discussion will demonstrate all the unique and diverse perspectives of the people enrolled."*

She added: *"I am a big proponent of free and open education. Even though I won't be able to personally appraise each student's work, as I might in a typical class, I'm thrilled so many students can be exposed to art and share their creative energy on a global level."*

In my earlier commentaries on MOOCs I have suggested that the real revolution of MOOCs is that universities with scarcity at the heart of their business model are suddenly embracing openness. I wonder how many faculty members at these highly selective institutions have discovered, after an experience with a MOOC, that like Professor Divinsky they really believe in free and open education.

Her course shows the diversity that is emerging in MOOCs. This will create tensions between the tendency of IT platforms to want to standardize things and the tendency of teachers to want to break out of such moulds. In my *Musings in the Maze* paper I noted the experience of the University of Edinburgh, one of Coursera's first foreign partners. One of their courses had many cMOOC features and they described the Coursera platform as 'conservative in terms of online pedagogical practice'. Like Professor Divinsky they wanted learners to exchange their own videos but found that some of them wanted the comfort of the little didactic videos that are a standard feature of Coursera offerings. I wonder if Penn State found the same thing.

You will be more aware than I of the situation of MOOCs here in the US. When last I heard figures, at a conference in the UK last month, Coursera was working with 41 US universities, had reached 3.2m learners and was enrolling them at the rate of 1.4m per month. Before we get carried away by such numbers let's remember that that it's slightly fewer than the enrolment of a single institution in India, the Indira Gandhi National Open University, and many fewer than those in the China TV and Radio University system.

But I'm not here to belittle the achievements of MOOCs, just to give a little perspective. Instead of talking about the US, let me note some developments overseas. These illustrate the diversity that is developing. Indeed, some wag has remarked that the meaning of every letter in the acronym MOOC is now negotiable.

I shall mention three MOOC developments outside North America in decreasing order of how much I know about them, which is also related to how new they are. It is an interesting irony that while offering MOOCs is all about openness, those organising MOOC initiatives are much more close mouthed about their work than is usual in higher education, especially about the financial arrangements and models. I suppose this is less of an issue here, because in a public university like Penn State most of this information can be ferreted out with freedom of information requests.

The Canadian and US pioneering of MOOCs has definitely caught other countries on the back foot. Earlier this year the Auditor-General of France issued a scathing report about the failure of CNED, France's huge 70-year old distance learning institution, to adapt to the online world. You can get the meaning of these headlines without knowing any French. Because the cost-reduction potential of MOOCs is highly appealing to cash-strapped governments, they are badgering their universities to get off the back foot and do something. At the London conference last month people were asking the question: are MOOCs a case of the early bird getting the worm, or might the second mouse get the cheese? Like most analogies, these should not be taken very far, but they indicate the debate!

Futurelearn

I start with Futurelearn. This is an ambitious British MOOCs initiative. It is led by the Open University, through an independent company, and includes, as well as nearly 20 well-known UK universities, important national institutions like the BBC, the British Council, the British Museum and the British Library.

The backgrounds of two of the key players are interesting. Simon Nelson, the CEO, is from the media industry, where he played a key role in the development of BBC Online, one of the world's most visited and successful websites. Martin Bean, an Australian-American, was General Manager of Worldwide Education Products for Microsoft before joining the OU as vice-chancellor – i.e. president – a few years ago.

Nelson nails his colours to the mast with this statement:

The role that entertainment plays in learning is often overlooked. Take a glance at massive open online courses (MOOCs). They're often very conventional, based on lectures broadcast "at" students, rather than engaging with them. The language can be rarefied and niche [ask most people the meaning of "MOOC" or "pedagogy" and they wouldn't have a clue]. Perhaps this partly explains the enormous dropout rates and why many of those completing MOOCs are practicing academics who are familiar with the culture and semantics.

Since I can't tell you much about the platform or the courses of Futurelearn, since these are under development, let me give you a few more quotes from the principals. Here is Nelson again:

"Our product will be designed 100% for students"

"Drawing on 40 years' Open University expertise in teaching and learning at a distance, we have an opportunity to offer something very different"

"We have access to vast amounts of data gathered through the University's own OpenLearn platform and iTunesU. We'll use this information to engineer-in features that will make the experience of studying (and staying) with Futurelearn highly rewarding and yes, entertaining".

And here is what Martin Bean has to say:

 "I can sum it up in three words: quality, not quantity. Futurelearn might not be the biggest but I'm determined that it will always be the best"

"Many think there is only value in formal qualifications and that informal learning is a waste of time. The experience of the OU shows that there is a vast amount of traffic between informal and formal learning tracks. For example, 100,000 OU-registered students also study with OpenLearn, which is free and open to all".

At the moment, as you can see, Futurelearn is all about aspirations and planning. Nevertheless, this is a powerful gathering of institutions and they will certainly bring more diversity to the MOOCs space.

I shall be following two aspects of Futurelearn particularly closely. First, as I noted earlier with my comment about access to success I am very uneasy that most MOOC learners, even those who complete and pass, have nothing useful to show for it in the way of credit.

So I shall be very interested to see what Martin Bean means when he says:

"and instead of measuring drop outs, we'll be rewarding success. Futurelearn will celebrate everyone's achievements, no matter where or how far their learning journey takes them".

The other aspect I shall watch is the business model. I think it's still true to say that whereas the commercial companies involved in MOOCs do have a business model, even it involves some wishful thinking, I don't yet see a business proposition for the universities involved, other than soft objectives like gaining reputation or following MIT. In this area the Open University does have a track record, because it has already shown that thousands of learners, who begin by studying its OpenLearn resources for free, convert into fee-paying students.

This is the point of Martin Bean's comment about 'traffic between formal and informal learning tracks'. However, it's less clear that this model will help the other UK universities involved in Futurelearn, which, given their selective admissions processes, probably already have as many fee-paying students as they want. Not to mention the fact that it is one thing for a Mongolian student who succeeds in a MOOC to take an Open University credit course while remaining in Ulan Bator, but rather another for her to move to full-time study in the UK. I will return to the question of whether one impact of MOOCs will be to increase dramatically the number of regular credit programmes offered online.

India - NPTEL

Let me now say a quick word about India. With its low cost base and high intellectual potential, India could be a major player in global online learning if it got its act together. Already teachers in India tutor many American children online, but what about MOOCs?

The lead is being taken by the National Programme for Technology Enhanced Learning, NPTEL and two close-ups of the material on their website screen-grab are worth pausing over. First, this initiative involves the most credible institutions in Indian higher education, the IITs (Indian Institutes of Technology) and the IIScs (Indian Institutes of Science). You see their logos at the top of this slide. Second, this is India, so there is volume: 200 courses already on offer and 1,000 planned. The model is interesting.

The course materials will be accessible free but there is a fee of $10 for certification. The platform will be Google Course Builder and faculty will adapt the extensive existing pool of Open Educational Resources to construct the courses. NPTELs OER videos have already attracted some 80 million views.

Most interestingly, the system will use industry-based managers to act as "contacts"/mentors and will use an industry-built ID authentication and an e-Governance platform for proctoring. Certification exams will take place across the country at weekends and can be taken at any time. They expect some 150,000 to 200,000 requests for certification.

The inputs from IT companies to the courses and the certification process are expected to improve the quality of graduates. According to one of the IIT professors leading the project, "Although there is no written commitment, the understanding is that the companies will consider people who fare well in these courses for recruitment."

OpenupEd

My final example of another MOOC initiative is OpenupEd, which was announced in April. Led by the European Association of Distance Teaching Universities, OpenupEd is a partnership of EADTU member institutions in eleven countries across Europe. Its fairly embryonic website lists some 60 available courses in 12 languages – including a course in Gaelic offered by the UKOU.

I have not been able to find out whether a common delivery platform is being used, so I assume that for the time being each participating institution will use its existing platform. For the time being it looks as if OpenupEd is more in the nature of a one-stop portal for the existing courses of the consortium members across Europe, many of those members being open universities.

All this brings us back to my earlier cartoon. When a word gains currency, as MOOCs has, everyone wants to apply it to what they are doing. So we are back to a situation where all generalizations are false – including this one!

So let me end by evoking briefly some of the points I made in the paper I wrote last year when the MOOCs frenzy hit its first peak: *Making Sense of MOOCs: Musings in a Maze of Myth, Paradox and Possibility.*

MOOCs Myths

I list just four myths.

First, university brand is a surrogate for teaching quality. Clearly it is not. The first wave of universities offering MOOCs gained their reputations in research and nothing indicates they have special competence for online teaching. I make an exception for MIT, which has been working this territory for over ten years, starting with the OpenCourseWare project, and doing so with the explicit purpose of improving its on-campus teaching.

Second, you cannot use the word quality about courses with 95% dropout rates. The quality assurance agencies that now exist in most countries would consider this a disaster. It would be more honest so stop using the word 'course' about MOOCs and simply call them Open Educational Resources with some self-assessment questions.

Third, MOOCs are not a new pedagogy. Referring to the early xMOOCs last year and not mincing his words, well-known EdTech blogger Tony Bates commented that these xMOOCs 'were based on a very old and outdated behaviorist pedagogy, relying primarily on information transmission, computer-marked assignments and peer assessment'.

Fourth, to suggest that MOOCs are the answer to the expansion of higher education in developing countries is neo-imperialist hubris. To suggest that MOOCs are the answer to situations like this stampede for admissions to the University of Johannesburg is to clutch at straws.

MOOCs Paradoxes

Turning, quickly, to paradoxes, the big issue is the double standard about who gets credit. You pass a course on campus and get credit, you pass the same course as a MOOC and you don't. This means that the key to getting a degree is the admissions process to the university, not your performance as a student once you get there.

The late Dan Coldeway, an American colleague at Athabasca University, used to call this the principle of 'good little piggies in make good bacon out'. It's a venerable academic tradition but I don't think it is fit for the 21st century. Fortunately more and more people are giving credit for MOOCs, which will shake things up.

MOOCs Possibilities

I end on a positive note. Like all frenzies and fads, MOOCs have generated plenty of contradictions and lots of nonsense talk. But the movement they have started can yield big benefits.

First, it will make universities think harder about the quality of their teaching as learners start to compare and rank MOOCs. They will not longer take it for granted that a good brand means high quality teaching.

Second, the 'open' in MOOCs introduces healthy transparency. People worldwide can see whether a course from Harvard or Penn State is any good.

Third, grappling with MOOCs and the online world generally will stimulate universities to clarify their missions, particularly the role that online teaching will play.

Finally, and this may be a little scary, this movement may finally cut the outsize costs of higher education which, as you know, have been growing much faster than inflation for decades.

Conclusion

Let me end by flagging two areas of personal involvement in these exciting developments.

First, I have just contributed to the editing of a Guide to Quality in Online Education, copies of which are available today. The authors are South Africans Neil Butcher and Merridy Strydom-Wilson, who have the great merit of having feet in both the developed and developing worlds – very important now that online learning is becoming a global phenomenon.

Second, many universities will find it useful to have a commercial partner as they move online and try to climb the slope of enlightenment. I have been impressed by the work of the Academic Partnerships Company. In particular, the values of its president, Randy Best, resonate closely with mine. I confess that I never expected to find a banker who believed as strongly as I do in getting cost down and access and quality up. This is a man who is stretching the iron triangle. Academic Partnerships is about access to success. The aim is to offer regular credit programmes online with student success at least as great as on campus. You will know that Academic Partnerships is helping many state universities with aspects of their online offerings.

I conclude that MOOCs are taking higher education into new directions. Offering MOOCs may not be the most important destination for most institutions. But they are forcing them to decide where they are and where they want to be on the hype cycle.