

Open Educational Resources: American Ideals, Global Questions

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Abstract

Educational relations between societies and cultures that begin with benevolent intentions can come to be seen as threats to national autonomy and local preferences. Indeed, side by side with the growth since the first years of this century of Open Educational Resources (OER) there has been worry about their impact on global educational development. Evaluation and research have lagged behind the steady expansion of access to online resources, leaving estimates of the value of digital innovation to the enthusiasm of OER providers and technology minded educational reformers. The advent of the “Massive Open Online Course” (or MOOC) has exacerbated the problem, with attention moving toward a form of OER reflecting the enthusiasm of leading institutions in industrialized nations. The American led movement on behalf of the MOOC requires new questions about the motives, impact, and future of OER. This essay accounts for the history of OER, culminating in the MOOC, including how the latter in particular is an expression of American pedagogical and institutional interests representing belief in the transformative educational powers of the latest communications technologies. Criticism of OER and MOOCs can reflect organizational, operational, and ideological considerations. But it should recognize what they offer when there are few other opportunities for formal learning, and as research demonstrates their uses and impact.

Keywords

open educational resources, MOOCs, online learning, global higher education

Introduction

Educational relations between societies that begin with benevolent intentions can come to be seen as threats to national autonomy and local preferences. Indeed, side by side with the growth in the past decade of Open Educational Resources (OER), and particularly since 2012 and the advent of MOOCs (Massive Open Online Courses), there has been worry about their impact on global educational development, named as “cyberimperialism” (Ebo, 2001), as a new sign of unequal “power” (Rhoads, Berdan, and Toven-Lindsey, 2013), or as pedagogical

“neocolonialism” (Altbach, 2014). Such skeptics see in OER and MOOCs forms of academic nationalism in the dominance of Western providers and too little regard for the local circumstances of users. Evaluation of the experiences of learners has lagged behind the expansion of access to online resources, leaving judgments of the value of digital innovation to the enthusiasm of OER and MOOC

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organizations and technology minded educational reformers (Baggaley, 2012; Bowen, 2013).

This article begins with an account of the history of OER, particularly the many kinds of free instructional resources in MIT's OpenCourseWare project, culminating (for now) in the MOOC. There is then consideration of a feature of the milieu for the development of the MOOC reflecting belief in the transformative educational powers of the latest communications technologies. But the promise, first of OER and now of MOOCs, has also prompted a cautious view of their global impact. Subsequent parts of the article identify categories of inquiry into MOOCs based on claims made for them and their early uses. The conclusion recognizes signs of development of MOOCs in accord with criticism of their initial forms but reasserts the utility of asking questions of OER generally in thinking about global networks and what is claimed for technological innovation as a benign force for the public good.

Forms of “Open”

Conceptually, “Open Educational Resources” is still a young phenomenon whose meaning is evolving along with other forms of “open” activity in scholarly and scientific communications (Wiley, Bliss, and McEwen, 2014; Camilleri, Ehlers, and Pawlowski, 2014; Weller, 2015). The term “open” entered the vocabulary of digital pioneers when they decided that “free,” as in the “Free Software” movement of the 1980s, was a potential obstacle to development of the Internet. These activists saw participation as the better defining principle for software produced outside the conventional marketplace. Such an approach, named “Open Source Software,” reclaimed the innovation with attention to its practical benefits, for example in the quality of collaboratively written code reflecting a version of peer review (Wiley and

Gurell, 2009). Eric Raymond (2001), a leader in the renaming project, made the story of Linux's emergence in the early 1990s into an influential parable for open source software development worldwide.

A complementary view of “open” also emerged in the 1990s in order to designate the status of educational and other resources newly available on the Internet at no cost to users. Called by some “learning objects,” these were envisioned as resources for independent learners but, more important, as building blocks for teaching and learning at all levels of the American educational system (Wiley, 2011). Thus, “Open Content” was the phrase used to describe a diverse array of text, images, video, and audio that could be used and repurposed for learning and teaching. But “open content” advocates, wishing to discourage plagiarism, turned to licensing in the organization in 2001 of Creative Commons (creativecommons.org), now the universally accepted format for registering resources as free, accessible, and re-usable (or “re-mixed” [Lessig, 2008]).

In the following year MIT launched its OpenCourseWare project (ocw.mit.edu) in which the goal was to create a website displaying the resources associated with all of the university's undergraduate courses (Walsh, 2011; as of April 2015 66% of MIT's tenure track faculty was participating, with 2,266 courses published online). Since the project began there have been over 113 million unique visitors worldwide. “Courseware” was an accurate way to name the variety of resources at the MIT site. In the early years most “courses” consisted of syllabi, lecture outlines and notes, exams, and other resources. Users could have an experience of the actual course to the degree that they could infer it from working with the online materials. As the project gained the trust and participation of the MIT faculty, courses came to be represented by a fuller display of materials, if still considerably short of what we associate now

with MOOCs, and even with less well known projects like Open Yale (oyc.yale.edu) and its carefully recorded courses across the curriculum (42 as of June 2015), most accompanied by online resources.

The MIT initiative was crucial to the development of “open” in making the image of the course essential to the utility of the resources. Some OCW users were educators who saw the resources in the mode of “learning objects” to be made part of their own instructional projects. But many users found in OCW the opportunity for experiences that approximated enrollment in an actual MIT course. Given the platform it took some imagination to do so, but within a decade the idea of OpenCourseWare would blossom in unexpected ways with the development of the MOOC, designed as a complete online course inviting cost-free global participation.

MIT was not alone in capitalizing on the Internet for the circulation of free and accessible online educational resources. Such was international interest in the phenomenon that in 2002 UNESCO convened a Forum on the Impact of Open Courseware for Higher Education in Developing Countries. The result was another variation of “open,” in the now familiar phrase Open Educational Resources, first defined, in the Forum’s *Final Report*, as “The open provision of educational resources, enabled by information and communications technologies, for consultation, use, and adoption by a community of users for non-commercial purposes.” The OER concept was advanced at a second international gathering (2007) that produced the Cape Town Declaration (capetowndeclaration.org), with its focus on the re-use of “content.” In the same year the Organization for Economic Co-operation and Development (OECD, 2007) reported at length on OER (*Giving Knowledge for Free*). The OECD consolidated earlier definitions but in the direction of a broader view of users, if still with

“re-use” as the central operational idea. Thus, “OER are digitized materials offered freely and openly for educators, students, and self-learners to use and re-use for teaching, learning and research” p. 30). The OECD offered a “conceptual map” representing the new global digital domain. Thus, OER could be understood to signify “Tools” (as in Open Source Software), “Content” (like MIT’s OpenCourseWare or collections of teaching resources or “learning objects” like “Connexions” [cnx.org] or MERLOT [merlot.org]), and “Implementation Resources,” chiefly new formats for licensing (like Creative Commons).

In 2012, at the time the MOOC was gaining academic and public attention, UNESCO recognized a decade of OER development with a Paris conference that produced a report on worldwide OER resources and policies (Hooser, 2012) and a statement, the Paris OER Declaration, of now familiar principles and purposes (UNESCO, 2012). Between 2007 and 2012 there was little reason to move beyond the perception of OER as “content” in the form of discrete resources (or, again, “learning objects”) to be used and re-used, by individuals and in collaborative activities, presumably across borders. In the manner of “do it yourself,” integration was up to the aggregating educator, sometimes in the design of a credit bearing postsecondary course, or to the independent learner (or small groups of them) learning outside the framework of a formal course or degree program. An ambitious classification scheme highlights the considerable variability within what might be assumed operationally about “reuse, revision, remixing, and redistribution,” the essential qualities of OER according to all institutional reports (Tuomi, 2013). Responding to the great variety of sources, forms, and uses of OER, or their extreme “fragmentation,” the European Union published a framework for their evaluation, with hopes of establishing a vocabulary based on a

complex “cycle,” with many “stakeholders, reaching from development to use, revision, and re-use across all levels of the educational system (Camilleri, Ehlers, and Pawlowski, 2014; see also Atenas and Havemann, 2014).

The MOOC represented a radical departure in OER, called a “game changer” by influential observers of global higher education and by leading U.S. opinion makers and postsecondary leaders (Redden, 2012; Brooks, 2012; Friedman, 2012; Bowen, 2013). “Open” as part of the name MOOC signifies a level of access to formal postsecondary education that exceeds by far what preceded it in the OER movement. A MOOC is more than “courseware,” or the resources that might be made into a course. And what it offers is not meant for “re-use” or “revising” in the manner of discrete OER. With their high profile instructors at leading institutions MOOCs represent the integrity of the traditional academic course, built on a particular view of the subject organized for instructional purposes. But “open” next to “massive”—in MOOCs with thousands of students—names new global conditions for teaching and learning, and for relations between institutions, as OER inspired reformers imagine new formats for recognition of achievement and academic credentialing (e.g., in OERu as below).

By mid-2015, according to an aggregator (MOOC-list.com), there were over 2,000 free online courses available in virtually every subject of the postsecondary curriculum. Over half are offered by the best known providers: Coursera, edX, and Udacity, whose “brands,” reflecting the participation of many of the world’s leading universities and cultural institutions, carry considerable global status. Other platforms—like Canvas (www.canvas.net) and Saylor (www.saylor.org)—make substantial contributions but, as yet, have much lower international profiles. And Open Yale, with millions of users worldwide, is unaccounted for on MOOC-list. Its absence signifies the problem

of maintaining an accurate view of the world of OER. Current global offerings are dominated by what are now called xMOOCs, like those of the leading providers featuring a structured syllabus and key design and instructional roles (as in video lectures) for scholars and scientists. They are distinguished from cMOOCs, the name given to early examples of the form (beginning in 2008) which are organized in distributed or networked fashion and feature interaction among participants who take primary responsibility for supplying the course content from open sources (see Bates, 2014 for a complete account).

“Polemical Optimism”

OER and MOOCs reflect the American case for educational transformation via technology. By 2012, when Coursera founder Daphne Koller delivered a TED Talk (with 1.8 million views by June 2015), viewers were invited to believe that not only had she and her colleagues scaled up an innovative online pedagogy but that they had invented it. It would be the task of MOOC instructors, she said, to “ignite the creativity, imagination, and problem solving skills” of learners. In effect, the MOOC is made part of the narrative of the “new literacies” which gained strength at the same time as the growth of OER. The phrase “new literacies”—sometimes called the “new media literacies” or even “21st century literacies”—refers to the abilities and dispositions required by the latest innovations in communication technologies (Jenkins, 2009; Davidson [2011] offers the most expansive account of what the “new literacies” should represent; see also Rheingold, 2012). They direct us to electronic formats for learning and teaching, and to the “affordances” they offer. According to the City University of New York’s Cathy Davidson (2011a), “Our educational systems, so far, look as if the internet hasn’t been invented yet.”

A discourse of global educational transformation typifies accounts of the new literacies and their necessary and inevitable impact on education. It is featured in the MacArthur Foundation's Digital Media and Learning Initiative, the programs and publications of the Online Learning Consortium (onlinelearningconsortium.org), the postsecondary service organization EDUCAUSE (educause.edu), the New Media Consortium (nmc.org) which produces the annual and influential *Horizon Report* guiding institutions toward adoption of the latest and anticipated technologies, and in the public presentation of ambitious survey research on technology and the Internet by the Pew Research Center (pewinternet.org). All make distinctive contributions to the case for adapting teaching and learning to the new literacies while speaking in a single voice about the urgency of such an effort. The report from the U.S. Department of Education (2010) titled *Transforming American Education: Learning Powered by Technology* consolidates these perspectives and spares nothing in its confidence in the digital future of education: "The challenge. . . is to leverage the learning sciences and modern technology to create engaging, relevant, and personalized learning experiences for all learners that mirror students' daily lives and the reality of their future. . . . The opportunities are limitless, borderless, and instantaneous" (p. 4).

If "limitless" describes what can be expected in applications of technology and the new literacies to education then their impact must be transformational—or more. Nothing less than a "sea change in thinking, knowing, learning, and teaching" and a "seismic shift in epistemology" are ahead according to Harvard's Chris Dede (2008). We face a "Cambrian Moment," or our own version of the explosion of new life forms 500 million years ago, according to education theorist John Seely Brown (Euchner, 2012). A British study of our

prospects sees ahead an "avalanche" of technology-inspired change (Barber, Donnelly, and Rizvi, 2013). MIT's Anant Agarwal, a leader among MOOC providers (at MIT and edX), speaks confidently of "democratizing and reimagining education" (Kanani, 2014). In enthusiasm for OER and MOOCs there are signs of what has been named "polemical optimism" in an account of the transformation of 19th century Britain by industrial machines when campaigns emerged to inspire confidence in what was presented as an historical inevitability (Berg, 1982).

From "Mutual Understanding Among Nations" to "Every Single Kid Around the World"

In recalling the decision to launch the OCW project, MIT President Charles Vest (2004) named his institution's expectations for "spreading knowledge and opportunity." With educators and students using OCW there will emerge a "web of knowledge that will enhance human learning worldwide." Further, MIT's example will "take root at many other universities and colleges around the world, and they too will be supplying knowledge freely and openly to anyone, anywhere in the world." Vest recognized the "digital divide" but expressed his belief that "the trend toward open knowledge will help bring people of all backgrounds together and promote greater mutual understanding among nations" (p. B20; see also Abelson, 2008; Iioshi and Kumar [2008] in their edited collection reflect the enthusiasm for OER that followed the early growth of MIT's OCW and allied projects).

MOOCs represent new ambitions at the scale of Vest's. When Stanford abandoned its hopes in 2011 for development of a New York campus it revealed that for university leaders and influential business supporters there was a higher educational priority in embracing OER.

Technology pioneer Marc Andreessen, now a Silicon Valley venture capitalist, urged turning the institution in a new direction: “We’re on the cusp of an opportunity to deliver state-of-the-art, Stanford–caliber education to every single kid around the world. And the idea that we were going to build a physical campus to reach a tiny fraction of those kids was, to me, tragically undershooting out potential” (Auletta, 2012).

Thus, Stanford faculty moved quickly to lead an international effort based on a new online instructional platform to support the MOOC. The potential includes financial returns as Coursera was organized as a for-profit company supported with substantial private capital. But initial attention has gone to the global response of learners of all ages to the new online opportunities. The platform and initial participation —by leading universities and by students around the world—were rapidly hailed as transformative for global learning (e.g., Kamenetz, 2012 and Ripley, 2012 in addition to the Op-Eds by *The New York Times*’ David Brooks and Thomas Friedman cited above). As early as 2007 the OECD had noted that in the view of one university it had studied, whatever institutions might think of OER (if they had an institutional position at all) “the risk of doing nothing when developments were so rapid” should override normal cautionary habits. Coursera now (June 2015) includes 121 institutional partners offering over 1,040 courses of different lengths and duration throughout the year. Only three years old, Coursera has over 13.5 million users.

Coursera’s courses couldn’t be more different from the “scaled up” online courses offered by the University of Phoenix and other for-profits. There the focus is on a standardized syllabus for a course as it is “taught” by a contract instructor. With Coursera the scholars and scientists at the partnering institutions produce online courses resembling their campus versions. They reflect the autonomy of

traditional academic work and what it yields for idiosyncratic teaching styles in the classroom, or now online. Still, according to Koller (2011) there is a “personalized experience” in the format for those who enroll in the free online courses. And that acknowledges what students can do to customize their efforts (e.g., repeat video lectures or parts of them as desired) and what they can learn about their performance from instantaneous automated assessments in those courses featuring machine gradable exercises and exams. Thus, for Koller at least, however many tens of thousands of students might be enrolled in a Coursera course, what they get is “individualized.” And, at the same time, MOOCs will meet the need “to significantly reduce costs while improving quality” (see also Koller and Ng, 2012).

An equally ambitious if smaller project, edX, was jointly organized as a non-profit initiative (also in spring 2012) by MIT and Harvard, and now (June 2015) includes over 75 institutions and organizations offering over 530 courses, with over 3 million users worldwide. It began as a new version of MIT’s OpenCourseWare and was intended to be an international “superbrand” (Kolowich, 2012). At its launching, MIT President (at the time) Susan Hochfield, echoing the sentiments of many American educational leaders seeking to account for what they saw as the necessary digital “disruption” of postsecondary education (Christensen and Eyring, 2011), said: “You can choose to view this era as one threatening change and unsettling volatility, or you can see it as a moment charged with the most exciting possibilities presented to educators in our lifetimes” (Carmichael and Kaiser, 2012). By 2015 confidence in MOOCs, while tested by skepticism about online teaching in some sectors of higher education (Allen and Seaman, 2015), has hardly moderated at Coursera and edX, as each expands with new partners worldwide, and thus many new courses.

The third well-known MOOC project, also deriving from the entrepreneurial ethos at Stanford (in this case allied with Google) is Udacity, which features (as of June 2015) nearly 100 courses, with over 1.6 million users, in science and engineering. Still, however constrained its offerings, Udacity saw itself as a leader in “the beginning of education for everybody.” Like the founders of Coursera, Udacity’s Sebastien Thrun (of Google and Stanford) saw in MOOCs the path to “fixing” higher education, or reducing costs and eliminating teaching styles which ignore technology. Or, as it is often expressed in a favored binary of advocates for the “new literacies” (as above): “Teachers are not lecturers but coaches.” And the courses they design (for Udacity at least) are aimed at the occupational prospects of enrollees. It is “real world skills” that matter the most as these can be discovered in the habits of “Net Generation” learners elevated to the status of educational models with international roles. As Udacity put it on its website: “Our students will be fluent in new technology platforms as well as curious and engaged world citizens.” Still, only two years after launching Udacity, Thrun expressed reservations about MOOCs, particularly in what they offered to students who, presumably, have the most to gain from technological innovation. Thrun characterized Udacity’s failed experiment with remedial math courses at San Jose State University this way: “These were students from difficult neighborhoods, without good access to computers, and with all kinds of challenges in their lives. ... It’s a group for which this medium is not a good fit” (Chafkin, 2013). It isn’t hard to see what that means for claims that MOOCs will be instrumental in solving the problems of global postsecondary learning. But even in parts of the world where learners are well prepared and well equipped there are very low (about 5%) rates of completion as reported by a University of Pennsylvania team in a study using “big data”

on patterns of participation (Perna, et al, 2013). Mindful of Udacity’s strengths and of the persistent problem of finding a suitable business model, Thrun has recently steered it toward structured programs (with NanoDegrees) and professional development, with services requiring fees (Porter, 2014).

Koller herself, in an interview with the technology site Tech Crunch (techcrunch.com), stated that 2014 was the year when the MOOC would “come of age.” She was confident that problems of course completion, the dominance of Western countries in course development, and the lagging participation of students in non-English speaking countries are all being addressed. Indeed, in her interview (in September 2014) Koller reports that Coursera finds that one third of its students are from developing countries, and new institutional partners from around the world are adding to its online educational opportunities. In mid 2014 edX established a partnership with the Queen Rania Foundation (Jordan) to offer courses in Arabic and Coursera, already with partners in Asia, announced an agreement with leading Brazilian universities. Responding to early criticism of educational parochialism both organization continue to build partnerships with institutions in all parts of the world.

Doubt to “Domestication”

Plainly, Coursera and edX have come to recognize that they are part of the global story of OER which, from the movement’s beginning, and despite enthusiasm for its global impact (e.g., Baraniuk and Burrus, 2008) has had critics, skeptical about commitments beyond already well educated students in the West who dominated early MOOC enrollments. As they gained visibility under the auspices of UNESCO and OECD, open educational resources featuring adaptable “content” were understood as a global educational breakthrough reflecting these benefits:

1. OER save money for developing nations, taking the place of expensive local course making.
2. OER foster the exchange of global knowledge.
3. Collaborative OER projects support capacity building and help to close the digital divide.
4. Collaboration encourages the preservation and dissemination of indigenous knowledge.
5. OER can raise the quality of education at all levels.

(Adapted from Kanwar, Kodhandaraman, and Umar, 2010)

Hopes for “exchange” and “collaboration” signified expectations for OER that could reverse many habits of transnational education.

Still, whatever the intentions of early OER projects (chronicled for American initiatives in Walsh, 2011), and the generous interpretations of potential results they inspired, as OER projects grew--in the US and elsewhere--doubts arose about their implementation. MIT’s OCW data suggest one reason why. Each month the site gets about one million visits worldwide. But the map representing usage shows but 4% of its visits originate in northern Africa and only 2% in the sub-Saharan region of the continent. The whole of Central and South America was at 4%. These figures have been the same for several years.

To the degree that OER use from other sources is similar, it is clear what prompted a group of Commonwealth of Learning scholars to question the innovation’s “sustainability for the Global South” (Kanwar, Kodhandaraman, and Umar, 2010). While they registered the potential benefits (as above) and recognized the difficulty of measuring impact and the continuing digital divide, they nonetheless lamented the level of “tangible results.” They traced the problem to the lack of a “clear implementation strategy” and recommend a “process-oriented” approach that encourages local participation in the making of

resources and building structure for their adoption. “Domestication” for the Commonwealth group meant the guarantee of a high degree of local participation at every stage of OER development and implementation, a theme that has continued in today’s criticism of MOOCs. And even efforts to change the direction of OER projects, represented in scholarly, institutional and international agency debates about them, were too focused on technology [with] rarely any discussion on issues such as stakeholder engagement and the politics of power” (p. 75; for an example of the debate see the contributions by Caswell, Henson, and Wiley [2008] and Huijser, Bedford, and Bull [2008] to a special issue devoted to OER of the *International Review of Research in Open and Distance Learning*).

Others expressing doubt about OER have focused on the potential encroachment of a “market orientation” steering users to fee paying programs, limits signified by the digital divide, and scientific and intellectual parochialism (as below in the critical position, largely focused on MOOCs, of Rhoads, Berdan, and Toven-Lindsey, 2013). With the expanding educational market as a backdrop, can OER be sustained by the movement’s original intentions? And even as access to technology increases, the question remains of the level of digital literacy necessary for effective use of OER. Thus, OER and MOOC providers should accept responsibility with local partners for meaningful access of this kind (see Willems and Bossu [2012] and Richter and McPherson [2012] in a special issue devoted to OER of *Distance Education*). Finally, the full potential for OER, with MOOCs, depends on more than participation of users, particularly in developing nations. If there are to be genuine gains in global knowledge, they will reflect a disposition not apparent enough among providers. The OECD’s early account of the movement and its potential noted this “paradox” in the academic community: “[It] strongly

emphasizes the importance of openly sharing research results and building on existing scientific data but at the same time often takes an unresponsive attitude towards sharing or using educational resources developed by someone else” (OECD, 2007, p. 60).

That is the theme of several contributions to a collection of commentaries recently published by the International Association of Universities and featuring the role of OER and MOOCs in Africa and Asia (see *IAU Horizons*, 20 (1+2); [June 2014] which includes a useful “Selective Bibliography on MOOCs, OER, and e-Learning, 2011-2014”; see also the Special Issue of *Online Learning* [July 2013] devoted to “OER for International, Rural, and Hard-to-Reach Populations”). While there is acknowledgement that “developing countries welcome MOOCs essentially to enhance quality to attain global standards” (Varghese, 2014, p. 36), contributors ask questions of OER reflecting different versions of “domestication.” Thus, there is a plea for “contextualization” of MOOC design to allow for more “praxis-centered approaches to transformative action learning,” in effect altering the “one way flow” [from prestigious American and European institutions] to “the nameless and faceless Others” who enroll in the courses (Lotz-Sisita, 2014, p. 29). So too should MOOC providers and instructors recognize what the limits in current availability of technology means for capitalizing on all forms of OER, the lack of affordability constituting yet a “further disadvantage” for “those already on the margins of society” (Makhanya, 2014). Thus, OER and MOOCs should feature “making the best use of technologies already in place to empower the learners they are trying to reach” (Boga and McGreal, 2014, p. 32). And there is a reminder of the differences between OER licensed for revision and reuse and the restrictive policies of the major MOOC providers and what that means for local educators (Turmaine, 2014).

OER as educational content continues to have many worldwide users, although with data from Connexions and MERLOT, two of the largest sources, it is difficult to tell what their impact is apart from counts of site visitors and page views. At Connexions, its resources (widely used in e-textbooks, primarily in the sciences and engineering) have over 2 million users worldwide per month. MERLOT, which features “learning objects” in all fields, exceeded 600,000 site visitors and 4 million page views by the end of 2014. These are impressive, though for MERLOT at least, use is primarily among nations with high literacy rates, making it uncertain what role its forms of OER are having in educational development where the needs are greatest. The pace of scholarly publication means that even recent work focuses on OER as “educational content” and its record in reaching its potential in this form, with little variation, in the past decade (or since UNESCO introduced the phrase “Open Educational Resources”). The continuing problem, identified in a joint UNESCO and Commonwealth of Learning initiative launched in 2010 (*Taking OER Beyond the OER Community: Policy and Capacity*) is stated this way: “OERs will not be able to help countries reach their educational goals unless awareness of their power and potential can rapidly be expanded beyond the communities of interest [in the case of MOOC users already holding postsecondary degrees] that they have already attracted.”

The pace of OER development presents additional questions. Even in advance of the MOOCs, universities (mainly in the US), began Internet posting of video and audio recordings of campus-based courses, and worldwide users turned to them with enthusiasm. A 2012 report from the OpenCourseware Consortium (now the Open Education Consortium [oeconsortium.org]) documents OER activity in this form in over 80 countries. The data classifies motives, ages, and educational and the

workplace status of users but, understandably, makes no claims for the character and effectiveness of the learning, much less for whether, or how, these OER were “domesticated” for local use. And the timing of the OCC report, actually a compilation of surveys conducted by organizations in four countries, meant that MOOCs, beginning in 2012 and having quickly outdistanced other forms of OER, were excluded. So too, of course will the popularity of MOOCs prompt fresh attention to what “domestication” might mean for local utility and sustainability. The OEC website explains relations between OER and MOOCs. It offers many resources for sustaining the position and uses of the first even as the second continues to be a subject of great public and academic attention.

Questions of Assessment

Just as there are no comprehensive metrics for the global impact of OER in their initial “content” or “materials” mode, there is no formula for understanding the interactions and the attitudes they prompt between providers and users, the focus having been primarily on the operations of the technology. But contemporary attention to networks as signs of social and economic relations (Benkler, 2006) as well as digital ones can suggest troubling patterns and potentials. Thus, according to the influential sociologist and theorist Manuel Castells, global networks can have unwelcome effects, perhaps confirming for some fears of digital imperialism in education: “There are citizens of the world, living in the space of flows [or the activities of networks and their circulation of what is valuable], versus the locals, living in the space of places. Because space in the networked society is configured around the opposition of the space of flows (global) and the space of places (local), the spatial structure of our society is a major source of the structuration of power relationships”

(cited in Kanwar, Kodhandaraman, and Umar, 2010, p. 74).

A faculty participant in Coursera, Princeton sociologist Mitchell Duneier (2012), is well aware of how his teaching might be seen by international students: “Would my lectures become yet another example of American ethnocentrism and imperialism as I presented my sociological concepts like so many measuring sticks for the experiences of others around the world?” His course (“Introduction to Sociology”) enrolled 40,000 students from 113 countries. Though, as is the case in other MOOCs, only a small percentage of those enrolled completed the course, there is, for Duneier, impressive enough testimony of its impact. He cites a post representing what was happening, he believes, among students far from New Jersey: “It has been an incredible experience for me, one that has not only taught me sociology, but the ways in which other cultures think, feel, and respond.” Duneier concludes that for his course at least, MOOCs solve the problem of access. As one of his students told him, it was not a choice between traditional and online postsecondary education. It was “a choice between an online class and no class at all.”

Similarly, edX and Udacity have featured testimonials from students around the world and a prominently displayed photograph at Udacity’s website showed a group of African students working together on an introductory computer course. Still, a survey of Udacity’s leading “meet up locations” (for students desiring in person interaction with other students) revealed that they were places with heavy concentrations of adult learners well prepared in technology. As is well known by now, enrollment in MOOCs is dominated by students who have already had considerable experience in formal education. And, as is often noted, a significant limitation on OER and MOOCs in the developing world is uneven access to the necessary bandwidth. Even with more

bandwidth, where the phone is the primary means of connecting to the Internet, prospects for learning in some fields at least will be limited by screen size.

Critics of OER never doubted the need for spreading knowledge and opportunity. But testimony—from MOOC leaders and students—is far ahead of data. And thus, even a recent convert to the form of global online learning represented by the MOOCs, former Princeton president William Bowen (2013; also the co-author of several influential studies of postsecondary economics and leadership), registers what virtually everyone says about the research problems facing advocates and antagonists alike. We simply don't know enough yet about MOOCs for serious scrutiny of the claims made for their global impact. Bowen acknowledges that those actually teaching the MOOCs "don't want to be distracted by the need to do careful assessments of outcomes or costs." But he is impatient with the sponsoring organizations: "There is no excuse for not working now on plans for rigorous third-party evaluations" (Bowen, 2013, p. 27). Those are now underway, some as part of a major assessment project (Straumsheim, 2013; see Găsević et al., 2014 for an account of themes in MOOC research in progress).

MOOC leaders have from the outset promised near unlimited data from their courses. That has turned out to be, of course, largely related to processes of online learning, or how students interact with digital resources, including performance on machine graded exercises and exams. But, as in most educational matters, understanding the impact of any particular experience of formal learning, particularly if the goal is to influence opportunities in work and careers, and in durable self-development, will require persistence and patience. As Agarwal, convinced as he is about the benefits of the MOOC format, acknowledges, "We cannot always measure the

innumerable reasons and circumstances for why learners seek out an edX course and what their individual corresponding success truly is" (Kanani, 2014). That is because MOOC research has focused largely on "Big Data," or the "clickstream" produced by students and then "event log" analyses (Reich, 2015). A complementary approach can display other kinds of data, like uses of course-related communications via social networks outside the MOOC platform (Veletsianos, Collier, and Schneider, 2015).

Assessing the individual performance of MOOC students presents its own problems. MOOC founders have been like "new literacies" advocates in their contempt for the lecture and the traditional authority of the professor, and in their devotion to "active learning" via "coaching." But claims for pedagogical innovation and its benefits for online learners in massive courses exceed what can be seen in the first years of MOOCs, most of which are organized around talking heads, albeit the video presentations are segmented for easier use and they can be watched multiple times. The interactive assessment supplied by the format has been largely limited to the results of automated grading. No doubt students appreciate the instantaneous responses. But to name such a feature part of the "personalization" of the experience is to overstate its likely impact.

Moving beyond automation in courses in the humanities and social sciences has brought Coursera to the solution of peer assessment (another favorite in the "new literacies"), making students—of many ages, backgrounds, and abilities in language--the judges of one another's learning. What's most telling about the peer assessment process is its presentation by Coursera in the vocabulary of grading, as if that is the goal of the evaluation of student writing, certainly the centerpiece of learning outside science and math. An American professor ordinarily well disposed toward using "peer

feedback” in her classes believes that Coursera’s approach “may be one of [platform’s] greatest weaknesses” (Watters, 2012). And recent research on MOOCs identifies evaluation of student work as one of the form’s most important challenges (e.g., Hew and Cheung, 2014; Admiraal, Huisman, and Van de Ven, 2014; Admiraal, Huisman, and Pilli, 2015).

Whatever Coursera’s premises, Cathy Davidson (2012), an advocate of the rapid transformation of postsecondary education with technology, finds the courses wanting from a pedagogical perspective, a missed opportunity, in her view, to bring learning up to the highest standards represented in the MacArthur Foundation’s “New Media” projects. Others favoring “constructivist” pedagogy see in MOOCs the betrayal of reform movements in American higher education (Toven-Lindsey, Rhoads, and Lozano, 2015). But there is the larger question, dismissed by Davidson and other advocates of the “new literacies” and constructivist methods, of the consequences of promising an educational utopia to online students around the world. Today’s debate about technology in studies of the brain, reading, and other higher order cognitive skills, indicates a role for online learning in managing relations between the old and the new literacies (e.g., Wolf, 2007; Carr, 2010; Baron, 2015) but demonstrates that there are considerable losses as well as gains.

From that perspective there is much to be said, ironically enough, for how old fashioned are many Coursera courses, with their complex spoken syntax (in video lectures by accomplished scholars and scientists) and conventional, text-based assignments. But can such virtues co-exist pedagogically with assessment scaled up for convenience—in peer evaluation—rather than in relation to the demands of the course content and, by Koller’s own acknowledgement, the desires of Coursera to educate the mind for critical uses? Whatever

the scale of data available from MOOC providers, the initial projects of the MOOC Research Initiative (none of which focused on course takers in developing countries), did little to impress critics with what it produced about learning over time (Straumsheim, 2014).

Nonetheless, extensive course-based “data-mining” (the announced goal of Coursera, edX, and Udacity) may satisfy an esteemed observer of MOOCs, who has declared that “the real revolution” they represent is an instructional one, in what can be learned from them and applied to traditional courses and hybrid ones. “Placing their MOOCs in the public domain for a worldwide audience will oblige institutions to do more than pay lip service to the importance of teaching and put it at the core of their missions” (Daniel, 2012). But John Daniel, a former executive at Britain’s Open University, UNESCO, and the Commonwealth of Learning, has also expressed uneasiness with the competitive “gadarene” impulse to offer MOOCs, and with their “paradoxes and contradictions” and the “hype and myth” projected by many advocates. Data on learning may address some questions but others will require attention to what MOOCs will mean for the order of global postsecondary education, and for the conditions and results of teaching in the new format. In fact, the most recent study of its own courses by edX shows increases only in US enrollments (among the 48 courses studied), prompting this acknowledgment of the limits, thus far, of global impact beyond areas with already well qualified participants: “There is an opportunity to increase the number of participants. . . from underrepresented and underserved groups. . . [and] not only increasing access but increasing equitable access to high quality online learning opportunities” (Ho, et al., 2015, p. 5). Still, the report turns out to feature the benefits to residential instruction (particularly at MIT) of the innovations associated with MOOCs.

Revenue, Recognition, and New Institutions

Gordon Gee (then its president) brought Ohio State University into the MOOC fold even though there was only the dimmest sign that any revenue would come from the university's participation: "We're doing this in the hope and expectation that we'll be able to build a financial model, but I don't know what it is" (Lewin, 2012). Even the original MOOC providers, well supported as they are, make sustainability a primary question and suggest that it may be seen in a new way. The task is finding a suitable "business model" reflecting (at MIT) the scale and cost of maintaining the system and (at Coursera and Udacity) the investments of Silicon Valley venture capitalists who typically expect high returns. Both are expanding with no sign, as yet, of significant revenue. Perhaps the most stable long-term sources of revenue will be what students are now asked to pay for proctored final exams and certificates of completion, or, in the future, "premium" services like direct contact with the faculty. Mindful of the dangers in continuing "digital divide" we can ask: How will revenue generating features of MOOCs influence the public service ideals according to Vest of "spreading knowledge and opportunity"?

The potential worldwide demand for recognition for successful OER or MOOC coursework can be seen as the cornerstone for a re-imagined system of international postsecondary education in which institutions compete for students wishing to aggregate online experiences of many kinds originating in widely dispersed academic locations (Kamenetz, 2015). The OERu (oeru.org), a partnership of over thirty institutions around the world, is designed to capitalize on such an impulse by offering assessment and credentialing so that students can earn a degree from one of the OERu partners with open online courses from

any of the others, and presumably as the project unfolds, from other sources (Bates, 2011).

How well such a model is fitted to the autonomy and traditions of institutions like those affiliated with Coursera and edX, or to independent OER projects like Yale Open and Carnegie Mellon's Online Learning Initiative, brings us to the question of the prospects (and limits) for collaboration with an organization like OERu. Seen as a rich scene of Open Educational Practice (OEP), OERu displays, predictably enough, considerable variation in "social learning" and other features of OER (Schreurs, et al., 2014). OERu is seeking to overcome the gap in status in global activity in distance education, as in the several well known institutions like Britain's Open University, and the uses of open educational resources (particularly MOOCs) coming from well established and prestigious institutions.

At one time Vest (2006) imagined a "global meta-versity." But with the advent of MOOCs, MIT faculty began thinking in a different direction, reflecting what relations would be like between research and new institutions (or reorganized older ones) when the course work for a degree (anywhere) is the responsibility largely of the former, while forms of "certification," or credentialing, would be left to the latter to support the online high status global curriculum. Here is how such a "Certificate School"--as it was named in a faculty newsletter as MIT's efforts in edX were just getting off the ground--would advertise itself to students impatient with conventional institutions, or able to enroll in one: "We help you put together a plan that educates you by the best and brightest from all over the world. You learn physics and computer science from MIT; philosophy and Sanskrit from Harvard. Art history from Yale. [Local faculty or those in allied roles] . . . help you through rough spots, to learn with you rather than teach you. . . . Once you have gotten through a combination of 32

certificates and projects, you graduate. We don't care how long it takes; take time off whenever you want" (Editorial Subcommittee, 2012, p. 3). With a "global subject catalog" provided by "star performers," postsecondary credentialing would be reconfigured in the direction of new hierarchies and institutions to support them. A formal study of its future, building on early faculty speculation, presents MIT's ambitious plans for globalizing its impact, largely via its online teaching, on its own and with edX partners. And that will include, in developing countries, "aggregation" of courses and other education experiences by old and new institutions taking on the tasks of a "Certificate School" (Institute-wide Task Force, 2013).

There is here the logic of scaling up and efficiency, and a new division of global academic labor responding, presumably, to worldwide claims for the online pedagogical products of research universities and their scholarly stars. Daphne Koller's view reflects the American (and global) status hierarchy and the prospects for private goods: "Let's say you're stuck at some no-name state college in the [U.S.] Midwest. Now the top 10% of students at that school have the option to take a Coursera course that could open a door to being employed at companies like Google" (Kamenetz, 2012). The MIT forecast does not have to be entirely accurate to convey the international impact of a fully developed global system of OCW and MOOCs, with sharply differentiated national and institutional roles, and faculty ones as well. Thus another question for inquiry: Is this the kind of local participation or "domestication" desired by worldwide partisans of OER who are nonetheless skeptical of the motives and styles of implementation among providers?

Even the well regarded Kepler University experiment in Rwanda (kepler.org), with its uses of MOOCs and teachers in support roles, appears to represent the fears of those who believe that technology will stall the

development of indigenous instructional resources (e.g., Kamenetz, 2013). The teachers are "international" and Rwandan "Teaching Fellows." Advocates for this hybrid model see it as a location for capitalizing on expert teaching in the form of the well produced video lectures while providing customized guidance for students. Given the demand for higher education in countries like Rwanda, can development of local postsecondary faculties capable of producing Coursera-like resources, be legitimately postponed on behalf of the futures of students eager for learning and credentials today? Kepler's director says "The greatest threat to national educational systems is not online courses or other innovations. It's the status quo" (Hodari, 2013; see also Bartholet, 2013).

Conclusion: The Postsecondary "Wild Card"

Research on MOOCs can test their claims for student learning and what the faculty comes to know about its new digital work. But inquiry owes more to OER partisans and skeptics. It can include attention to the impact of digital teaching in the form of the MOOC, to the financing—in production, distribution, and evaluation—of open courses, and to new forms of credentialing and to emerging institutions with roles in it. But the research cannot ignore the historical, economic, and political trends that have shaped the rise and dominance of the world's leading research universities and brought them, surprisingly enough (or perhaps not so surprisingly considering what is at stake in status and influence), to their roles as prime movers in the development of the MOOC.

For critics like Robert Rhoads and his UCLA colleagues the OER movement is primarily an expression of economic "neoliberalism" and, as presently organized (in the U.S. at least), has little chance of fulfilling its

lofty claims for democratizing education across the globe (Rhoads, Berdan, and Toven-Lindsey, 2013). Thus, MOOCs can be seen as a diversion from the decline, over decades, of public support for higher education. And the MOOC providers, for this group of skeptics, care largely about the epistemology of positivism in featuring learning in science and engineering. The courses themselves, even where they venture into non-technical fields, also fail the pedagogical test by ignoring the constructivist lessons of recent postsecondary reform initiatives in which “social learning” is presented as the only legitimate format. Thus, when the movement is “unmasked,” it will be shown to be all about power, the “hegemony” of the West in the rapidly digitalizing global educational scene, and the absence of any effort to incorporate a “critical” spirit into the experiences of OER and MOOC learners.

The problem with such a stance is first that it sees OER and the MOOCs only as a “movement.” True enough, there are shared goals among providers, but what they offer comes from partner institutions, specifically in what individual faculty members decide to teach. In effect, to claim that the MOOC curriculum is only a tool for “privatization, commercialization, and marketization” (Rhoads, Berdan, and Toven-Lindsey, p. 107) is to say the same thing for what we find on campuses. But Rhoads and his colleagues look at OER and MOOCs from the perspective of scholars of American postsecondary education who have made “academic capitalism” the cornerstone of a wide ranging critique of the 21st century university (as in Slaughter, 2004). And Foucault (on power) and Friere (on pedagogy) are the authorities allowing for suspicion of the motives of the first MOOC providers, seeking to advance power with knowledge, and those who are designing courses indifferent to “liberatory” or “transformational” views of teaching and learning.

True enough, as shown earlier, educators in the developing world, and advocates in the West, are looking for more participation (or “domestication”) in all phases of OER design and use. Such was the primary theme at the international *MOOCs4D* conference convened in 2014 by the University of Pennsylvania. An Indian delegate stated the paradox facing even those projects reflecting the latest innovations in technology: “The disparity in access is getting narrowed down but the disparity in achievement is widening.” Getting the most from MOOCs, and other forms of OER, will mean seeing beyond their introduction as a “stand alone, independent, parallel activity” and building “partnerships” with postsecondary institutions in developing countries (University of Pennsylvania, p. 10).

Meanwhile, MOOCs, with their origins in elite universities and their largely standardized formats, hardly satisfy American critics. Rhoads and his colleagues demonstrate the theoretical discourse that often supports deep skepticism of institutional motives and habits of teaching. But OER and MOOCs constitute a scene of educational experiment capitalizing on global demand, with broadly based scrutiny if not institutional oversight (e.g., in the activities of the Open Education Consortium). Looking at MOOCs internationally from the perspectives of users, as in the case of the Kepler project in Rwanda, can yield a different perspective. Thus, according to SUNY’s Ben Wildavsky: “I find some of the criticism [of MOOCs] ideological in a way that doesn’t really focus first on the needs of students. . . . We should think about what’s best for people in developing countries. If you let a thousand flowers bloom, then people can pick and choose. We’re in a period of experimentation, which is great, because it means that providers and universities will try different things, and students will figure out what works” (Leber, 2014; see also Wildavsky, 2014).

Of course, anyone writing about the impact of technology on education is always likely to be working behind new developments. In this case, it is important to recognize how much has happened since 2012 to the Coursera and edX catalogues, displaying as they now do partnerships with institutions around the world and courses in virtually every field of the postsecondary curriculum. Some in the humanities and social sciences are among the most successful, and they convey precisely the independence of thought and design characteristic of the best on campus university courses (for a recent example, suitably enough devoted to the subject of global higher education, see Robertson and Olds, 2014). EdX has acknowledged difficulties in gaining data of its own of sufficient depth about users' experiences (Ho, et al, 2014). Still, there is more variability in MOOC pedagogy than is observable in the simple binary, as presented in Rhoads et al, of the style of 'transmission (or "banking" in the vocabulary of Friere) vs. teaching that organized around a "participating community" and the making of individual "critical consciousness" (pp. 95, 98; see also Glance, Forsey, and Riley, 2013 and Adams, Yin, Madriz, and Mullen, 2014; *Distance Education* dedicates the whole of 35(2) to essays on and empirical studies of MOOCs).

Finally, there is the problem of what is perhaps the most significant sign of institutional (Western or otherwise) power in global postsecondary education. That is, the authority to grant degrees. There are now procedures, via the American Council on Education, to grant conventional credit for successful completion of some MOOCs, but few signs (beyond the organization of OERu) that the rapid growth of OER and MOOCs will actually yield broadly based academic recognition of them. Indeed, recent accounts of the online "disruption" of higher education look beyond credits and degrees, anticipating a global movement in the

aggregation of "Do-it-Yourself" digital learning projects (including MOOCs and other forms of OER). Suitable workplace credentials would emerge in an educational market reflecting the limitless opportunities in technology for learning (Carey, 2015). Rhoads and his colleagues, whatever their predisposition in assessing the early MOOCs, remind us that no less than traditional educational institutions, innovative educational projects in technology, whatever their ideals (for access, student autonomy, and reduced costs), must be objects of scrutiny.

Empirical research and philosophical, political, and educational criticism can probe the fate of UNESCO's hopes in its 2002 statement naming Open Educational Resources as a significant step in global higher education: "Thanks to the confluence of technology and imagination, it is now feasible to recognize that knowledge as a social product can indeed become an international social property" (p. 18). Such inquiry could ask what OER and MOOCs contribute to how we imagine the roles of global research universities. In Simon Marginson's (2007) vocabulary that means attention to how "imaginaries"—market based and status driven, and networked and collegial—define what is possible, in their interaction and tension. And recognition of how universities serve the "public good" is essential, though, as Marginson sees it, that is in danger of being "locked down" by national preoccupations with markets and status. Still, "Global public good(s) is the wild card that trumps these limitations" (Marginson, 2012). To what degree OER—from its early enthusiasm for "learning objects" to today's utopianism in the discourse of MOOCs—meets such a standard is a question that can guide inquiry into the global impact of technology on postsecondary education.

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