

Are MOOCs the long-awaited technological revolution in higher education?

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Introduction

Massive Open Online Courses (MOOCs) are a portent of the potential of online learning and teaching to transform higher education. The University of Manitoba offered the first online course to bear the name MOOC in 2008. Titled *Connectivism and Connective Knowledge* it was offered free to 2,300 members of the public with little fanfare. Four years later, in 2012, several elite US universities began offering online courses free to much larger numbers of learners (100,000+) worldwide. This development captured the attention of the news media more than any development in the sector for years, spawning feverish talk about a revolution in higher education.

We begin by commenting on the history of change in higher education, starting in medieval times and pausing on the emergence of the Humboldtian university, the creation of the US Land Grant universities and colleges through the Morrill Act of 1892, the establishment of the UK Open University in 1969 and Europe's current Bologna Process. This review shows that higher education has developed by evolution rather than revolution, although this does not lessen the challenges facing those who try to guide the destinies of higher education systems and institutions. Finding and filling a new niche in a rapidly evolving environment may be harder than being caught up in a revolution.

We then examine the phenomenon of MOOCs, ask why they caused such a sensation in 2012, and place them in a historical perspective. MOOCs are just one manifestation of a series of innovations that use the Internet, usually to foster greater openness, which we call 'post-traditional higher education'. Among these various dimensions of openness are open access to research materials, open admissions, open educational resources, open forms of assessment and credentialing, and open curricula.

Although these trends towards greater openness originated before the explosion of the Internet, online technologies have given them greater momentum. MOOCs are a symbol of this acceleration but, rather like a catalyst in a chemical reaction, they are speeding up the reaction rather than being its end product.

The three essential components of the instructional function in higher education are learning, teaching and credentialing. Degree-awarding powers are the most important privilege that countries confer on their universities and colleges. Most MOOCs do not lead to credentials and cannot be considered as mainstream higher education until they

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do. They are better understood as a continuation of the tradition of free public lectures that many universities offer to their local communities. Because MOOCs are free to the users, another issue limiting their long-term impact is that there is no clear business model for most of the institutions that develop and offer them. We assess tactics that institutions might use in order to offer MOOCs in a financially sustainable way.

MOOCs are, however, stimulating important transformations in higher education, especially by encouraging online teaching and learning in regular credit programmes. Ironically, the elite universities that put MOOCs on the map in 2012 are the least likely institutions to follow this route, because their main business model is based on the exclusiveness of the campus experience that they offer to relatively small numbers of students, who are admitted through stringent selection processes. The jury is still out on whether, by making online teaching respectable and attracting tens of thousands of learners to their own MOOCs, these elite institutions have damaged their brands by lessening their mystique of exclusiveness.

Meanwhile, the large majority of universities are taking online learning much more seriously and it is tempting new players into the higher education space. They are attracted by the low entry costs compared to putting up buildings and by the chance to offer courses targeted directly at labour market needs. In response to this trend new types of qualifications such as open badges are emerging.

These various manifestations of post-traditional higher education pose a quality challenge for governments and institutional leaders. They must protect consumers by conducting quality assurance for post-traditional approaches - but without stifling innovation. We conclude by referencing guides to quality in both traditional and post-traditional online learning and describing the quality platform that is being developed by the International Quality Group of the US Council for Higher Education Accreditation.

Change in higher education: evolution or revolution?

The 1960s saw considerable turbulence in higher education, which both authors experienced directly. Daniel was a doctoral student at the University of Paris in 1968, when student protests shut down the universities – and much of France – for several weeks. The same year Uvalić-Trumbić took part as a freshman in the students' demonstration at the University of Belgrade where the Faculty of Philosophy became a centre for gatherings of students and professors.

On the other side of the Atlantic controversy had exploded at the University of California in 1964 when Berkeley students led the Free Speech Movement to protest against regulations limiting political activities on campus, including Civil Rights advocacy and opposition to the Vietnam War. Clark Kerr, the highly respected president of the University of California, who had done much to build its reputation since his appointment in 1958, was caught in the crossfire between liberal students and conservative politicians

and forced to quit in 1967. On that occasion he made his famous comment that he had 'left the University just as I had entered it, fired with enthusiasm'.

In the 1970s, in response to the turbulence of the 1960s, Kerr was asked to create and lead the Carnegie Commission on Higher Education under the auspices of the Carnegie Corporation. The Commission was a national effort, unprecedented both in scope and in Kerr's freedom to guide its research and productivity. He initiated an array of studies and provided recommendations on the most vital issues facing American higher education in the latter part of the twentieth century (Policy Perspectives, 1994).

Kerr was a noted wordsmith and this statement from the Commission's reports has been quoted for 40 years: *'Taking, as a starting point, 1530, when the Lutheran Church was founded, some 66 institutions that existed then still exist today in the Western world in recognisable forms: the Catholic Church, the Lutheran Church, the parliaments of Iceland and the Isle of Man, and 62 universities... They have experienced wars, revolutions, depressions, and industrial transformations, and have come out less changed than almost any other segment of their societies.'*

These words should give pause to protesting students and anyone brave enough to predict revolutions in higher education. History suggests that higher evolution has always developed by evolution rather than revolution. Nevertheless, although there have been no dramatic upheavals when an older academic order went to the guillotine, universities have changed substantially over the centuries.

In particular, the locus of internal control has steadily migrated within institutions. Oxford University had its origins when students, some of whom had been expelled from the University of Paris for rowdy behaviour, rented houses together and then hired scholars to teach them. Over the years the locus of control moved from the students to these scholars, the fellows or dons of the halls and colleges. In universities like Oxford and Cambridge it has pretty much stayed there ever since. In most other universities the locus of control has moved in the direction of academic administrators or even governments. But this has been a gradual process.

The following four major developments in higher education, two in the 19th and two in the 20th centuries, were hailed as revolutionary at the time. Hindsight now shows us that each contributed to the gradual evolution of institutions generally rather than sparking sudden changes or sending higher education in radically new directions.

The Humboldtian University

In the early 1800s, Wilhelm von Humboldt urged that universities be more liberal and research focused than previously. Seminars and laboratories started to evolve because Humboldt envisioned university education as a student-centered activity of research. He expressed this by stating that: *'the university teacher is thus no longer a teacher and the student is no longer a pupil. Instead the student conducts research on his*

own behalf and the professor supervises his research and supports him in it' (UNESCO-IBE, 1993)

These were new ideas but they did not create a revolution. Certainly they had a big influence on universities in the US and in Britain – and had even loosened up the tightly controlled French system by the end of the 19th century – but this was evolution.

The Morrill Act: Land Grant Colleges

Later in the 19th century, in 1862, the Morrill Act created the Land Grant colleges and universities in the United States (Library of Congress, 2010). The Act enjoined these new institutions to focus on the teaching of practical agriculture, science, military science and engineering, although without excluding classical studies. It was a response to the industrial revolution and changing social class. Certainly this mission contrasted with the historic practice of higher education to focus on an abstract liberal arts curriculum but, once again, it was not a revolution.

Ultimately most land grant colleges became large public universities that today offer a full spectrum of educational opportunities. Some, such as Cornell and MIT, have become private institutions. Today the bursting of the tuition fees bubble is having dire effects on some of these institutions.

The Open University

Our first example from the 20th century is the Open University. Here there was talk of revolution, but of a revolution in their technological environment – not in universities *per se*. We sometimes assume that technology came into higher education with the Internet, but even by the 1960s the blending of technologies had begun to offer universities a rich communications environment. At the foundation ceremony of the UK Open University in 1969 its Chancellor, Lord Crowther, captured this in these words: *'The world is caught in a communications revolution, the effects of which will go beyond those of the industrial revolution of two centuries ago. Then the great advance was the invention of machines to multiply the potency of men's muscles. Now the great new advance is the invention of machines to multiply the potency of men's minds. As the steam engine was to the first revolution, so the computer is to the second'* (Crowther, 1969).

It is hard to overstate the impact of the UK Open University in laying the groundwork for the use of technology in higher education. Established with strong political support, it attracted worldwide attention. The OU slogan: 'open as to people, open as to places, open as to methods and open as to ideas' encapsulates this radical innovation.

Today the Open University has over 200,000 enrolled students. Yet despite its size it ranked 5th, one place above Oxford, in national assessments of teaching quality conducted over a decade. The Open University has also scored highly annual nation-wide assessments of students' satisfaction with their universities.

The Open University showed nearly fifty years ago that technology could help to deliver high-quality programmes to large numbers of students but this did not spark a revolution in higher education. Indeed, one wag remarked at the time that the opening of the Open University had closed Britain's other universities even more firmly, because they felt relieved of any responsibility to worry about part-time and adult students.

In the longer term, however, as all UK universities began to be concerned about the implications of technology for their missions, the Open University has proved a useful catalyst for evolution. It is the organising force behind the UK's FutureLearn MOOCs initiative, in which it leads a consortium of 25 UK research universities.

The Bologna Process

A unique regional higher education reform initiative, the Bologna Process was conceived as 'a fast-fix for turning higher education in Europe into the most dynamic and attractive in the world' (Gilder & Wells, 2009).

The 1999 Bologna Declaration aimed for the adoption of a system of easily readable and comparable degrees, the harmonization of degrees into three cycles (Bachelor, Master and Doctor) and the introduction of quality assurance mechanisms. Forty-six Ministers of Higher Education from across the wider Europe subsequently signed it. The year 2010 was the target for reaching its objectives and the Bologna Process duly celebrated its success at a Ministerial Conference in that year, held symbolically in both Budapest and Vienna as an illustration of the re-unification of Europe. Uvalić-Trumbić participated as head of the UNESCO delegation, having also been an active participant in some of the Bologna Process developments.

As a result of the Bologna Process the current level of collaboration among European universities is qualified as 'revolutionary' in official documents. However, Gilder and Wells, in their article *Bologna "Unplugged": Uncovering the Base Track of a Major European-Wide Higher Educational Reform Initiative*, assessed the implementation of the Bologna Process 'without the rhetoric, without the technocratic lingo, jargon, tweaking and manipulation which renders it a resounding palatable success story' (Gilder & Wells, 2009).

Discounting the official discourse, these authors consulted stakeholders. They found that many did not really believe in the Bologna Process, smiling and nodding about in public, but quietly sneering at in private. The practical consequence is that the implementation of Bologna has been largely fudged, particularly in three areas.

i)...and then there were three (cycles)!

According to Gilder and Wells, 'some of the Bologna 46 have crudely and mindlessly simply sliced up their previous two-cycle university degree structure into three parts, artificially creating three qualifications out of the same study period as was historically

traditional for their system. To date, little consideration has been given to the content of each level's qualification, their fitness for purpose (e.g. 1st-cycle degrees relevant to the labour market)

ii)... 'employability' – a word untranslatable in most European languages

This fudge has eviscerated a key purpose of the Bologna process, which is to enable students to go directly into the world of work with a 3-year Bachelor's degree. However, to quote the authors, 'once they are in a programme, they are told, implicitly if not explicitly, that the 1st-level degree is actually not worth anything... Those who promulgate this myth are of course technically correct, for the simple reason that the new 1st-cycle degree was often never re-designed in the first place... Students are thus urged to study on to the Master's level if they are to be really qualified, thereby effectively ensuring the status quo of yesteryear, to the students' great chagrin. Furthermore, employers also believe the Bachelor's degree is substandard (if not worthless), and are encouraged to do so by academics'. At the same time, the Master's degree has lost its research component, lowering thus its academic quality and prestige. And later: 'if the three-degree cycles had been redesigned properly, this would be clearly evident and evidenced by the existence of accurate and relevant learning outcomes'.

iii)... 'we are a university, not a bank'

As this quip from a university rector suggests, a third area of fudge is credits. Gilder and Wells again: 'a system of credits has already been adopted in the Bologna 46, regardless of the lack of curriculum reform, regardless of an avoidance of learning outcomes and regardless of any concrete reform in the purpose of each degree cycle. Somewhat magically, a system of credits... has been introduced almost across-the-board. Reflect on that achievement for a moment: degree contents have not, by and large, changed; degree purposes remain as they were, for no one can agree on new learning outcomes, yet credit weights have deftly been assigned to each course. How did that happen? Did someone wake up one morning and say "this course is worth 10 credits and that one 32"? Based on what? Did they just divide the number of courses for each qualification by the total recommended for each cycle? Unfortunately, these questions are rhetorical, because that is exactly what happened. Three degrees were "demanded" by policymakers, three degrees of 180, 240 or 360 credits were produced forthwith.'

Unless things have changed dramatically since Gilder and Wells' 2009 research, we can only conclude that European universities have largely perverted the purposes of the Bologna Process. It is hardly even a reform, still less a revolution. Little has been achieved save a greater focus on higher education policy by a larger number of countries.

These four examples suggest that far from experiencing revolutions, higher education progresses by a slow process of evolution. However, evolving to find a suitable niche in a

changing environment is at least as challenging for institutions as being swept along by a revolution. How are MOOCs changing the environment?

MOOCs: Why all the fuss?

Early history (2008-2012)

The term MOOC originated in Canada in 2008 but passed relatively unnoticed for four years. Cormier and Alexander coined the acronym to describe an open online course at the University of Manitoba designed by Downes and Siemens (Downes, 2008). 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 title itself evoked the aim of the course, which was to follow Ivan Illich's injunction 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' (Illich, 1971). 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.

In 2012 MOOCs attracted considerable media attention when a number of US universities began offering free courses online to large numbers of students around the world. Early in 2012 Stanford University offered a free, chunked course on *Artificial Intelligence* online and 58,000 people signed up. One of the faculty members involved, Sebastian Thrun, went on to found Udacity, a commercial start-up that helps other universities to offer MOOCs. MIT announced MITx, another platform for MOOCs, at the end of 2011 for a launch in spring 2012. MITx then morphed into edX with the addition of Harvard and UC Berkeley.

After that, similar initiatives from other well-known US universities came thick and fast. A herd instinct took over as universities observed their peers joining the MOOCs bandwagon and jumped on for fear of being left behind. Coursera, another for-profit MOOC start-up, claimed nearly 1.4m registrations by mid-2012.

The US MOOCs of 2012 were very different in philosophy and pedagogy from the earlier Canadian MOOCs. Daniel was writing a paper on MOOCs later that year at the moment when the Wikipedia entry on MOOCs changed its focus from the earlier Canadian to the later American approaches (Daniel, 2012).

On 2012-09-16 Wikipedia defined a MOOC as 'a course where the participants are distributed and course materials are also dispersed across the web', adding that 'this is possible only if the course is open, and works significantly better if the course is large.

The course is not a gathering, but rather a way of connecting distributed instructors and learners across a common topic or field of discourse'. This was a description of the approach used by the Canadian MOOCs to reflect Illich's ideals.

Four days later, on 2012-09-20 Wikipedia's definition had become: 'a MOOC is a type of online course aimed at large-scale participation and open access via the web. MOOCs are a recent development in the area of distance education, and a progression of the kind of open education ideals suggested by open educational resources. Though the design of and participation in a MOOC may be similar to college or university courses, MOOCs typically do not offer credits awarded to paying students at schools. However, assessment of learning may be done for certification'. This description reflected the more behaviourist instructional style of the MOOCs then being offered by US universities, which were described as being 'at the intersection of Wall Street and Silicon Valley' (Caulfield, 2012).

Because of emerging nature of the concept and the different interests at work, both Wikipedia entries carried the disclaimer that: *'this article appears to be written like an advertisement. Please help improve it by rewriting promotional content from a neutral point of view and removing any inappropriate external links'*.

To distinguish between the very different pedagogies involved, those writing about MOOCs in 2012 designated the earlier Canadian MOOCs as cMOOCs (for connectivist MOOCs) and the US MOOCs of 2012 as xMOOCs (for the MITx and edX platforms). Today these separate designations are rarely used because, as the MOOCs on offer have multiplied and diversified, so their pedagogy has become more varied, borrowing from both the connectivist and behaviourist styles.

Nevertheless, we stress that true cMOOCs are very different from the more common xMOOCs and from the generality of teaching in higher education. Downes describes a cMOOC course as the 'creation of temporary and bounded events that allow for engagement between communities that would not normally associate with each other. Everybody starts afresh and is freer because it is temporary. Therefore you can get interaction between communities that might not otherwise happen. What is important in a connectivist course is not the course content. The content of the course is the thing that the conversation in the course revolves around. The quality of a course will be based on factors that determine whether it is a better or worse network. A good network can adapt and grow (plasticity). Knowledge is the structure of a network of connections. We know that learning is not about transmission; it's about growth. Learning is becoming a physicist. The purpose of connecting is to put us into an environment so that we can grow into it. It's a lot like learning a language. You have to immerse yourself in it and the culture of those who speak it' (Downes, 2013).

Some learners take to this approach readily while others find it more difficult. Jeffrey Young (2013), who has reported regularly on MOOCs for the US *Chronicle of Higher*

Education, found the cMOOC that he took ‘confusing’. Given the distinctiveness of the cMOOC approach it is appropriate that there is now a new term to describe it. In a paper on striking the right balance between facilitation and self-determination Beaven, Hauck *et al.* (2014) gave us the word ‘heutagogy’ to describe an experience that requires plenty of learner maturity and autonomy with rather little instructor control and structuring. They posit a hierarchy that has pedagogy at its base and rises through andragogy to heutagogy.

In the long run heutagogy and cMOOCs may have a greater impact on the evolution of teaching and learning in higher education in an information age than the more common xMOOCs, some of which learners can find trivial rather than confusing. In describing her experience as a learner in a variety of MOOCs, Bali (2014) emphasizes this point strongly. She took four Coursera MOOCs and ‘dropped in’ on several others and was surprised by the variability of the expectations that the MOOCs she took made on learners. Some did attempt to encourage higher order thinking but quizzes simply testing recall were more common. Rarely did courses take advantage of the potential for student interaction. She argues that ‘offering a MOOC that neither intentionally develops higher order thinking, nor promotes student interaction, is shortchanging the participants, and providing nothing like a true college education’. However, she also concluded that ‘connectivist approaches are unlikely to be widely used in existing traditional university courses in the short term’.

The evolving story

When the present paper was written in 2014 the Wikipedia entry on MOOCs was naturally much more extensive than the 2012 versions and covered their history from 2008 in a balanced way, although its earlier section on the distance learning precursors of MOOCs is written entirely from a US perspective. The entry still invites editing of all sections.

According to the European MOOCs Scoreboard the number of MOOCs on offer worldwide grew by nearly 500% (from 615 to 3,036) between June 2013 and August 2014 (Open Education Europa, 2014). This is a large increase but we should, of course, note that these numbers are still dwarfed by the hundreds of thousands of regular courses offered by higher education institutions worldwide. Naturally, this multiplication of MOOC numbers has been accompanied by diversification in the subjects on offer, the levels of study, the pedagogical approaches and the technologies used, leading one commentator to joke that the meaning of every letter in the acronym MOOC is now negotiable (Plourde, 2013).

MOOCs: some key questions

Nevertheless, three of the sceptical questions posed by those commenting on the MOOCs frenzy in 2012 such as Bates (2012) and Daniel (2012) remain equally pressing despite the recent effervescence and diversification of MOOCs. First, are MOOCs really higher

education? Second, whether or not we consider them to be higher education, how can they best be used? Third, is there a viable business model for MOOCs?

Are MOOCs higher education?

We argued earlier that higher education has developed through the centuries by gradual evolution rather than through periodic revolutions. Although the rapid changes of the 21st century may break this pattern, MOOCs cannot be revolutionary unless they are genuinely higher education. The most important power that societies give to their universities is not permission to organise teaching and learning, which flows naturally from the rights of assembly and free speech, but the authority to award degrees, diplomas and qualifications. Most MOOCs do not involve the assessment and certification of students in the framework of the degree-awarding powers of the institutions offering them, so however useful a function they may perform, they are not in the mainstream of higher education. They resemble more closely the free extra-mural lectures that some universities have offered to the general public for many years, both on campus and in its surrounding communities.

What is the most useful function of MOOCs?

The emergence of the US xMOOCs in 2012 was accompanied by wild claims that they were the answer to the exploding demand for higher education in poorer countries. This never made sense, not only because such people seek useful qualifications rather than informal learning, but also because the notion of the rich world trying to teach the poor world directly has patronising neo-colonialist overtones.

Laurillard (2014) asked: ‘are MOOCs solving any real, global education problems? They are certainly not solving the problem of providing the 100,000,000 university places now needed by young people in emerging economies desperate for higher education. This will double by 2025. They are not the people taking MOOCs. Nor are MOOCs solving the problem that in the US student loan debt is now higher than credit card debt; nor the problem that in the UK 40% of student loans will not be repaid. University fees remain high while graduate pay is still low.’

After quoting Coursera data showing that 85% of people participating in MOOCs already have university degrees, Laurillard argues that the problem MOOCs could help to solve is to provide free university teaching for highly qualified professionals. Noting UNESCO estimates that the world needs 1,600,000 teachers to achieve universal primary education by 2015 she continues: ‘suppose we could use MOOC-style courses to provide teacher development for 10,000 teacher educators in the cities of developing countries? And each of those could use the same MOOC materials to train 10 teachers in the local towns? And each of those could train 16 local teachers in their villages? And they in turn could reach the children who would not otherwise have had any primary schooling...?’

She concludes: ‘this is a professional development course for which the teaching methods currently used in MOOCs – videos, forums and quizzes – are appropriate, because teachers are professionals who know how to learn, and can learn a lot from each other. These methods are not sophisticated enough for teaching children or even undergraduates in the developing world, which is why the beneficiaries are still the rich. But they may help to train the professionals who can begin to make the difference.’

Others argue that the most useful applications of MOOCs will not be at the levels of degree studies but at the level of secondary school, where the Khan Academy (2014) is a pacesetter, and in the updating of technical and vocational skills.

MOOCs: Is there a business model?

In 2012 the media were particularly intrigued to see institutions that are highly selective in choosing their regular students, to whom they charge hefty fees, offering free MOOCs to people everywhere without any admission requirements (the primary meanings of ‘open’ in the acronym MOOCs). Journalists found it remarkable to see universities that had scarcity at the heart of their business models suddenly embracing openness on these dimensions.

Producing MOOCs costs money – increasing amounts of money as institutions have become more competitive in improving the technical quality of their offerings. Figures ranging from \$20,000 to \$200,000 are quoted. Clearly, even institutions with deep pockets cannot continue to develop and offer MOOCs indefinitely without some return on their investment.

An annex to the early Coursera contracts listed various monetization strategies for MOOCs (Young, 2012):

- Certification (students pay for a badge or certificate)
- Secure assessments (students pay to have their examinations invigilated (proctored))
- Employee recruitment (companies pay for access to student performance records)
- Applicant screening (employers/universities pay for access to records to screen applicants)
- Human tutoring or assignment marking (for which students pay)
- Selling the MOOC platform to enterprises to use in their own training courses
- Sponsorships (3rd party sponsors of courses)
- Tuition fees.

Of these options, certification and employee recruitment are seen as most promising by many universities although, where MOOCs do not lead to credit, these certificates have yet to prove their value in the marketplace. A striking feature about this list, however, is that the universities are less likely to make money than their commercial partners that offer services such as examination proctoring. Absent from this list is the possibility of

using MOOCs to attract students to the universities' regular programmes, because the selective institutions offering MOOCs in 2012 had no interest in increasing such enrolments.

Using MOOCs to attract students to regular fee-paying courses is, however, the route followed by what may be the only university to have convincing evidence of a positive return on its investment in free courses. The Royal Charter of the UK Open University (UKOU) enjoins it to promote the educational wellbeing of the community in general, which it does through MOOCs as well as BBC broadcasts and a large pool of open educational resources. The UKOU has carefully tracked those students whose only contact with it before they enrolled as fee-paying students in its regular programmes was with its free media. They amount to some 1,500 students annually, which gives the OU a return of about 8% on its investment in free media.

For most other institutions, however, this example is not particularly encouraging. The scale of the UKOU's production of media-based learning materials is unique and they reach millions of people worldwide. Elsewhere, while the occasional MOOC may attract small but worthwhile numbers into a related specialist courses for which a high fee can be charged, for most institutions the recruitment of regular students is not a promising justification for expanding their spending on MOOCs.

MOOCs: what will be their legacy?

Nevertheless, this discussion points the way to a more promising future. We should see MOOCs not as an end in themselves but as a catalyst to stimulate higher education to use online learning in the offering of regular programmes. From this perspective it was very helpful that elite US universities presented the 2012 batch of MOOCs. Previously most campus universities around the world had looked down on online learning – and on open and distance learning generally. But when Harvard, MIT and Stanford started offering MOOCs, online teaching suddenly became respectable!

Universities worldwide are now taking online learning much more seriously. The numbers enrolled in online courses for credit have been rising steadily for years driven largely by student choices. These numbers are likely already larger than those registering in MOOCs, let alone those completing MOOCs. Until the MOOCs frenzy, however, many institutions were reluctant to engage seriously with online teaching and, in consequence, the quality of their offerings was often poor. This is now changing fast.

Online learning is also attracting new players into the higher education space, attracted by the low entry costs, compared to building traditional campuses, and the possibility of offering courses tailored closely to labour market needs. This is particularly attractive to private sector institutions, both for profit and not for profit. This transformation of the methods of teaching and learning will be the primary legacy of MOOCs. It will not be a revolution but it will have a long-term impact on the way higher education operates,

much like the important evolutionary stimuli in the earlier history of universities that we examined earlier.

This transformation will cause other developments that are opening up higher education to flow together, notably open source software, open access to research publications and data, open educational resources and new types of qualifications such as open badges.

Open Educational Resources

An early ripple in this wave of openness was the decision by MIT, in the late 1990s, to start putting its instructors' lecture notes on the Web for anyone to see. Seeing this as a significant development, UNESCO held a forum in 2002 to explore its implications for developing countries. That forum coined the term Open Educational Resources (OER) and defined them as educational materials that may be freely accessed, reused, modified and shared.

The creation and use of OER developed steadily, but without fanfare, for the next decade. OER were the long fuse that detonated the MOOCs explosion. Ten years after the 2002 forum UNESCO held a World Congress on OER. Both authors of this paper helped to develop, through a series of regional policy forums, the Paris Declaration on OER that the Congress approved by acclamation. A key paragraph encouraged the open licensing of educational materials produced with public funds.

Daniel's home province of British Columbia followed up quickly by offering free, online open textbooks for the 40 most popular postsecondary courses. By saving each student about \$140 per term this proved so popular that a second wave of open textbooks is now in preparation. The Paris Declaration gave added impetus to the creation and use of OER, with an increasing number of countries using them to reduce the price of textbooks.

If the experience of offering MOOCs leads universities to offer more and more of their regular programmes online then the use of OER will now grow rapidly. Most OER are in digital form and since they can be used, adapted and distributed freely, they can substantially reduce the cost of developing online courses and improve their quality while at the same time allowing the academics responsible to have full control of the course content and pedagogy.

Open Badges

In another manifestation of openness some of the qualifications that define the output of higher education are being put into new bottles. This applies not just to new qualifications but also to the re-working of older qualifications. New types of awards, such as Open Badges, are emerging. These badges, which are placed on the Web, carry more information about what was studied and how it was assessed than the usual university transcript. Learners can get recognition for short-cycle studies on economically relevant topics and sometimes aggregate a series of badges into a conventional qualification.

Post-traditional higher education: what about quality?

We have argued that MOOCs are not revolutionary, both because higher education develops by evolution and also because MOOCs mostly do not lead to formal qualifications. MOOCs are, however, the harbingers of an important transformation that will lead to much greater use of online technologies in teaching, research and academic service. In this respect MOOCs are a significant milestone of change, comparable to those identified with Humboldt, the Morrill Act, the Open University and the Bologna Process.

We have called these developments, which blend the ideal of openness with the use of online technologies, ‘post-traditional’ higher education. Since these new approaches will reach millions of people in the coming years it is important to ensure that they are implemented with close attention to quality. Policy-makers all over the world are particularly interested in quality in their dual quest for innovation, on the one hand, and assuring quality on the other.

Quality and the quality assurance of ‘post-traditional’ higher education, like the certification of its outcomes, is one of the greater challenges of these new forms of teaching and learning. Traditional quality assurance agencies have not yet embraced them, leaving a serious gap that many are trying to fill.

In Europe, the Strategy 2020 places a special emphasis on education and training. The quality of teaching and learning is at the core of the EU Higher Education Modernisation Agenda, which emphasises curricula that deliver relevant, up-to date knowledge and skills – knowledge which is globally connected, which is usable in the labour market, and which forms a basis for graduates’ on-going learning.

In this context the focus of European Quality Assurance is on the shift from teaching to learning with an emphasis on more autonomous student learning and new modes of delivery in higher education. But beyond the rhetoric, are there any serious attempts to develop new tools for quality in post-traditional higher education?

For instance, a recent statement by the UK Quality Assurance Agency notes that since MOOCs are typically not credit bearing and have no admission requirements, they are not formally scrutinized during the Agency’s reviews. However, the Agency exhorts institutions to ensure that their MOOCs are of appropriate quality and recommends the use of its own Quality Code for higher education. A recent survey of traditional accreditors in the US revealed a similar approach. It demonstrated that accreditors do not consider courses that do not lead to qualifications as part of their purview.

In this section we describe a new international tool, the *Quality Platform*, developed by the US-based Council for Higher Education (CHEA) through its International Quality

Group. We also reference two Guides, commissioned by Academic Partnerships, which attempt to provide some answers to these challenges in an accessible way.

A Quality Platform for Post-Traditional Higher Education

The US Council of Higher Education Accreditation (CHEA) launched an International Quality Group in 2011 with the aim of addressing policy issues related to quality from a global perspective.

This International Quality Group is trying to address the quality assurance of post-traditional higher education, believing that both new course formats and new qualifications require fresh approaches to quality assurance. For this purpose it is developing a “quality platform” to review the quality of post-traditional provision.

The overall aim is to facilitate judgements on the performance and effectiveness of post-traditional higher education. Such provision has diverse aims so these reviews would begin by judging the provision against its primary purposes: what is it offering to the student? Is the aim the award of degrees or not? Is the learning experience at the appropriate level?

The Platform could use standards to judge the provider’s success with regard to student learning and might benchmark the capacity of the provider and its performance in relation to comparable providers. Peers with expertise in this post-traditional sector would conduct the reviews.

The ‘Quality Platform’ is in its pilot phase at present and is being tested with a number of providers in the US and abroad.

A Guide to Quality in Online Learning

As a contribution to this endeavour, Academic Partnerships – a commercial company that helps higher education institutions to expand their online offerings – has commissioned two Guides. The first *A Guide to Quality in Online Learning* was authored by two distinguished South African experts, Neil Butcher and Merridy Wilson-Strydom and edited by Daniel and Uvalić-Trumbić. It was published in 2013 simultaneously in English and Chinese (Academic Partnerships, 2013).

It is structured in the form of answers to 16 Frequently Asked Questions, followed by an Annotated Reading List giving benchmarks for quality in online learning and some 90 endnotes.

Online learning is defined in various ways and often refers to any learning that involves the Internet, ranging from iTunes university content, digital textbooks, and video or audio materials) through informal teaching (such as Massive Open Online Courses – MOOCs) to fully structured online courses that include assessments and the awarding of a qualification.

This first Guide focuses on structured online learning that includes student assessment and the awarding of credit or qualifications. Assuring quality online learning in higher education requires, first and foremost, institutional vision, commitment, leadership, and sound planning. The Guide stresses that the higher education institution offering the course must take full responsibility for its quality and also that for online learning, much more than for classroom teaching, quality is a responsibility that must be shared right across the institution.

A Guide to Quality in Post-Traditional Online Higher Education

Reactions from around the world to the 2013 Guide to Quality in Online Learning were very positive. That Guide had focused on formal online courses and programmes that led to qualifications. However, since it appeared at a time of intense press coverage of MOOCs, followed by a multiplication of alternative or post-traditional approaches to higher education, some readers were interested in a new Guide that would explore quality issues in less formal types of online learning.

The 2014 *Guide to Quality in Post-Traditional Online Higher Education* that Academic Partnerships commissioned has as authors Neil Butcher and Sarah Hoosen from South Africa and was also co-edited by Daniel and Uvalić-Trumbić. This Guide provides a comprehensive overview, through 14 FAQs, of what we mean by post-traditional higher education, what are the expressions of openness, and what are the key quality considerations for MOOCs and OERs. It questions how can we assure the quality of post-traditional higher education and argues that institutional quality practices need to change. Its special value is its global coverage, giving examples from all world regions (Academic Partnerships, 2014).

The Guide, however, stresses that quality assurance for post-traditional higher education – like its various manifestations – is a work in progress. It is too early for hard and fast rules. The UKOU's Martin Weller has put this nicely:

'one last plea – MOOCs are still a new kid on the block. Let them make mistakes, let them be experimental, let people play and explore in this space without tying it down with the types of quality overhead we already have in formal education' (Weller, 2013).

Conclusions

Are MOOCs the long-awaited technological revolution in higher education? Our first conclusion is that we should not await a revolution but rather expect digital innovations to transform practice in an incremental manner. We reviewed four earlier milestones of change: the Humboldt model, the Land-Grant institutions, the Open University and the Bologna Process and found that the principles and practices that they introduced entered the bloodstream of higher education as part of an evolutionary process.

Second, the present disruption being caused by digital technologies is a constructive process. We shall see a flurry of evolutionary change as institutions adapt to the new niches that innovations are creating.

Third, it is important to let experimentation continue so that the viability of various models for using technology in teaching, learning, assessment and certification can be tested. This is why it was dangerous to present MOOCs as the contemporary revolution in higher education. Fortunately, as more and more countries test the possibilities of online technologies for teaching and learning, MOOC has become a generic umbrella term for a diversity of innovations. We propose the expression ‘post-traditional online higher education’ as an even more capacious umbrella for novel approaches.

Fourth and finally, this exciting phase of evolution poses a special challenge for quality assurance, which is caught on the horns of a dilemma. Higher education is a conservative area of human activity and all providers should work to ensure that poorly conceived and executed innovations do not undermine the reputation and credibility of the sector. At the same time, however, they must avoid putting a quality assurance straitjacket on new initiatives before they are fully developed. Dialogue about the most appropriate ways of assuring quality will be more important than ever.

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