



## Open educational resources: removing barriers from within

Sanjaya Mishra

To cite this article: Sanjaya Mishra (2017): Open educational resources: removing barriers from within, Distance Education, DOI: [10.1080/01587919.2017.1369350](https://doi.org/10.1080/01587919.2017.1369350)

To link to this article: <http://dx.doi.org/10.1080/01587919.2017.1369350>



Published online: 24 Aug 2017.



Submit your article to this journal [↗](#)



Article views: 18



View related articles [↗](#)



View Crossmark data [↗](#)

REFLECTION



## Open educational resources: removing barriers from within

Sanjaya Mishra

Commonwealth of Learning, Burnaby, Canada

### ABSTRACT

Enthusiasts and evangelists of open educational resources (OER) see these resources as a panacea for all of the problems of education. However, despite its promises, their adoption in educational institutions is slow. There are many barriers to the adoption of OER, and many are from within the community of OER advocates. This commentary calls for a wider discussion to remove these barriers to mainstreaming OER in teaching and learning and argues for a rethinking of the idea of 'open' to make it more inclusive by redefining the concept. It reminds us of the original thinking behind OER – which was to create universally available educational resources that can improve the quality of teaching and learning. This commentary posits arguments against conflating OER and open education, questions the narrow definitions of OER, and raises issues around how to be more flexible and open to mainstreaming OER and removing barriers from within the OER movement.

### ARTICLE HISTORY

Received 24 June 2017  
Accepted 16 August 2017

### KEYWORDS

Open educational resources;  
open educational practices;  
open licenses; open  
pedagogy; open education;  
barriers

### Emergence of the OER movement

The open educational resources (OER) movement has its roots in earlier work around *learning objects*, especially in relation to arguments in support of OER and learning objects (Weller, 2014). However, despite convincing arguments in favour of learning objects, research and platforms, the idea never took off for several reasons, including the need for contextualising learning materials (Mishra, 2004; Wiley, 2004), as well as the lack of interoperability and poor discoverability (Weller, 2014) of learning objects due to the technology of that time.

The term OER was coined at the Forum on the Impact of Open Courseware for Higher Education in Developing Countries, held in 2002 (UNESCO, 2002). This forum was held to make sense of the open courseware movement raging on at the time. As part of this emerging phenomenon, Rice University had started Connexions (now OpenStax) in 1999 to 'provide authors and learners with an open space where they can share and freely adapt educational materials such as courses, books, and reports' (OpenStax, 1999–2017). Massachusetts Institute of Technology (MIT) had announced OpenCourseWare in 2001 with the publication of 50 of its courses online within a year (MIT OpenCourseWare, 2001–2017). There were other developments as well in relation to the sharing of educational materials at the University of Texas, Brazil's Federal University of Ceará and Carnegie Mellon University (UNESCO, 2002).

**CONTACT** Sanjaya Mishra  smishra@col.org

© 2017 Open and Distance Learning Association of Australia, Inc.

Several underlying issues in relation to the sharing of educational resources also triggered this UNESCO Forum. These included developments in relation to new ways of sharing content on the Web, opportunities for meeting the training and re-training needs of a knowledge society, the perennial problem of insufficient library resources, the need for access to materials in languages other than English, and the 'philosophical view of knowledge as a collective social product' (UNESCO, 2002, p. 15).

Using external resources in teaching and learning was not a new idea, and so the participants in the forum agreed to 'develop together a universal educational resource available for the whole of humanity, to be referred to henceforth as Open Educational Resources' (UNESCO, 2002, p. 28). Since this landmark event, several new developments have taken place in this space, including the World OER Congress, led by the Commonwealth of Learning (COL) and UNESCO (UNESCO, 2012). The year 2017 is being celebrated as the Year of Open, with the second World OER Congress in Ljubljana, Slovenia in September. The COL organised six regional consultations as lead-up to this World Congress to discuss ways to mainstream OER and find concrete strategies for moving OER from a commitment to action (COL, 2016).

My own involvement in the open education movement (as an advocate of open access, OER and open source software in education internationally) has led me to reflect upon and question some of the current practices in the OER field, and which I offer here to fuel and focus the discussion around the topic. The views expressed here are personal and not necessarily that of my current employer. I share them with you in good spirit, and to forge a constructive conversation around increased openness, and hopefully, lead to universal access to knowledge for all. Key issues discussed include definitions of OER, business models and licenses, the conflation of OER and open education, increased emphasis over material rather than practice, use of jargon, and arguments to make open formats necessary for OER, as well as barriers within the OER movement. But before I go into discussing these issues, let me reflect on the idea of open to set the context and because I think it is important to understand the original ideas, behaviour and actions of a community to understand how memes develop in practice. 'Variability in the memes may then give rise to fuzziness in understandings, erroneous assumptions, and dubious practices' (Latchem, 2014, p. 405).

## The idea of open

The word *open* has been part of human discourse since time immemorial. It is important to note that in the literal sense; open is the opposite of *closed*. If something can be open, it can also be closed. The use of the word *open* preceding several nouns (e.g., access, assessment, data, education, government, knowledge, learning, and science) is currently in fashion. Probably the first use of open in reference to education came in the context of the phrase 'open society,' which Wikipedia (2017) attributes to Henry Bergson, who also was said to offer 'open courses,' in the 1900s. However, it was Karl Popper's *The Open Society and Its Enemies* that articulated the idea of open as tolerance towards diverse views, religious thoughts and critical questioning (Popper, 1945). This was in support of pluralistic and liberal democratic principles at that time.

I first came across the idea of open as a student of library and information science, in a book entitled *Five Laws of Library Science* (Ranganathan, 1931), in which Ranganathan articulated the concept of 'open access' in the pre-digital era (Mishra, 2012). The idea was to provide everyone access to books and ensure books are accessible to all. Pomerantz and

Peek (2016) discussed the idea of open in-depth and suggested that openness could be interpreted to refer, amongst other things, to rights, access, use, transparency, and participation. In a recent publication, Smith and Seward (2017) discussed openness as a social *praxis* with three distinct processes: open production, open distribution and open consumption. They also indicated categories of open: digital artefact, production models, social institutions, and pre-digital worlds (with examples being open societies and open universities). However, some of the digital artefacts in their list can also be non-digital in nature – for example, OER that are printed books. What Smith and Seward offer is a lens for understanding the phenomenon of openness from the perspective of the user. They also believe that this provides an easy way to explain openness in ways other than via a regimented open/closed dichotomy. The open/closed dichotomy has, in fact, been limiting the adoption of OER in education. While some use *open* as a noun, verb, or adjective, it is also an attitude (Lalonde, 2012) and representative of a movement. That makes open a big idea that can encompass several practices with different aspects of openness, with different emphases, contexts and purpose (Weller, 2014). I will argue next how the definition of OER itself is creating barriers to mainstreaming OER.

### Definition of OER and its implications

A plethora of definitions of OER are available, but many people regard OER simply as any resource available free of cost, mostly on the Internet. See, for instance, announcement for an Inside Higher Education webinar on the OER movement at <https://goo.gl/ESSPf5> and commented on by Wiley (2017b). From this perspective, all materials available on the Web are free to use; otherwise, they ask, why it has been shared online? Most also mistakenly believe that ‘public domain’ means all materials available publicly on the Web. Unfortunately, within academia, the understanding of copyright is so limited that explaining OER usually requires a lesson on copyright.

Technically, everything that is published in whatever format on the Web or elsewhere is copyright of the original creator. Only materials whose copyright has expired or over which the author has relinquished rights are legally ‘public domain.’ While information available on the Internet can be shared for personal use, its reuse, revision, remixing and redistribution require the permission of the copyright holder. The ‘fair use’ or ‘fair dealing’ clauses in copyright laws allow for the reuse and remixing of a work to some extent, but how far this goes is often not clear and is subject to interpretation. The basic premise of OER is that you and I can reuse and adapt them in our context, without seeking further the permission from the original copyright holder. This is a huge relief for higher education systems that are largely dependent on course packs.

Copyright exists to protect the rights of the creator or the original author to receive economic gain through selling and/or licensing their work; hence, the concerns about commercial use of someone else’s work as OER, because such use may deprive that person of legitimate economic benefit. In 2002, experts therefore defined OER as ‘[t]he open provision of educational resources, enabled by information and communication technologies, for consultation, use and adaptation by a community of users for non-commercial purposes’ (UNESCO, 2002, p. 24). However, a more widely used definition of OER from the William and Flora Hewlett Foundation (2017) states:

Open Educational Resources are teaching, learning, and research resources that reside in the public domain or have been released under an intellectual property license that permits their free use and repurposing by others. OER include full courses, course materials, modules, textbooks, streaming videos, tests, software, and any other tools, materials, or techniques used to support access to knowledge.

And the OER Paris Declaration (UNESCO, 2012, p. 1) defines OER as:

teaching, learning and research materials in any medium, digital or otherwise, that reside in the public domain or have been released under an open license that permits no-cost access, use, adaptation and redistribution by others with no or limited restrictions. Open licensing is built within the existing framework of intellectual property rights as defined by relevant international conventions and respects the authorship of the work.

The foregoing definitions make it clear that to be considered an OER, the material needs to be first teaching, learning and research material and then the following conditions need to be met:

- the material is in the public domain; or
- the material is available under an open licence.

An open licence 'grants permission to access, re-use and redistribute a work with few or no restrictions' (Open Definition, n.d.). This was very clearly articulated in the 2012 Paris OER Declaration (UNESCO, 2012). The new definitions do not include the criterion of 'non-commercial' use, as the Creative Commons (<https://creativecommons.org/>) licensing system provides different ways of licensing, including for non-commercial use. Of the six Creative Commons licences, only four can be considered open; the two with ND (non-derivative) licences are not considered open. However, in practice, many open initiatives use ND in their licensing, and their work is still accepted as examples of OER in presentations at conferences and seminars! Although such a practice seems to be contradictory to the current definition, it helps create a wider community for OER, albeit with an amount of fuzziness.

There are two considerations here: learning from the field of open access and questioning whether to enlarge the definition of OER to also embrace ND licences within the ambit of OER. Regarding the first point, in the field of open access, the Budapest Open Access Initiative (Budapest Open Access Initiative, 2002, p. 3) defined open access as literature that is available free ...

on the public internet, permitting any users to read, download, copy, distribute, print, search, or link to the full texts of these articles, crawl them for indexing, pass them as data to software, or use them for any other lawful purpose, without financial, legal, or technical barriers other than those inseparable from gaining access to the internet itself. The only constraint on reproduction and distribution, and the only role for copyright in this domain, should be to give authors control over the integrity of their work and the right to be properly acknowledged and cited.

To many purists, this definition relates to CC BY (the Creative Commons Attribution licence). But in practice, it does not include remixing rights or derivative rights, as control over integrity of the work is not ceded. The context here is research articles, and very few authors of research articles would like their work to be changed. Sharing of this category of material happens in open access through open access repositories (the green route) and open access journals (the gold route) or in hybrid journals that provide open access options in lieu of article processing charges. Many publishers are now allowing authors to choose from the CC licence options, but for the majority of research papers shared through repositories as pre-prints or reprints, the major concern is not under what licences they are shared but the

desire for immediate access to the world without embargo or delay. Although most research information is still protected behind paywalls, open access increases free access to research information for anyone to use and learn. Are these materials not OER? Just because they do not carry licences, should we not consider them OER? The Directory of Open Access Journals (DOAJ, 2017) considers only 'immediate' access for listing a journal on their site, while to get DOAJ seal, a journal should permit reuse and remix.

With respect to the second point, which is whether we should enlarge the definition of OER, we might ask: What is the purpose of such a definition? Is it to exclude certain freely available resources from being used as OER? What harm would it do to the OER field if ND materials were also considered OER? For example, the Athabasca University Press uses CC BY-NC-ND license to release books in open access (AU Press, n.d.). If a book is directly related to a curriculum, it makes sense to use the same as is and consider the same within the ambit of OER.

However, one might also argue that a true OER allows revision and contextualisation using the 4R (reuse, revise, remix and redistribute) framework. The 4R framework provides a good description to understand what OER helps us to do with the work. You can't revise or remix a work distributed with an ND licence, but that licence does allow reuse and redistribution, and one can retain a print copy of a PDF for future use. Is there no educational value in materials bearing an ND licence? If these are good resources for an institution that can save them money through their as-is use, is it not useful to rethink the matter and become more inclusive in our definition of OER?

In order to explain OER in simple language the 4Rs framework is quite useful. But since the addition of the 5th R to the 4Rs framework by Wiley (2014b), I am asked many a time about its usefulness and significance. To quote Wiley (2014a) here:

The right to Retain – i.e., make, own, and control – copies of openly licensed content has always been a right granted by open content licenses. Generally speaking, it is impossible to revise, remix, or redistribute an openly licensed work unless you possess a copy of the work. [...] the right to retain is strongly implied in open licenses, but never called out directly. Consequently, it has never been addressed directly in the discourse around open.

So, it is clear that retain is a default condition of open licenses, and therefore, it only adds more complexity to the discourse making it more confusing to the stakeholders. It is also important to note that the Creative Commons licenses are not format specific, which means if you release a work in one format (without ND), I can release the same in another format. For example, a PDF document can be released as an ePub.

There is a need to rethink the bigger picture and ask: Why OER? As our goals are to increase access to quality educational materials, reduce costs and improve student learning, it is imperative that we reconsider the definition of OER. Whether we use the 4Rs or the 5R framework to explain OER, it is best to consider the framework as a continuum. It is also important to rethink what makes something educational. Just because some license is used on a work (e.g., picture, text, sound, film), does not make the resource educational. Considering the purpose and use of the resource in a context to determine whether it qualifies to be educational is important to differentiate between OER and all other openly licensed materials available on the web. There are over a billion openly licensed materials, but I would hesitate to consider everything as OER, though open license makes it possible to use these for educational purposes.

## Business models and licences

A frequently asked question in relation to OER, is what is its business model? An idea that germinated from an altruistic vision of making educational resources available for humanity has turned, over the years, into considerations of how to monetise open. True, somebody has to pay for the creation of OER, and yes, many OER are created with philanthropic or governmental support, but these sources are not perennial – although governmental involvement in the creation and sharing of educational resources will continue to be there in many developing countries. The focus on policy development to release publicly funded resources under open licences (or for that matter, I will argue, with clear license to reuse, revise, remix, redistribute) makes sense. This approach will help create an ecosystem that allows the community to update resources without perpetual dependence on governmental or philanthropic support.

In order to leverage this advantage, the most appropriate licence is the ShareAlike option. (For an alternative view on why NC licenses are better, see Downes, 2012). This creates a chain reaction whereby whatever derivative is created can also be shared. The ShareAlike option, of course, poses its own challenges for remixing, as materials bearing this licence can only be remixed with Attribution-ShareAlike (CC BY-SA) materials for creating another derivative work. The ShareAlike licence introduces limitations for remixing, so the most favoured open licence is CC BY. Both CC BY and CC BY-SA licences allow commercial use, which has resulted in new business models to provide services around the use of OER (Mishra, 2017a).

In resource-poor conditions, where OER are used by someone to make a living by selling photocopies of open resources, we may justify commercial use because the OER are supporting livelihoods. However, when multinationals start businesses around available OER, or start-ups begin monetising OER, I start sensing unknown difficulties. There exist examples of open access research-sharing platforms promising to provide free access that have then gradually captured data and resources to restrict access (Adema, 2016; Bell, 2016). Will OER go in that direction? Should we be worried about licences and use them more carefully to prevent commercialisation?

I can imagine a scenario in which we are not bothered by business models, and resources are created by teachers as part of their job and are shared freely without restrictions. The creation and sharing of OER need not be specially funded, although it would take a long time to reach such an ideal situation, where OER are mainstreamed in teaching and learning. It would also mean taking OER beyond the current approach of creating open textbooks, marketing these for adoption by students, and thereby showing indirect savings. In fact, in many countries, the logic of cost savings does not work, as the government bears the cost for textbooks supplied to all learners. What works in favour of OER in such places is the opportunity to improve the quality of teaching and learning in the classroom due to the availability of OER.

While open textbooks are becoming more and more multimedia based giving learners rich learning experiences, a better use of OER is to create a situation in which both teachers and learners are engaged in OER-based learning. Such an approach has been successfully demonstrated in a project on OER-based e-learning in two countries, which resulted in increased teacher reflections about teaching and learning (Karunanayaka, Naidu, Rajendra, & Ratnayake, 2015). If we focus on teacher-generated OER, finding new business models will be unnecessary.

## OER and open education

Open education is currently practised mainly in open universities. Even before the establishment of the first open university, open education existed as a philosophy and practice that treasured open entry to educational opportunities, without restrictions; the provision of anytime, anyplace and any-format learning, not limited to the synchronous presence of student and teacher; and flexibility in the choice of curriculum. In twenty-first century society, the characteristics of open education are more suitable to lifelong learning and personalised learning. OER are just one aspect of the bigger ecosystem of education for sustainable development.

What is new here is the mechanism for sharing resources through the use of an open licence. Sharing of educational materials has been common, as has their reuse. In our lifetime as teachers, we probably reused most of our work and those of others several times. When libraries faced budget crunches, they started to think about resource sharing and networking. To this end, they created consortia which helped reduce time spent on cataloguing and classification, practices common to every library, and that enabled libraries to focus on purchasing more reading materials for their users. They also shared library catalogues to avoid buying books available in nearby libraries and shared books through inter-library loans. OER play a similar role now when access to textbooks and other learning materials becomes a problem. Digital technologies have made it possible to share works anywhere, anytime, while open licensing frameworks allows this kind of sharing to be carried out legally.

There is also a trend towards seeing OER as a panacea for all the problems in education, with some thinking in particular that OER will improve learning outcomes. Maybe they will. OER are supposed to be of better quality, as they are openly available for improvement and sometimes are the product of teamwork. However, many OER are not designed to help students learn or do not match the learning needs for a given grade level. So, just because a text or graphic is available with an open licence does not necessarily make it educational material (or OER). Students learn because of a variety of factors, including the availability of quality learning materials. But to specifically claim that someone has learned better due to a particular textbook or OER would be going too far. Smith and Seward (2017) appreciate this when they say:

Researchers have struggled to research the outcomes or impacts of open artefacts, like OER or open government data. This is because a static piece of digital content does not do anything on its own; it has to be part of a process of use for an outcome to emerge.

OER certainly do improve access. They also help improve the quality of learning, by shifting perspectives and changing models of teaching and learning (Karunanayaka & Naidu, [in press](#)). But we must be realistic in our claims when advocating for OER. Despite the advantages of OER, their adoption has been slow in educational institutions due to several kinds of barriers, such as lack of incentives for teachers, awareness about copyrights and licensing issues, quality and relevance of the materials, and sustainability of the OER initiatives (Huyen, [n.d.](#)). In 2011, a European initiative called for a shift from OER to open educational practice (OEP) (Andrade et.al., 2011). Ehlers (2011) emphasised that OER is 'phase 1,' focusing on creation and access, while OEP is 'phase 2,' focusing on using OER within an open learning architecture to improve quality and change educational cultures within institutions. And it has been shown that such an approach will improve the mainstreaming of OER (see Karunanayaka et al., 2015). Ehlers also proposed that we measure the diffusion of OEP in

different institutions. Smith and Seward (2017) argue that openness as a practice helps shift the focus from the artefact to what people do with the artefact which is its practice. The European OPAL initiative defines OEP as:

practices which support the (re)use and production of OER through institutional policies, promote innovative pedagogical models, and respect and empower learners as co-producers on their lifelong learning path. OEP address the whole OER governance community: policy makers, managers/administrators of organisations, educational professionals and learners. (Andrade et al., 2011, p. 12)

This is certainly a better proposition for mainstreaming OER beyond institutions promoting open education, and especially for persuading the largely face-to-face teaching institutions to adopt and use OER. However, a model in itself does not push institutions to embrace OER or OEP. There has to be a need for a value proposition and a robust approach to its mainstreaming (see Karunanayaka & Naidu, *in press*).

Pedagogical models are always contested amongst academics when discussing the superiority of one approach to learning over another. In reality, learning is complex process and requires an eclectic approach, and the case for OEP is no different. As has been suggested by Naidu (2016), OEP comprises a lot more than free and open access to educational resources, and that it would be useful to see open educational practice as an omnibus term covering many dimensions of openness, namely:

- *Open access* which is inclusive and equal access to educational opportunities without barriers such as entry qualifications and ability to pay.
- *Open learning* which is the ability to study and learn at anytime, anywhere and at any pace, and
- *Open scholarship* which comprises releasing educational resources under an open license that permits no-cost access, use, adaptation and redistribution by others.

Conversations around OER in the OER community, quite often, stretches to open education without an awareness of the historical and theoretical dimensions of open education. But this is expected of a new area that has contributors from diverse domains of knowledge with partial understanding of the whole. However, it is important not to conflate either OER or OEP with open education. Although open education should be our goal, mainstreaming OER would provide access to quality educational resources and opportunities for lifelong learning in the context of sustainable development goal 4 (United Nations, 2017). Making educational resources available would facilitate new ways of teaching and learning, which may help educational institutions to benchmark themselves within the OEP pathways (Ehlers, 2011). This is exactly why it is necessary to situate OER within the ecosystem of learning. The discussions around the OER need to move from what and why to how and why not.

## Open pedagogy and its implications

Another phrase gaining traction recently is open pedagogy, making the landscape of OER more messy. How OER change the practice of education is the focus in discussions around open pedagogy, which is probably an offshoot of OEP. Wiley (2013) proposed the term *open pedagogy* and cited reusable assignments as examples of open pedagogy. He defined open pedagogy as 'that set of teaching and learning practices only possible in the context of the free access and 4R permissions characteristic of open educational resources.' Hegarty (2015)

articulated eight attributes of open pedagogy: use of participatory technologies; people, openness, trust; innovation and creativity; sharing ideas and resources; connected community; learner-generated; reflective practice; and peer review. Hegarty went on to acknowledge that segregating the dimensions was a challenge, as they are overlapping. In fact, the list of attributes is long enough to confirm that the practice of using OER in teaching is not easy. Such an approach creates further barriers to the mainstreaming of OER. If teachers think OER use is challenging, they will not use those resources. Recently, Wiley (2017a) indicated that a better proposition is 'OER-enabled pedagogy.' In fact, a still better one is 'OER-enabled learning,' as 'pedagogy' may seem level-specific and may not take into account other terminology, such as andragogy and heutagogy.

The adoption and use of OER have more to do with teachers' attitudes, motivations and perceptions about the quality of OER (Mishra, 2017b). Understanding the socio-psychological milieu of teachers in the context of an educational institution and a country is important to successfully mainstream OER. Rather than focusing on the cost savings accrued with OER, the emphasis should be on building a culture of using OER in local contexts. It is therefore, important to rethink our efforts in mainstreaming of OER through capacity-building of teachers to create, adopt or adapt OER and integrate these in their teaching and learning. It is also important to recognise and appreciate that such an approach requires time and perseverance from all stakeholders, including donors and governments (see Karunanayaka, Naidu, Rajendra, & Ratnayake, 2017).

### **The use of OER formats**

During my advocacy, policy and capacity-building interventions, I come across strong propositions and passionate arguments for the use of open formats to create OER. It is important that OER be created using open and accessible technologies. However, when the passion moves to compulsion, and the use of open formats becomes a mandatory requirement for an educational resource to be considered open, a closed quality is introduced to the situation, a view that only one way of doing things is correct. And those who argue for reuse through open technologies alone, exclude the OER available in print versions, which typically are not reusable.

Although it is always easier to work with a digital copy in the process of repurposing, OER are about using and sharing knowledge in any format. Format should not be a barrier to the creation and use of OER as long as the material is accessible in at least one format. Therefore, we should strive to make available at least one reusable version of the OER created by our stakeholders. As appreciation of the importance of using open technologies and software grows, more and more stakeholders will use these to create and share OER. The struggle for using open technologies and formats for creating OER should not be conflated with OEP.

### **Concluding remarks**

With many of our current approaches and perspectives on OER, we are actually creating barriers to mainstreaming OER. If we want OER to succeed, we need to rethink what we do and how we do it, collectively. We need to be more inclusive and focused on developing appropriate policies that allow copyright holders to decide how they want to share. Such policies need to be developed at both national and institutional levels to guide relevant

stakeholders in optimising the resources available through different types of licences and include non-derivative license as OER. We need to build and demonstrate models that would enable better understanding of the remixing challenge posed by different licensing conditions. Teachers and students are the most important stakeholders in the OER ecosystem. It is important to sensitise them on a regular basis in the use and creation of OER, including ways for remixing and integrating OER in teaching and learning.

Conflating OER with open education actually undermines the depth of knowledge that we have accumulated in the field of open education, and eventually the opportunities to improve access and quality of education using OER in all possible modes (face-to-face, distance, online) and in both formal and non-formal contexts are missed. OER are not necessarily about open education alone.

A better understanding of OER by policy-makers, educational administrators, teachers, students and the public at large would foster an enabling environment for OER through national policies, which would strengthen commitment to and funding for sustained campaigns and capacity-building for OER integration in teaching and learning. Teachers ought to be seen as creators of OER. Once they understand the potential of OER, they will use these resources innovatively in their teaching and learning. Transformation of the educational landscape and improvement in the quality of learning will be visible not because of OER per se, but due to teacher engagement with OER (Karunanayaka & Naidu, *in press*).

The current need is for content development as OER, capacity-building in its integration in teaching and learning, collaboration at the national and international levels to advocate for OER, work on OER projects, and the gathering of evidence of the impact of OER on increasing access and improving the efficiency and quality of learning. It is also important to recognise the role of OER in improving equity in educational opportunities, preserving cultural heritage and local knowledge, and creating a global platform for universal access to knowledge in different languages.

The challenges to mainstream OER are many. In order to face these challenges, the OER movement needs to first look within, debate its current practices and present more inclusive and flexible approaches, and remove the barriers from within it to the mainstreaming of OER.

## Disclosure statement

No potential conflict of interest was reported by the author.

## Notes on contributor

*Sanjaya Mishra* is Education Specialist, eLearning at the Commonwealth of Learning, Canada. Previously he served as Director of the Commonwealth Educational Media Centre for Asia (CEMCA), New Delhi and Open Access Programme Specialist (ICT in Education, Science and Culture) at UNESCO, Paris.

## References

Adema, J. (2016, April 7). Don't give your labour to Academia.edu, use it to strengthen the academic commons [Blog post]. *Open Reflections*. Retrieved from <https://openreflections.wordpress.com/2016/04/07/dont-give-your-labour-to-academia-edu-use-it-to-strengthen-the-academic-commons/>

- Andrade, A., Ehlers, U., Caine, A., Carneiro, R., Conole, G., Kairamo, A., ... Holmberg, K. (2011). *Beyond OER: Shifting focus to open educational practice* (OPAL Report 2011). Retrieved from <https://oerknowledgecloud.org/sites/oerknowledgecloud.org/files/OPAL2011.pdf>
- AU Press. (n.d.). *Copyright and terms of use*. Retrieved from <http://www.aupress.ca/index.php/about/copyright>
- Bell, K. (2016, October 17). Why Academia.edu is not the answer that proponents of open access have been looking for and why many academics don't care (but should) [Blog post]. *Kirsten Bell*. Received from <https://www.notkristenbell.com/academia-edu>
- Budapest Open Access Initiative. (2002). *Declaration of the Budapest Open Access Initiative*. Retrieved from <http://www.budapestopenaccessinitiative.org/read>
- Commonwealth of Learning. (2016). *Open educational resources regional consultations: 2nd World OER Congress*. Retrieved from <http://rcoer.col.org/>
- Directory of Open Access Journals. (2017). *Journal application form*. Retrieved from <https://doaj.org/application/new>
- Downes, S. (2012, November 27). Free and not free [Blog post]. *Half an Hour*. Retrieved from <http://halfanhour.blogspot.ca/2012/11/free-and-not-free.html>
- Ehlers, U. (2011). From open educational resources to open educational practices. *eLearning Papers*, 23. Retrieved from <https://oerknowledgecloud.org/sites/oerknowledgecloud.org/files/media25161.pdf>
- Hegarty, B. (2015). Attributes of open pedagogy: A model for using open educational resources. *Educational Technology*, 55, 3–13.
- Hylen, J. (n.d.). *Open educational resources: Opportunities and challenges*. Retrieved from <https://www.oecd.org/edu/ceri/37351085.pdf>
- Karunanayaka, S. P., & Naidu, S. (in press). A design-based approach to support and nurture open educational practices. *Asian Association of Open Universities Journal*, 12(1).
- Karunanayaka, S. P., Naidu, S., Rajendra, J. C. N., & Ratnayake, H. U. W. (2015). From OER to OEP: Shifting practitioner perspectives and practices with innovative learning experience design. *Open Praxis*, 7, 339–350. doi:10.5944/openpraxis.7.4.252
- Karunanayaka, S. P., Naidu, S., Rajendra, J. C. N., & Ratnayake, H. U. W. (2017). Designing reflective practice in the context of OER-based e-Learning. *Journal of Learning for Development*, 4, 143–160. Retrieved from <http://jl4d.org/index.php/ejl4d/article/view/210/216>
- Lalonde, C. (2012, October 18). Open is a noun, verb, adjective ... and an attitude [Blog post]. *ClintLalode*. Retrieved from <http://clintlalonde.net/2012/10/18/open-is-a-noun-verb-adjective-and-an-attitude/>
- Latchem, C. (2014). Musing on the memes of open and distance education. *Distance Education*, 35, 400–409. doi:10.1080/01587919.2015.955266
- Mishra, S. (2004). Book review – Reusing online resources: A sustainable approach to e-learning. *International Review of Research in Open and Distributed Learning*, 5(1). Retrieved from <http://www.irrodl.org/index.php/irrodl/article/view/170/252>
- Mishra, S. (2012). Scholarly communication reconsidered. *Library Herald*, 50, 105–126.
- Mishra, S. (2017a, February 27). *Is 'service' the new secret of OER sustainability?* Burnaby: Commonwealth of Learning. Retrieved from <https://www.col.org/news/col-blog/%E2%80%98service%E2%80%99-new-secret-oer-sustainability>
- Mishra, S. (2017b). *Promoting use and contribution of open educational resources*. New Delhi: Commonwealth Educational Media Centre for Asia. Retrieved from <http://oasis.col.org/handle/11599/2659>
- MIT OpenCourseWare. (2001–2017). *Our history*. Retrieved from <https://ocw.mit.edu/about/our-history/>
- Naidu, S. (2016). Editorial: The case for open educational practice. *Distance Education*, 37, 1–3. Retrieved from doi:10.1080/01587919.2016.1157010
- Open Definition. (n.d.). *Guide to open licensing*. Retrieved from <http://opendefinition.org/guide/>
- OpenStax. (1999–2017). *About us*. Retrieved from <http://cnx.org/about>
- Pomerantz, J., & Peek, R. (2016). Fifty shades of open. *First Monday*, 21(5). Retrieved from <http://firstmonday.org/ojs/index.php/fm/article/view/6360/5460>
- Popper, K. (1945). *The open society and its enemies* (Vols.1 and 2). London: Routledge.
- Ranganathan, S. R. (1931). *Five laws of library science*. Madras: Madras Library Association.

- Smith, M. L., & Seward, R. (2017). Openness as social praxis. *First Monday*, 22(4). Retrieved from <https://firstmonday.org/ojs/index.php/fm/article/view/7073/6087>
- UNESCO. (2002). *Forum on the impact of Open Courseware for higher education in developing countries: Final report*. Paris: Author. Retrieved from <http://unesdoc.unesco.org/images/0012/001285/128515e.pdf>
- UNESCO. (2012). 2012 Paris OER declaration. Retrieved from [http://www.unesco.org/fileadmin/MULTIMEDIA/HQ/CI/CI/pdf/Events/Paris%20OER%20Declaration\\_01.pdf](http://www.unesco.org/fileadmin/MULTIMEDIA/HQ/CI/CI/pdf/Events/Paris%20OER%20Declaration_01.pdf)
- United Nations (2017). *Progress towards the sustainable development goals (Report of the Secretary-General)*. New York, NY: Author. Retrieved from <https://sustainabledevelopment.un.org/sdg4>
- Weller, M. (2014). *The battle for open how openness won and why it doesn't feel like victory*. London: Ubiquity Press.
- Wikipedia. (2017). *Open society*. Retrieved from [https://en.wikipedia.org/wiki/Open\\_society](https://en.wikipedia.org/wiki/Open_society)
- Wiley, D. (2004). The reusability paradox [Blog post]. *Iterating Toward Openness*. Retrieved from <http://opencontent.org/docs/paradox.html>
- Wiley, D. (2013, October 21). What is open pedagogy? [Blog post]. *Iterating Toward Openness*. Retrieved from <https://opencontent.org/blog/archives/2975>
- Wiley, D. (2014a, March 15). Clarifying the 5th R [Blog post]. *Iterating Toward Openness*. Retrieved from <https://opencontent.org/blog/archives/3251>
- Wiley, D. (2014b, March 5). The access compromise and the 5th R [Blog post]. *Iterating Toward Openness*. Retrieved from <https://opencontent.org/blog/archives/3221>
- Wiley, D. (2017a, May 2). OER-enabled pedagogy [Blog post]. *Iterating Toward Openness*. Retrieved from <https://opencontent.org/blog/archives/5009>
- Wiley, D. (2017b, July 5). What difference does it make? [Blog post]. *Iterating Toward Openness*. Retrieved from <https://opencontent.org/blog/archives/5073>
- William and Flora Hewlett Foundation. (2017). Open educational resources. Retrieved from <http://www.hewlett.org/strategy/open-educational-resources/>