HAVE NEW TECHNOLOGIES IMPROVED ACCESS TO QUALITY HIGHER EDUCATION?

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Abstract

New technologies have transformed educational provision and learning in all sectors. However what has been their impact on issues of scalability, openness and access to education for all? The answer may appear straightforward; information and communication technologies (ICTs) have provided far greater opportunities for all to access a very wide range of educational provision, especially in the higher education sector. However, the issue is not that straightforward; simple provision of opportunities, even when scalable, does not necessarily provide real access and openness for many learners. The emphasis has sometimes been on ensuring the provision of opportunities, rather than considering what the outcomes are for student learning, partly perhaps because the outcomes are more difficult to measure.

The concepts of openness, access and scalability have also changed since the first *Open Universities* were founded, and even more so since the introduction of ICTs. This paper will review how the concepts have changed and the impact this is having. Have all these changes been for the better in terms of student success? The Open University, UK, for example, is closing eight of its 10 English Regional Centres, originally considered essential for student academic advice and support, because it is thought that learners can more effectively be supported from fewer locations and mainly online. While it is too early to assess the impact of this decision (finalised in November 2015), it is worth considering how far all previous changes in concepts and practice have been for the better in terms of student success.

This paper will review some of the key concepts of access, openness and scalability, and their changing nuances and implications. It will also explore tensions arising between delivering open access to online materials, such as Massive Open Online Courses (MOOCs), and the provision of high quality distance learning where internet access is limited.

Introduction and definitions

Issues of access are central to all forms of education. If people are unable to access the educational programmes that are provided, laudable and ambitious development goals in the field of education will be unattainable. Initially the term *access* was mainly used to indicate the provision of opportunities for those who were excluded by learning difficulties or disability from mainstream education. However, the term has since been expanded to cover all those

who are excluded from full-time education for a far wider range of reasons, such as poverty, employment, location and gender. Much effort had been put into providing opportunities for all, but the basic provision of educational or learning opportunities does not necessarily provide full access for learners; real access to quality learning requires attention to a great many other factors. Some of these are reflected in the changing interpretations and definitions of the term *access* itself; some others have been partly resolved by the introduction of open and distance learning; many other issues have arisen with the introduction of ICTs.

Access to education was declared a fundamental right for all in the Universal Declaration on Human Rights 1947; it was adopted as Article 1 in the World Declaration on Education for All in 1990: "Every person – child, youth and adult – shall be able to benefit from educational opportunities designed to meet their basic learning needs" (United Nations, 1948; p.3). At the time, more than 960 million adults, over two thirds of whom were women, were illiterate; and over 100 million children had no access to primary schooling (p.2). However, measures to monitor improvement in access to education are often based on enrolments; for example, The Millennium Development Goal 2 "Achieve Primary Education for All" has made some progress in that enrolments in primary education in developing countries increased from 81% to 93% between 2000 and 2015 (http://www.un.org/millenniumgoals/education.shtml). Yet neither the provision of opportunities, nor enrolment figures, as all the studies on student retention illustrate, equate with successful achievement. This has been recognised for some time: "In preparing for a pan-African conference on the education of girls in 1993, the UNESCO Regional Office for Education in Africa (UNESCO/BREDA) presented a 'beyond access agenda' indicating that attention must shift from 'girls' enrolment' to 'girls participation in the real sense of the term" (Obanya, 2011; p.3). The Commonwealth of Learning's *Strategic Plan 2015 – 2021* confirms that "Providing access to learning alone will not be enough. COL will focus on quality learning that leads to positive outcomes" (The Commonwealth of Learning, 2015; p.9). The Consortium for Research on Educational Access, Transitions and Equity (CREATE) "uses an expanded vision of access that includes meaningful learning, sustained access and access provided equitably" (http://www.create-rpc.org).

This has led to a renewed emphasis on participation and engagement in a quality learning experience, rather than just the provision of opportunities. UNESCO's post 2015 agenda argues that "Implementation of the current education framework is viewed as limiting the focus to access, thus directing attention away from ensuring quality learning outcomes….The measurement of learning outcomes among children and youth is limited and, relative to measurement of access, more difficult to assess at the global level" (UNESCO, 2015; p.9). We would argue that equity and quality are central to successful access to educational and learning opportunities.

Equitable access is a major issue across the world with many people disenfranchised from learning opportunities, for example those in rural areas, women and some disabled people. Access to an equitable quality learning experience is also problematical, with increasing numbers of students having to rely on degree mills or unaccredited institutions because they

are unable to access quality distance education or conventional routes to higher education through campus-based institutions. The Commonwealth of Learning's (COL) *Strategic Plan 2015-2021* confirms that "Access to quality education remains inequitable, especially in rural areas, with girls being particularly disadvantaged". (The Commonwealth of Learning, 2015; p.15).

Access to quality education also depends on *openness*, *scalability*, and sustainability all of which are contested terms. *Open Learning* for example, is an educational philosophy that emphasises learners' choices and has a social justice agenda; *Open Distance Learning* (ODL) combines ideas of social justice with the modes and media through which students and teachers interact (Gaskell, 2016). As noted by Bates, the open provision of materials, for example through OERs and MOOCs, is not enough; the contexts of learning are important.

Scalability is a more recent term and was originally used in the 1990s to refer to technological systems or business models that would offer the opportunity for continuing growth. The concept of providing educational opportunities at scale was one of the drivers for the development of Open Universities (Tait, 2008) but the exact term *scalability* has only relatively recently been applied in this context, particularly since 2000. Oblinger, for example, enumerates four "problems" that distance education can solve, the third of which is:

> *"Alleviating capacity constraints. Many states are expecting more college students over the next decade than their facilities can accommodate. Some are hoping to leverage the scalability of distance education to avoid overwhelming their bricks-and-mortar capacities." (Oblinger & Kidwell, 2000)*

Both access and scalability are of central importance to distance and online education and one of the major reasons for their success and promotion by governments. Many countries, for example China, Nigeria and India, cannot provide enough campus based educational opportunities for their growing populations. Scalability is essential and can be provided through printed, online and blended learning opportunities such as those from the National Open University of Nigeria (NOUN) and the Indira Gandhi National Open University (IGNOU).

The concepts of access, openness and scalability are interrelated and have evolved over time, particularly since the introduction of ICTs in the 1990s. They are critical elements in the *Iron triangle* of Access, Cost and Quality (Daniel et al, 2009). The rest of this article will review some of the impacts of ICTs in this context and illustrate some of the continuing issues through a brief review of some current MOOCs. The tensions between opening up education and providing a successful learning experience in context are explored, and the concept of *openness* reviewed.

The impact of ICTs

ICTs have transformed distance education and made many educational opportunities available to a far wider range of people. They have also transformed methods of teaching and learning, with increased interaction between teachers, students and material, students and students, and between academics. In addition, new ways of learning are being explored which include co-creation of learning content and an increased emphasis on informal learning, rather than formally structured programmes. There are also many practical advantages for some; for example, in countries such as South Africa, students had previously to spend large amounts of time travelling to tutorials, whereas they can now access materials and engage with their tutors and other students online, if circumstances are favourable.

Online education is also more scalable than traditional face-to-face teaching in many ways. The main saving is the reduced requirement for teaching accommodation. Other potential savings can be the reduction of direct costs for institutions in terms of the creation of materials – once these have been created, they can be re-used extensively; and many of the delivery costs, for example connectivity charges, are met by students. However, depending on the type of online course, the cost-structure can be "much closer to face-to-face education than it is to mass-media distance education programs, although there is considerable evidence that academic staff spend more time teaching online courses than face-to-face courses" (Rumble, 2014; p.207).

However, there are some major drawbacks. The first is that using ICTs for learning requires good internet access, which is very unevenly distributed across the world. This is very clear from the World Bank data about internet users 2015: whereas 78% of the European Union population are internet users, only 19% in Sub-Saharan Africa and only 8.6% in the least developed countries use the internet. There are also differences within developed countries: in Germany for example, 97.5% of 14-19 year-olds are online, while only 30.2% of people over 70 use the internet (Rohs & Ganz, 2015). In addition, the language of many online resources, including Wikipedia, is English, which disenfranchises those for whom English is a second, third or fourth language; and the pedagogical approaches and subject matter tend to be derived from the western area of the northern hemisphere (Gaskell, 2016) which may not suit other cultures.

The impact of ICTs on openness, access and scalability may be explored through the example of MOOCs.

The example of MOOCs

MOOCs have been a source of contention since 2012 – the so-called *Year of the MOOC*. Advocates and providers such as Coursera claim that MOOCs provide significant opportunities for increasing openness and access – "We provide universal access to the world's best education" (https://www.coursera.org/about/). Critics argue that, "all that has really happened is that solid educational principles have been replaced by a mass communication model with very few principles" (Baggaley, 2013; p.370).

What evidence is there that MOOCS have improved scalability, openness and access to Higher Education? Superficially, MOOCs are very attractive in that they provide open access (for those who have internet connections) to a wide range of subjects, taught on the whole by experienced teachers in higher education. For these reasons they can be of great benefit to professionals who are looking for some updating, or for the general public who have some interest in a particular subject. They are also scalable in most cases, as evidenced by the numbers enrolling; in 2014 Jordan's study of 279 MOOCs concluded that the median average enrolment was 42,844 students, but this declined as more courses became available (Jordan, 2014). Numbers still remain high: in 2015 alone, over 80,000 students registered to study *Enhance your career and employability skills* and over 25,000 registered on *Managing the Company of the Future* both offered through the University of London's International Programmes' MOOCs, developed on the Coursera platform (University of London, 2015). MOOCs also have reach: Coursera courses are studied in a large number of countries, the top five being the US, India, China, the UK and Brazil. London's *Enhance your career* is studied in 2011 different countries.

However, there are many barriers to successful study of a MOOC, the main one being reliable internet access as discussed above. While MOOCs may be open to those who can access them, there may still be barriers for those who wish to gain some recognition for their study. FutureLearn (based in the UK and led by the OU UK), for example, charges £34 (thirty four pounds sterling) plus postage for a certificate of completion; the German iversity.org charges €99 (ninety nine Euros) for a personal certificate (Rohs & Ganz, 2015; p.8). MOOCs from the University of London International Programmes offered through the US-based Coursera Consortium charge $49 (forty-nine dollars) for a general course certificate; and within course sequence specialisations, have differential pricing: $49 in emerging economies (Coursera definition: non-high income economies under the World Bank's country and lending groups classification) and $79 (seventy-nine dollars) everywhere else. These are significant sums for some of those who might otherwise gain from the opportunities provided by MOOCs. *Specialisations*: A MOOC specialisation is a multi-MOOC sequence completed by a capstone project. To date, Coursera has launched 34 specialisations. The University of London offers Responsive website development and design which consists of six MOOCs leading to a certificate for the whole broad subject

Further examples from The London International Academy illustrate the difficulties in making generalisations about MOOCs and their impact. Most of the London students in 2014 were in the age range 25-44 with the gender split being 40:60 female to male. But here lies the difficulty with generalisations; the MOOC on *Malicious software and its Underground economy* had a female/male ratio of 18:81 whilst the MOOC on *Supporting children with difficulties in reading and writing* had a ratio of 73:26 female/male. The vast majority of students were educated to bachelor degree or higher; the number studying who had not been involved in education post-school was less than 10%. This is supported by other evidence: 7161 students (less than 10%) of MITx's popular course on Circuits and Electronics provided data about themselves and 65% had degrees or higher levels of education (Haber, 2014; p.98),

while the German and other examples from Rohs and Ganz (2015) indicated that MOOCs are "mostly used by people who already have a higher educational status" (2015; p.14).

MOOCs are therefore open to some, and scalable for many, but are attracting mainly students who are already highly educated. How far do they provide access to a quality learning experience? The content of MOOCs is often of very high quality, partly because it derives from existing University courses – and, more cynically, is designed to encourage students to register on the University's own programmes which would involve considerable fees. In London, for example, 55% of about 160 MOOC students who subsequently enrolled on degree courses, stated that their MOOC experience had influenced their decision to apply. However reliable statistics are difficult to acquire and evaluate.

We would argue that the provision of good, and even excellent subject content, is not enough; the context of learning is essential to provide a quality learning experience. One of the most important aspects of context is the availability of learner support. This can be provided in MOOCs to some extent through course design: for example Australia's Open2Study (https://www.open2study.com) which provides motivational feedback on online quizzes (*Well done!*) and allows the learner to collect various points and *jewels* towards a free certificate of completion and the award of the *crown jewels*. It can also be provided by moderated online forums, such as in FutureLearn's *Web Science*, offered by the University of Southhampton, where doctoral students welcome new contributors to discussion and pose and respond to queries; and also by peer support through online forums and peer assessment, as for example in FutureLearn's *The Night Sky*, offered by the Open University (https://www.futurelearn.com). However, all these examples come from MOOCs that have fixed start and end times (2, 4, and 6 weeks), and so students will be studying the same material at approximately the same time. In late 2014, Coursera launched a new platform called Ondemand which offers online open courses with no set start or completion dates. This has apparently proved very popular and Coursera will be withdrawing *session-based* courses by the end of 2016. On demand courses may well suit some but will almost certainly provide less student support in terms of peer cohorts who will find it difficult to support each other, or comment on each other's work, and doctoral moderators who will not be able to respond to constant random discussions.

One of the criticisms of MOOCs has centred round their low completion rates. Jordan's analysis of initial data for student completion indicated that a median average of 6.5% completed, that is, they satisfied the criteria for a certificate of course completion. However, a higher percentage (median 10%) actively engaged with the course though not fulfilling all necessary criteria for a certificate (Jordan, 2014; p.160). If active students only are considered, the percentage can be even higher. On Coursera's *Metadata* course, offered by the University of North Carolina, completion rates for students who watched at least one video was 15%; while the completion rate for those who did the first homework exercise was 48% (Haber, 2014; p.95).

MOOCs therefore can be seen to increase scalability and openness of content (for some) but there is not much evidence that they are widening participation or having a major impact on developing the broader context of successful (or accredited) learning.

Discussion and conclusions

Openness, Access and Scalability are all related and are contested terms; their interpretation has changed over the last 40 years, and particularly since the introduction of ICTs in the 1990s. Openness in online education was given an impetus by the Open Courseware Initiative of the Massachusetts Institute of Technology (MIT) which in 2002 made all the material from 50 courses freely available online http://ocw.mit.edu/about/our-history/. UNESCO then coined the term *Open Educational Resources* (OER) to refer to: "the open provision of educational resources, enabled by information and communications technologies, for consultation, use and adaptation by a community of users for non-commercial practices" (UNESCO, 2005; p.1). But these definitions related to the open provision of online materials and not to the quality, context or outcomes of learning.

Online course content and materials are a great step forward for those who had previously been forced to rely on written information, often in very expensive textbooks and journals. Online access to the world's great library collections has also transformed study and research. These have provided inestimable benefits for experienced learners, who are also those who most frequently study free online MOOCs.

How does this relate to those who have limited internet access or are less experienced learners? It is clear that those who have limited or no internet access are increasingly excluded from new developments; the *digital divide* is potentially increasing, rather than decreasing. The illustration of MOOCs suggests that the main beneficiaries of new developments in ICTs are relatively experienced learners; MOOCs do not appear to be widening access or participation, despite their huge enrolments.

What is important is the quality of the learning experience, and the outcomes, especially for non-traditional learners. These raise many questions about the overall impact of ICTs. For example:

- How can we measure or evaluate successful access to open online materials such as MOOCs? Evidence indicates that they are studied mainly by those who already have higher educational qualifications; what could extend participation?
- For new learners, are online exchanges and discussions as satisfactory as those which take place face-to-face or over the telephone?
- Who provides any support? How far is support necessary to provide equitable access to a quality learning experience? Sometimes support may be provided by research students or administrators and may be excellent; but this is not guaranteed.
- How can teaching staff continually update themselves on both new media and academic subject areas, while continuing to support their students, many of whom

have increasingly demanding expectations of (for example) rapid response to emails? This is particularly relevant with the large numbers involved in some modules.

- How do we balance principles of access and universality for learners, with innovation and variety in adopting new Technologies?
- What are the key factors in enabling scalability and equitable access to quality education?

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