

## ARTICLE

# Revisiting the Reusability and Openness of Resources in the Massachusetts Institute of Technology Open Courseware

Bernard Nkuyubwatsi

The marketing of the Massachusetts Institute of Technology (MIT) Open Courseware gives the impression that it has the potential to contribute to quality open learning and opening up higher education globally. It is from this perspective that the potential contribution of Open Educational Resources (OER) units in the MIT Open Courseware to opening up higher education in Rwanda was investigated. Ten OER units were sampled as objects of the study. I took the role of an archive analyst, giving full attention to any item that constituted each unit. Results indicate that only one unit had enough openly licensed resources to enable its potential adaptation for use in opening up higher education. In other units, only metadata (course information, the syllabus, course calendar, and the list of required and suggested readings), assignments and/or quizzes/exams were openly licensed. Most (if not all) of the required and suggested readings, which are the core learning materials learners need to engage with for quality learning, had to be purchased, mostly from the Amazon website. On the basis of these findings, I argue that the MIT Open Courseware served the marketing agenda (probably for the purpose of acquiring funding), rather than the open access agenda. The study may benefit funding organisations, educators and institutions that are interested in supporting or engaging in the production, adaptation and use of OER with an agenda to contribute to opening up higher education.

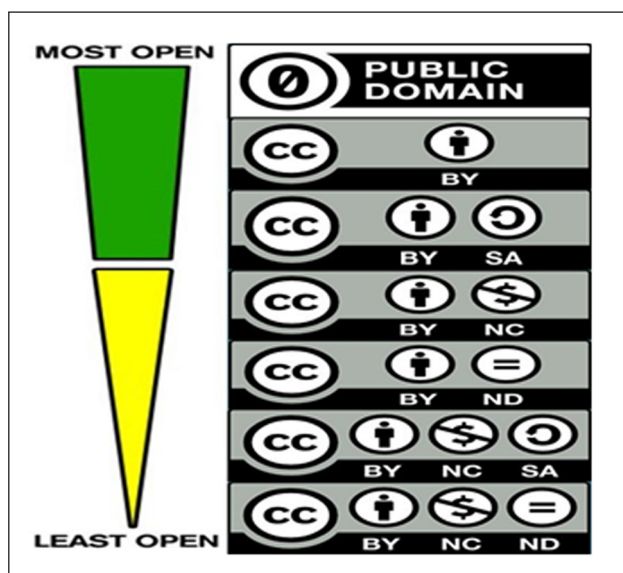
**Keywords:** OER; OER units; MIT Open Courseware; marketing; open licence; opening up higher education

## Introduction

Efforts to make learning resources open started with the production of *learning objects*: digital entities that can be used, reused or referenced during technology supported learning (Rehak & Mason, 2003, p. 21). The learning objects initiative was catalysed by the need to increase access to education in many countries, both developed and developing ones (Littlejohn, 2003, p. 1). The idea behind learning objects was that sharing and reusing learning resources would help expand access to education cost-effectively. According to Weller (2014, pp. 69–72), the *learning objects* initiative failed due to three reasons: 1) the complicated reusability of learning objects, 2) the dispersion of learning objects in diverse learning management systems, which led to the development of standards for their discoverability that eventually became complex, and 3) the lower levels of recognition of contributions made to learning object repositories, compared to the level of recognition given for publishing research findings in

journal articles. This lack of recognition of contribution to learning objects discouraged academics from engaging in related practices. Consequently, there was no critical mass for the sustainability of the *learning objects* initiative.

After its failure, the *learning objects* movement evolved into the OER movement. The concept of Open Educational Resources (and its acronym: OER) was coined at the 2002 UNESCO meeting in which the MIT Open Courseware model was presented (D'Antoni, 2009). Thanks to the global representation at the meeting, the idea of providing educational materials free of charge propagated quickly. Barriers that led to the failure of the *learning objects* initiative seem to have been addressed in OER. The reusability issue was addressed by different open licences (see *Creative Commons* licences in **Figure 1**, for example) under which OER content is released. These licences grant permissions to access, download, print out, use, reuse, redistribute and adapt the content, and disseminate the derivative work across settings. The issues of dispersion of resources and the complexity of discoverability standards may have been addressed by creating consortiums in which OER are shared. As for the low recognition of contributions made to learning object repositories when compared to publishing journal articles, this issue has



**Figure 1:** Most common open licences. Adapted from Green (2012, Slide 15) (in the public domain); and Creative Commons (2013, Slide 18) (under CC BY).

been addressed by the publication of journal articles under an open licence in blind peer review open access journals.

Open licences include *Creative Commons* licences and the *public domain*, which is the most accommodating open licence: there is no known restriction on materials released in the public domain (see **Figure 1**). *Creative Commons* (CC) licences were developed on the basis of four properties: *Attribution* (BY), *Non-Commercial* (NC), *No Derivative work* (ND) and *Share Alike* (SA) (Bissell, 2009, p. 101). From the most accommodating to the most restrictive, Creative Commons licences are: 1) Creative Commons Attribution (CC BY), 2) Creative Commons Attribution-Share Alike (CC BY-SA), 3) Creative Commons Attribution-NonCommercial (CC BY-NC), 4) Creative Commons Attribution-NoDerivatives (CC BY-ND), 5) Creative Commons Attribution-NonCommercial-ShareAlike (CC BY-NC-SA) and 6) Creative Commons Attribution-NonCommercial-NoDerivatives (CC BY-NC-ND). More information on these licences is available at <https://creativecommons.org/licenses/>. According to Green (2012), there has been effort to get rid of licences that have the *No-derivative work* and *Non-commercial* features since they are restrictive and controversial respectively. The controversy around the non-commercial feature is likely to emerge when resources are used in education across settings. There is no universally accepted clear divide between a non-commercial and a commercial educational institution, which makes this aspect ambiguous.

Various declarations related to open access, open education and OER have been made. These declarations include the 2002 Budapest Open Access Initiative (Open Society Foundations, 2002), the Cape Town Open Education Declaration (Shuttleworth Foundation & Open Society Foundations, 2007) and the Paris OER declaration (UNESCO, 2012). Despite these declarations, levels of use of the large amount of existing openly licensed content

which are available has not been satisfactory (Lane, 2010; Ehlers, 2011; Conole, 2013). Learners' engagement with OER-based learning may have been inhibited by many barriers, including the lack of recognition of related accomplishment (Lane & Van-Dorp, 2011) and limited access to technologies (Wolfenden, 2012; Wolfenden, Buckler & Keraro, 2012). These two barriers were relevant to the study, and the second one permeates the results of the 2012 national census in Rwanda: access to electric power, computers and the Internet in Rwanda was 18%, 2% and 7%, respectively (National Institute of Statistics of Rwanda, 2014, pp. 87–100). The most ubiquitous technologies in Rwanda were found to be radio (which was accessible to 64% of households) and mobile phones (which were accessible to 54% of households). These challenges that prevail in Rwanda were taken into consideration in the evaluation of OER Units in the MIT Open Courseware.

The expansion of OER initiatives triggered new business models, five of which are discussed in this paper. The first business model consists of an open licence that requires a commercial contract and the payment of licence fee for the commercial use of the materials (Fitzgerald, 2007, p. 12). The second business model consists of the inclusion of advertisement of commercial products in electronic materials copyrighted under an open licence (Fitzgerald, 2007, pp. 12–13). In this business model, the resources released under an open licence may simply serve the marketing agenda. The third business model consists of releasing parts of courses as OER to attract independent learners to the paid complete versions. While Dideren & Verjans (2012, p. 11) refer to this strategy as an *“extensive teaser”*, Downes (2006) refers to it as the *conversion model*. The fourth business model consists of sponsorship (Downes, 2006): in this model, open access is provided via TV, radio and other media with possibility for the sponsor to add intrusive marketing messages. The final OER business model consists of commercialisation of various services such as assessment, additional content, content explanation and credentialing to OER-based learners (Jacobi & Woert, 2012). Those services are referred to as open educational services (Ouwehand, 2012; Nkuyubwatsi, 2014 and 2016a) or *open learning services* (Mulder & Janssen, 2013, p. 36). This study was conducted with an explicit goal of determining the potential contribution of the MIT Open Courseware resources to opening up higher education in Rwanda. In this country, access to higher education has increasingly become challenging due to the shortage of funds for student loans.

## Methods

The study was conducted as part of PhD research on opening up higher education in Rwanda. Research on the potential contribution of OER units in the MIT Open Courseware to opening up higher education in Rwanda was conducted in the light of the research question *“Which OER units can be adapted for use in opening up Rwandan higher education?”*. I concentrated on OER units as a *content/archive analyst*. The MIT Open Courseware (<http://ocw.mit.edu/courses/find-by-topic/>) was selected based on the apparent absence of barriers

that could inhibit access to the content (as opposed to some other repositories in which access was limited to approximately 10% of OER units/course units): From a surface view, units in the MIT Open Courseware seemed to be completely open. The MIT Open Courseware was also assumed to host *big OER* (Weller, 2011, p. 105) whose quality check would be trusted since it is run by a higher education institution. Equally, the repository was thought to contain a wide variety of OER units and, therefore, offer plenty of options to choose from. The apparent openness of the MIT Open Courseware also related to the goal of the study: determining OER resources that may potentially contribute to opening up higher education in Rwanda.

Ten OER units were selected for the study (See **Table 1**). These units were found using the “Course Finder” tool that offered three alternatives to find courses: 1) search by topic, 2) search by course number and 3) search by department. I used the first alternative, *search by topic*, to find the OER units I used in this study. Sampling of OER units was purposive (Bouma & Ling, 2004) in that I selected the units in the fields in which I was interested and of which I had prior knowledge. This enabled me to meaningfully engage with, and maintain my attention on, all resources in the unit. Basing my choices on personal interest also enabled me to simulate the experience of students, learners and academics who find resources to use in their learning or teaching.

Prior to conducting the study, I had developed a protocol/rubric that was mostly adapted from Achieve’s (2011) rubrics for OER content evaluation. The rubric adaptation had focused on tailoring the instrument to ensure that collected data could respond to socioeconomic and infrastructural/technology access challenges in Rwanda, discussed in the previous section. In data collection, however, most of this rubric became irrelevant due to the fact that core resources that may lead to quality learning were not openly licenced. This detail was absent in the

literature that advanced the MIT Open Courseware as a good example of OER repository. After noting this reality, the study focus was limited to examining the openness of the resources, without which legal adaptation for use in opening up higher education in Rwanda was unlikely to happen.

**Results**

All OER units were archives of resources used in courses taught at MIT in the past. These units consisted of meta-data (course information, course calendar, syllabus, a list of required and suggested readings), projects assigned to students and handouts for some units. In all units, these types of materials were copyrighted under CC BY-NC-SA.

The number of readings varied from unit to unit (See **Figure 2**). The *How to Develop “Breakthrough” Products and Services* unit had the fewest required and suggested readings (11 in total) and the *Technological Tools for School Reform* unit had the highest number of such readings (88 readings). Unlike the list of required and suggested readings that was openly licensed, the degree of openness of the readings per se was diverse. Most of these core learning materials were not openly licensed. A significant number of them had to be purchased from Amazon.

**Figure 3** illustrates how Amazon’s web pages from which the required or suggested readings in OER units had to be purchased were linked to the list of the readings provided in those units.

Many other readings could be purchased from other commercial websites such as the MIT *Sloan Management Review* website or the *Harvard Business Review* website. Links to these websites were also provided. The payment for the readings could be done either by buying copies of the files, or by paying periodical subscriptions to the websites.

In some units, short versions of the required or suggested readings were available free of charge. However, the full versions of most of these resources had to be purchased.

**Table 1:** OER units analysed in the study.

No	OER unit	Year	Level
1	Media Education and the Marketplace	2005	Undergraduate
2	Technology Tools for School Reform	2005	Graduate
3	How to Develop Breakthrough Products and Services	2012	Graduate
4	Corporate Entrepreneurship: Strategies for Technology-based Development	2007	Graduate
5	Global Entrepreneurship Lab: Latin America, the Middle East, and Africa	2010	Graduate
6	Designing and Leading the Entrepreneurial Organization	2003	Graduate
7	Entrepreneurial Marketing	2002	Graduate
8	Challenge of World Poverty	2011	Undergraduate
9	Working in a Global Economy	2005	Undergraduate
10	Technology for Creative Learning	2009	Graduate

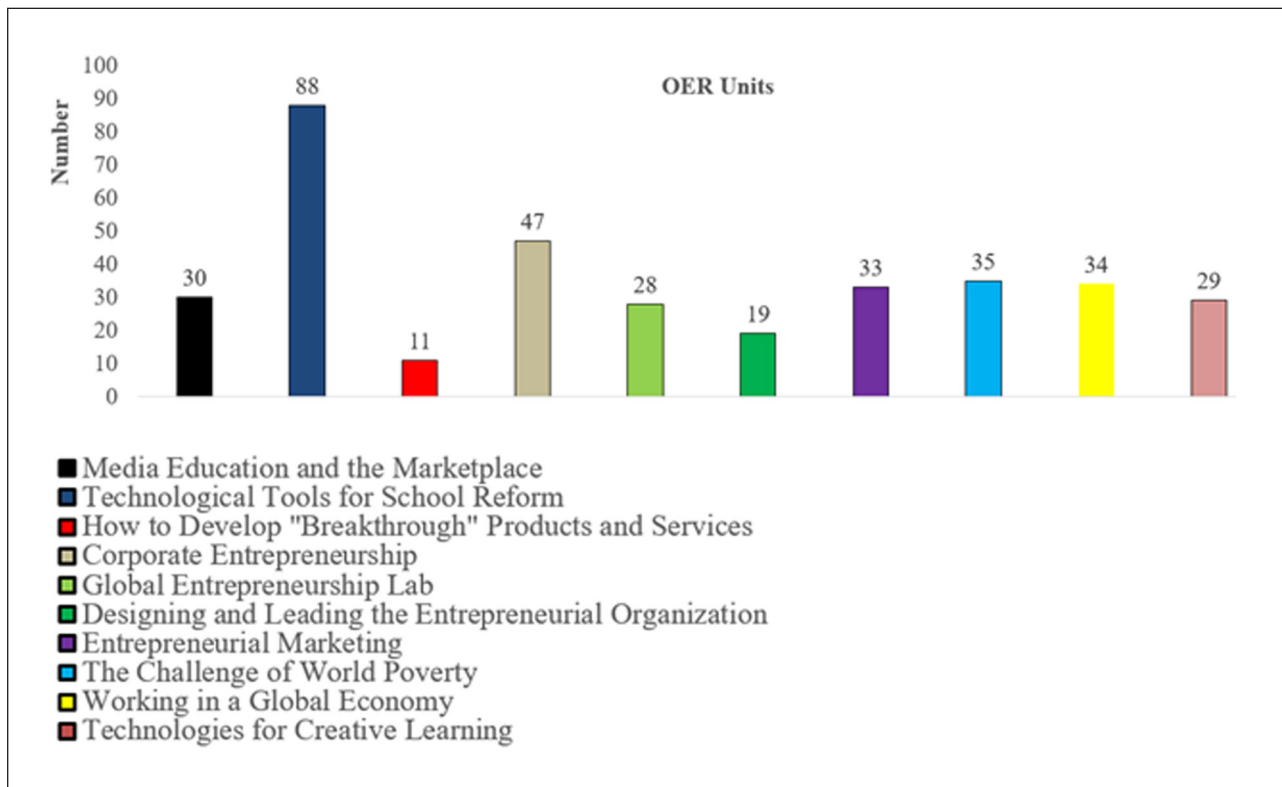


Figure 2: Required and suggested readings.

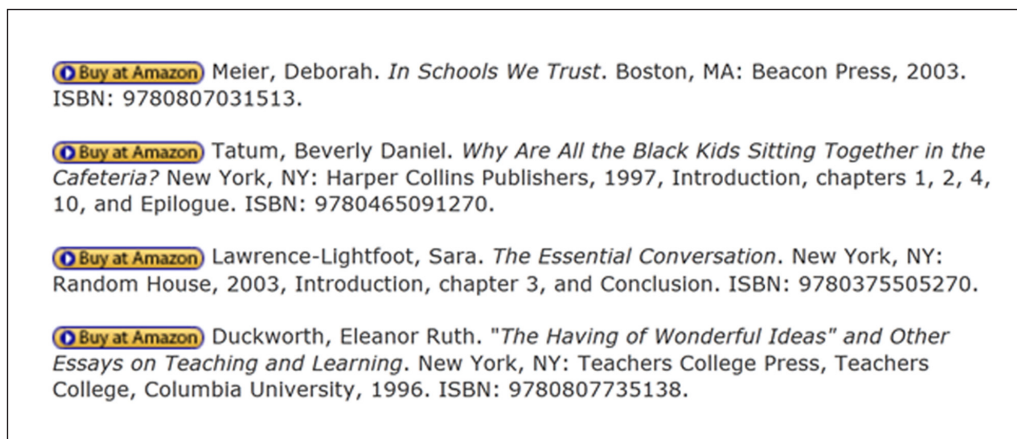


Figure 3: A screen shot of links to Amazon pages incorporated in OER unit list of readings.

For many other readings, access to full versions required a paid subscription. Full versions of some readings could be accessed and used free of charge, but users had to join online communities to have free access to them. Joining these communities was free of charge: it only required filling in registration forms.

Some readings could be accessed for free but this did not mean that their download, printing, reuse, remix/adaptation and redistribution was authorised (see numbers for different degrees of openness in Figure 4). The licence under which the resources were released was not clearly specified for many of them. Some readings could be downloaded after acceptance of terms and conditions which stipulated that the user should be affiliated with a licensee institution as a student, an educator, a researcher or an alumnus for

downloading the resources. This was especially the case for readings that were available in the Journal Storage (JSTOR), a digital library that provides full text searches to about 2000 journals and is accessible to more than 8000 institutions (Wikipedia, 2015). A few of the required and suggested readings accessible via JSTOR could be downloaded and used for non-commercial purposes. In some OER units, a few readings could also be accessed on other websites. Some of these readings had a note that said that permission to use them for educational and research purpose had been granted.

Links to required or suggested readings in various OER units worked differently. Some of these links were broken. In most units, a few required or suggested readings had no links. However, most of these materials could be googled

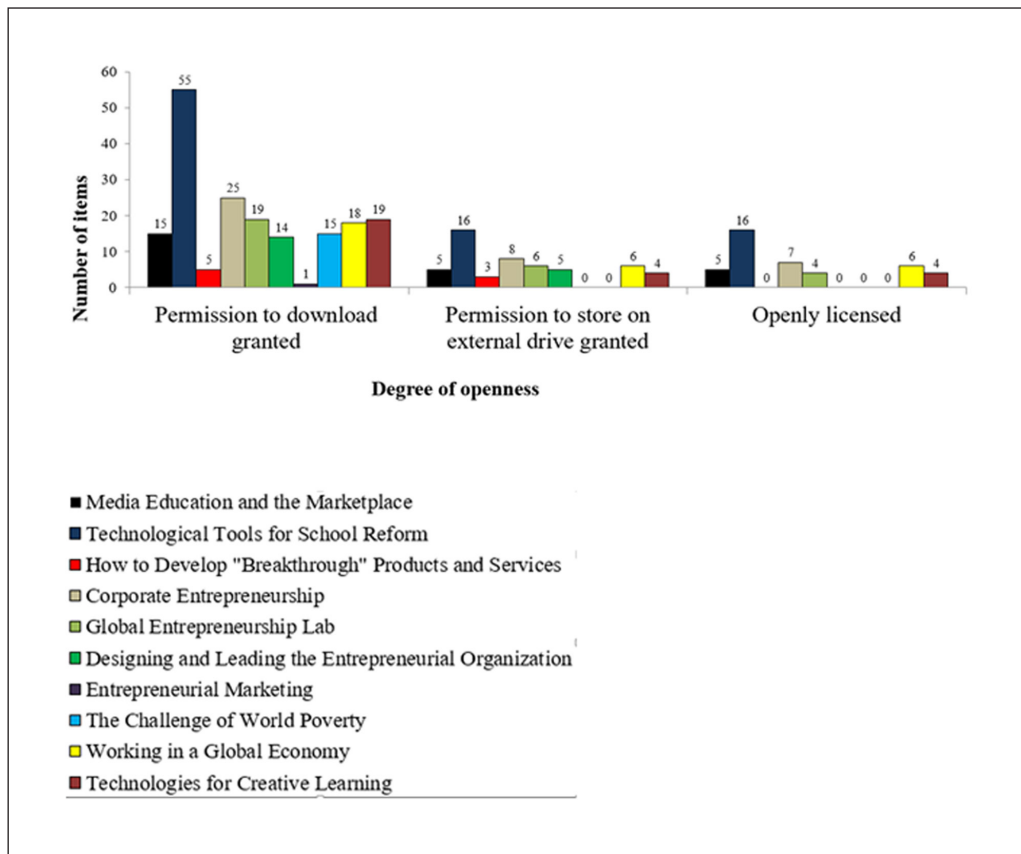


Figure 4: Openness of required and suggested readings in OER units.

and found from other websites. The degree of openness of these resources also varied.

Some units also contained videos or had a link to videos in other courses. This was the case for the following units: *Media Education and the Marketplace* (which had links to optional English as Second Language (ESL) videos), *How to Develop "Breakthrough" Products and Services* (which had four lecture videos), and *Challenge of World Poverty* (which had 22 videos and their transcripts). In addition, *Challenge of World Poverty* had seven assigned videos which were available on external websites such as YouTube. All these videos and their transcripts (where they were provided) were copyrighted under CC BY-NC-SA, with exception of the ones hosted on external websites.

**Permission to download and store required/suggested readings**

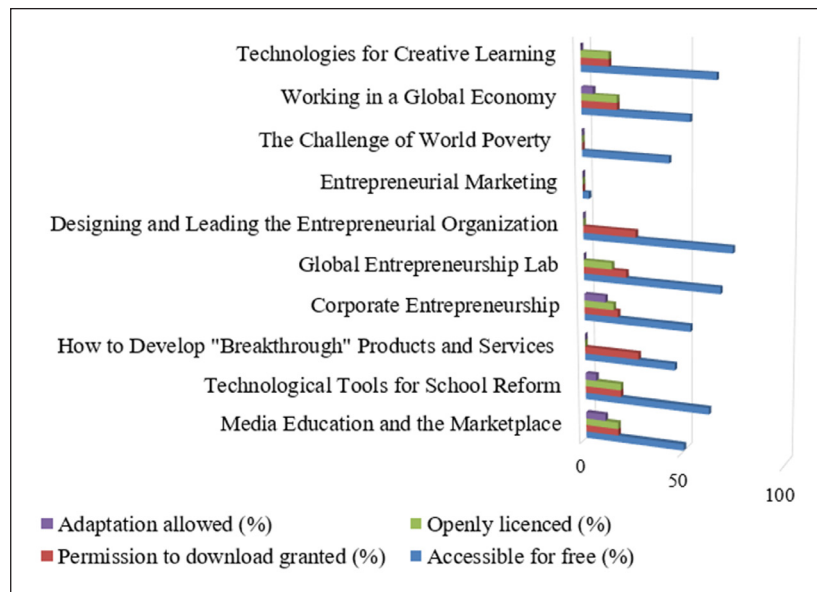
Only a certain proportion of required or suggested readings in some OER units could be legally downloaded and stored on hard drives. Figure 4 indicates that *Technological Tools for School Reform* had the highest number of required or suggested readings that could be legally downloaded and stored on a hard drive (16 readings in total). This OER unit was followed by *Corporate Entrepreneurship: Strategies for Technology-Based New Business Development* which had 8 required and suggested readings that could be legally downloaded and stored on hard drives.

When we move from raw numbers to look at percentages (Figure 5), "How to Develop "Breakthrough" Products and Services" led with 27.27% of required or suggested

readings that could be legally downloaded and stored on a hard drive. This is probably because fewer readings (only 11) were required or suggested in this unit than in other units. Permission to download and store 3 of the 11 readings was granted. *How to Develop "Breakthrough" Products and Services* was followed by *Designing and Leading the Entrepreneurial Organization* (with 26.3%) and *Global Entrepreneurship Lab: Latin America, the Middle East, and Africa* (with 21.4% of required and suggested readings that could be legally downloaded and stored on hard drives).

It is worth noting, however, that two OER units had videos. *How to Develop "Breakthrough" Products and Services* had 4 videos, and *Challenge of World Poverty* had 22 videos. The transcripts of the videos were also provided in *Challenge of World Poverty*. All these videos in both OER units and transcripts in *Challenge of World Poverty* were copyrighted under CC BY-NC-SA. The videos (and the transcripts) were additional to required and suggested readings and other types of resources provided in all OER units: metadata (course information, syllabus, calendar and list of readings), projects/assignments and quizzes/exams.

Putting together videos, transcripts, required readings and suggested readings gives a total of 79 items in *Challenge of World Poverty* and 15 items in *How to Develop "Breakthrough" Products and Services*. When we consider only resources beyond metadata, assignments/projects, quizzes and exams, *Challenge of World Poverty* led in terms of the proportion that could be legally downloaded and stored on a hard drive free of charge. In this OER unit, 44 out of 79 resources (55.69%) could be legally downloaded



**Figure 5:** The degree of openness of readings required or suggested in OER units (%).

and stored free of charge. This unit was followed by *How to Develop "Breakthrough" Products and Services* with seven out of 15 resources (46.6%) that could be legally downloaded and stored on a hard drive.

**Licensing in OER units**

As highlighted earlier, metadata, assignments/projects, quizzes and exams (where available) were released under CC BY-NC-SA. Lecture notes, videos and their transcripts, and some ESL/EFL materials, where provided, were also copyrighted under this licence. However, a handful of required or suggested readings in the units were OER/openly licensed (See **Figures 4 and 5**). Most of these readings had to be purchased from *Amazon* or similar selling sites (**Figure 3**). Other readings could be downloaded online, but they were copyrighted under *All rights reserved* or the licence was not clarified. When a licence is not specified, the rule of thumb is treating the resources as copyrighted under *All right reserved* to avoid any risk of legal difficulties related to copyright dispute (Green, 2012). Permissions to use a few required and suggested readings for educational purpose were granted in most OER units. For many other readings, such permission was limited to use for personal learning. Redistribution, even for educational purposes, was not permitted.

As illustrated in **Figure 4**, the *Technological Tools for School Reform* OER unit had the highest number of required and suggested readings that were openly licensed. In this unit, 16 (out of 88) required or suggested readings were openly licensed. That is, 18.1% of the readings required or suggested in this unit were openly licensed. *Technological Tools for School Reform* was followed by *Corporate Entrepreneurship: Strategies for Technology-Based New Business Development* with seven out of 47 (14.8%) readings being openly licensed. Then *Working in a Global Economy* followed with six out of 34 required and suggested readings (17.6%) being openly licensed. After *Working in a Global Economy* came *Media*

*Education and the Marketplace*, with five out of 30 (16.6%) required and suggested readings being openly licensed. It is worth noting that when we turn our attention to the proportions (**Figure 5**), *Corporate Entrepreneurship: Strategies for Technology-Based New Business Development* (14.8%) ranks behind *Working in a Global Economy* and *Media Education and the Marketplace* (17.6% and 16.6% respectively).

Interestingly, four OER units had no required or suggested reading that was openly licensed. Those units are 1) *How to Develop "Breakthrough" Products and Services*, 2) *Designing and Leading the Entrepreneurial Organization*, 3) *Entrepreneurial Marketing* and 4) *Challenge of World Poverty*. However, if we count videos and their transcripts along with required and suggested readings, *Challenge of World Poverty* led with 44 out of 79 items (55.69%) that were openly licensed as discussed earlier.

**Which OER units can be adapted for use in opening up Rwandan higher education?**

Based on the amount of openly licensed items in the OER units, only *Challenge of World Poverty* was found to have the potential to be adapted for use in opening up higher education. As highlighted earlier, this unit had 44 items (22 lecture videos and their transcripts) that were openly licensed. This high number of openly licensed resources, coupled with the metadata in the unit, could be the basis for designing an open course that is responsive and sensitive to socioeconomic and infrastructural/technology access challenges that prevail in Rwanda. The reading resources that were not openly licensed in this unit could be replaced by journal articles in open access journals that have been published under open licences. Other units were found to have too few resources that were openly licensed to be adapted as the whole unit and be used in opening up higher education. Openly licensed resources in those units may only be adapted and used at a granular level. Hence, those units would not be suitable

to be adapted into courses in the same way as *Challenge of World Poverty* would.

## Discussion

Cross-cultural and cross-setting reusability of OER is often enabled by the ability to adapt the resources for their fit within the new context. According to Perryman; Buckler, & Seal (2014), it is this adaptation which makes OER useful to educators and learners. The number of core learning resources that were released under open licences which enable such adaptation was very low (if any) in most OER units investigated. As highlighted in the *Results* section, only one OER unit was found to have enough openly licensed core learning resources that were released under CC BY-NC-SA. This low number of openly licensed core learning resources inhibits OER units in the MIT Open Courseware from reflecting the diverse opportunities and benefits that underpin the OER movement. Those benefits and opportunities include encouraging independent learning and widening participation in higher education (Mulder, 2007), increasing education opportunities (Camilleri & Ehlers, 2011), and reducing the cost of education (Wyk, 2012), etc.

The reusability and openness of resources in the MIT Open Courseware OER units did not seem to match the way the repository has been promoted (UNESCO, 2002). The low numbers and the nature of openly licensed resources in most OER units in this repository hint at the marketing agenda (Didderen & Verjans, 2012, p. 11; Weller, 2014) of the MIT Open Courseware initiative. In most OER units, the MIT seems to have been using openly licensed metadata (course information, syllabus, course calendar and the list of readings) to advertise non-openly licensed required and suggested readings, which had to be purchased. This strategy is one of the business models suggested by Fitzgerald (2007, pp. 12–13). This marketing strategy may have intended to convert visitors into consumers (Downes, 2006) to the benefit of external vendors (and the MIT, if this institution received a share on the related profits). Alternatively, over-promotion of the MIT Open Courseware may have enabled the institution to attract funds.

The marketing agenda in OER practices is probably one of the reasons why OER adoption has been below expectation (Conole, 2013; Ehlers, 2011; Lane, 2010; McAndrew et al., 2012). Different stakeholders may have not seen the fit between their needs and the materials made open in OER units (mostly metadata in the case of the MIT Open Courseware). The more the nature of resources in repositories fails to reflect their promotional claims, the greater the cost in terms of time on the part of potential users who hoped to find relevant resources in the repositories.

The metadata released under an open licence in the MIT Open Courseware qualify for the *big OER* (Weller, 2011, p. 105) classification. The quality of these metadata was checked prior to their release, since they were some of the components of courses offered to regular students at MIT. However, these metadata cannot alone lead to quality open learning (beyond the students registered at MIT), due to restrictions imposed by the marketing

agenda behind the release of those metadata. Quality open learning cannot occur just because open learners have read the course information, course calendar, list of readings, assignments and/or projects that students at MIT engaged with. For quality open learning to occur, open learners need to engage with full texts of books and journal articles, or/and full length audio and video materials. The materials open learners need to engage with for quality learning to occur were not released under an open licence in most MIT Open Courseware OER units analysed in the current study.

Quality open learning may be enabled by resources in a different category of OER: articles that were published under an open licence in credible open access journals. The Budapest Open Access Initiative that informed this practice recommended permissions that allow 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 (Open Society Foundations, 2002). However, not all journal articles released under an open licence are of credible quality. The practice of charging a publication fee (see Weller, 2014, p. 7) has attracted predatory and vanity publishers in the business. Some of these publishers claim that they publish articles on the day that follows the submission deadline, which raises concerns on the blind peer review process. The *platinum* open access publishing route (Weller, *ibid*) is safe from vanity and predatory publishers (Nkuyubwatsi, 2016b; Nkuyubwatsi, 2017) in that the author only contributes the content and does not pay the publication fee that lures such publishers. Hence, journal articles that are published within the platinum open access publishing route undergo a rigorous blind peer review process. Their full texts may contribute to the high quality open learning which OER in the MIT Courseware (mostly metadata) cannot enable.

## Conclusion

Openly licenced resources in the MIT Open Courseware did not reflect the humanitarian benefits and opportunities of OER as championed by the OER movement. In most of the OER units, only metadata and very few (if any) reading resources were openly licenced. Only the *Challenge of World Poverty* OER unit was found to have the potential to be adapted to enable quality open learning. Unlike other OER units, the *Challenge of World Poverty* unit had enough openly licensed resources: 22 videos and their transcripts. The MIT Open Courseware initiative seems to have been developed for marketing purposes, rather than for the purpose of contributing to open learning, widening access to education and reducing the cost of education. For this reason, the openness reflected in the MIT Open Courseware OER units does not allow adaptation and redistribution of the resources for use in contexts that suffer the shortage of resources. In most OER units, no permissions were granted to adapt core learning resources for suitability to the Rwandan context (including cultural fit and dissemination through media and technologies available in

this country). For this reason, the MIT Open Courseware was found to have very limited (if any) potential contribution to opening up higher education.

### Competing Interests

The author has no competing interests to declare.

### Author Information

**Bernard Nkuyubwatsi** is a Research Professor of ODeL and Learning Innovation at Euclid University and the founder of ODeL Footprints Ltd. He holds a PhD in Education/eLearning and Learning Technologies from the University of Leicester, an MA in Online and Distance Education from the UK Open University and an MA in TESOL from Eastern Michigan University. He is the founding and expert member of the Global OER Graduate Network (GO-GN). His research interests include ODeL, MOOCs, OER, open scholarship and transformative research. Email: nkuyubwatsi1@gmail.com.

### References

- Achieve** 2011 *Rubrics for evaluating Open Educational Resource (OER) objects*. Available from: <http://www.achieve.org/files/AchieveOERRubrics.pdf> (last accessed 19 May 2017).
- Bissell, N A** 2009 Permission granted: Open licensing for educational resources. *Open Learning: The Journal of Open, Distance and e-Learning*, 24(1): 97–106. Also available from: <http://www.tandfonline.com/doi/pdf/10.1080/02680510802627886> (last accessed 19 May 2017).
- Bouma, D G and Ling, R** 2004 *The research process* (5<sup>th</sup> edn). Victoria: Oxford University Press.
- Camilleri, F A and Ehlers, U D** 2011 *Mainstreaming open educational practices: Recommendation for policy*. Available from: [https://www.researchgate.net/publication/260423291\\_Mainstreaming\\_Open\\_Educational\\_Practice](https://www.researchgate.net/publication/260423291_Mainstreaming_Open_Educational_Practice) (last accessed 6 November 2017).
- Conole, G** 2013 *Designing for learning in an open world*. New York: Springer. DOI: <https://doi.org/10.1007/978-1-4419-8517-0>
- Creative Commons** 2013 'Creative Commons & open licensing workshop'. *The First GO-GN Seminar*, Cape Town, South Africa, 6–13 December 2013.
- D'Antoni, S** 2009 'Open educational resources: Reviewing initiatives and issues'. *Open Learning: The Journal of Open, Distance and E-Learning*, 24(1): 3–10. Also available from: <http://www.tandfonline.com/doi/pdf/10.1080/02680510802625443> (last accessed 19 May 2017).
- Didderen, W and Verjans, S** 2012 'Does the phenomenon of open educational resources lead to new didactic models? "It depends"'. In: Jacobi, R and Woert, N V D (eds.), *Trend report: Open educational resources 2012*, 9–16. Available from: <https://www.surfspace.nl/media/bijlagen/artikel-697-ee18ac0f1441b-b158e6122818f5f589e.pdf> (last accessed 19 May 2017).
- Downes, S** 2006 Models for sustainable open educational resources. Available from: <http://www.oecd.org/edu/ceri/36781698.pdf> (last accessed 19 May 2017).
- Ehlers, U** 2011 'From open educational resources to open educational practices'. *eLearning Papers*, (21). Available from: [http://www.oerup.eu/fileadmin/\\_oerup/dokumente/media25161\\_\\_2\\_.pdf](http://www.oerup.eu/fileadmin/_oerup/dokumente/media25161__2_.pdf) (last accessed 19 May 2017).
- Fitzgerald, B** 2007 *Open Content Licensing (OCL) for open educational resources*. Available from: <http://www.oecd.org/edu/ceri/38645489.pdf> (last accessed 19 May 2017).
- Green, C** 2012 'Expanding the open agenda: From open access to open education to open policy'. *Creative Commons, Open Educational Resources (OER) and open policy: a webinar with Cable Green hosted by the Association of Learning Technologies*, 07 December 2012, 17:30–18:30 UTC. Recording available from: <http://repository.alt.ac.uk/2240/> (last accessed 19 May 2017).
- Jacobi, R and Woert, N V D** 2012 *Trend report: Open educational resources 2012*. Available from: <https://www.surfspace.nl/media/bijlagen/artikel-697-ee18ac0f1441bb158e6122818f5f589e.pdf> (last accessed 19 May 2017).
- Lane, A** 2010 Global trends in the development and use of open educational resources to reform educational practices. Available from: <http://iite.unesco.org/pics/publications/en/files/3214676.pdf> (last accessed 19 May 2017).
- Lane, A and Van-Dorp, K J** 2011 'Open educational resources and widening participation in higher education: Innovations and lessons from open universities'. In *EDULEARN11: the 3<sup>rd</sup> Annual International Conference on Education and New Learning Technologies*. Barcelona, Spain, 04–05 July. Also available from: [http://oro.open.ac.uk/29201/1/OPEN\\_EDUCATIONAL\\_RESOURCES\\_AND\\_WIDENING\\_PARTICIPATION\\_andy.pdf](http://oro.open.ac.uk/29201/1/OPEN_EDUCATIONAL_RESOURCES_AND_WIDENING_PARTICIPATION_andy.pdf) (last accessed 19 May 2017).
- Littlejohn, A** 2003 'Issues in reusing online resources'. In: Littlejohn, A (ed.), *Reusing online resources: A sustainable approach to eLearning*, 1–6. London: Kogan.
- McAndrew, P, Farrow, R, Law, P and Elliott-Cirigottis, G** 2012 'Learning the lesson of openness'. *Journal of Interactive Media in Education*. Available from: <http://www.jime.open.ac.uk/articles/10.5334/2012-10/> (last accessed 19 May 2017).
- Mulder, F** 2007 *The advancement of lifelong learning through open educational resources in an open and flexible (self) learning context*. Available from: [http://www.ou.nl/Docs/Campagnes/SCOP/OER\\_paper\\_by\\_Fred\\_Mulder.pdf](http://www.ou.nl/Docs/Campagnes/SCOP/OER_paper_by_Fred_Mulder.pdf) (last accessed 06 November 2017).
- Mulder, F and Janssen, B** 2013 'Opening up education'. In: Jacobi, R, Jelgerhuis, H and Woert, V D N (eds.), *Trend report: Open educational resources 2013*, 36–42. Available from: [https://www.surf.nl/binaries/content/assets/surf/en/knowledge-base/2013/Trend+Report+OER+2013\\_EN\\_DEF+07032013+%28HR%29.pdf](https://www.surf.nl/binaries/content/assets/surf/en/knowledge-base/2013/Trend+Report+OER+2013_EN_DEF+07032013+%28HR%29.pdf) (last accessed 19 May 2017).
- National Institute of Statistics of Rwanda** 2014 *Characteristics of households and housing: Fourth population and housing census, Rwanda, 2012*. Available from:



- thematic-report-characteristics-households-and-housing (last accessed 19 May 2017).
- Nkuyubwatsi, B** 2014 Mapping five Os for reaping benefits from Massive Open Online Courses (MOOCs). *Journal Of Global Literacies, Technologies and Emerging Pedagogies*, 2(3): 189–206. Available from: <http://joglep.com/index.php/archives/voulme-2-issue/> (last accessed 28 November 2017).
- Nkuyubwatsi, B** 2016a The outcome of constructive alignment between open educational services and learners' needs, employability and capabilities development: Heutagogy and transformative migration among underprivileged learners in Rwanda. *Cogent Education*, (Online), 3(1). (last accessed 28 November 2017). DOI: <https://doi.org/10.1080/2331186X.2016.1198522>
- Nkuyubwatsi, B** 2016b A critical look at the policy environment for opening up public higher education in Rwanda. *The Journal of Learning for Development*, 3(2): 47–61. Available from: <http://www.jl4d.org/index.php/ejl4d/article/view/141> (last accessed 28 November 2017).
- Nkuyubwatsi, B** 2017 Willingness to Engage in Open Educational Practices among Academics in Rwandan Public Higher Education and Responsive Actions. *The Journal of Learning for Development*, 4(3): 322–337. Available from: <http://jl4d.org/index.php/ejl4d/article/view/223> (last accessed 28 November 2017).
- Open Society Foundations** 2002 *Budapest Open Access Initiative*. Available from: <http://www.budapestopenaccessinitiative.org/read> (last accessed 19 May 2017).
- Ouwehand, M** 2012 'OER platform'. In: Jacobi, R and Woert, N V D (eds.), *Trend report: Open educational resources 2012*, 47–53. Available from: <https://www.surfspace.nl/media/bijlagen/artikel-697-ee-18ac0f1441bb158e6122818f5f589e.pdf> (last accessed 19 May 2017).
- Perryman, L, Buckler, A and Seal, T** 2014 From global to local: learning from TESS-India's approach to OER localisation across seven Indian states. In: *OER14 Building communities of open practice*, 28–29 April 2014, Newcastle. Available from: <http://oro.open.ac.uk/40349/> (last accessed 27 November 2017).
- Rehak, R D and Mason, R** 2003 'Keeping the learning in learning objects'. In: Littlejohn, A (ed.), *Reusing online resources: A sustainable approach to eLearning*, 20–34. London: Kogan. Available from: <http://oro.open.ac.uk/800/> (last accessed 27 November 2017).
- Shuttleworth Foundation and Open Society Foundations** 2007 Cape Town Open Education Declaration: Unlocking the promise of open educational resources. Available from: <http://www.capetowndeclaration.org/read-the-declaration> (last accessed 19 May 2017).
- UNESCO** 2002 Forum on the impact of open courseware for higher education in developing countries: Final report. Available from: <http://unesdoc.unesco.org/images/0012/001285/128515e.pdf> (last accessed 8 November 2017).
- UNESCO** 2012 *2012 Paris OER Declaration*. Available from: [http://www.unesco.org/new/fileadmin/MULTIMEDIA/HQ/CI/CI/pdf/Events/Paris%20OER%20Declaration\\_01.pdf](http://www.unesco.org/new/fileadmin/MULTIMEDIA/HQ/CI/CI/pdf/Events/Paris%20OER%20Declaration_01.pdf) (last accessed 19 May 2017).
- Weller, M** 2011 *The digital scholar: How technology is transforming the scholarly practice*. New York: Bloomsbery.
- Weller, M** 2014 *The battle for open: How openness won and why it doesn't feel like victory*. London: Ubiquity Press. Also available from: <http://www.ubiquitypress.com/site/books/detail/11/battle-for-open/> (last accessed 19 May 2017).
- Wikipedia** 2015 *JSTOR*. Available from: <https://en.wikipedia.org/wiki/JSTOR> (last accessed 19 May 2017).
- Wolfenden, F** 2012 'OER production and adaptation through networking across Sub-Saharan Africa: Learning from TESSA'. In: Glennie, J, Harley, K, Butcher, N and Wyk, T V (eds.), *Open educational resources and changes in higher education: Reflection from practice*, 91–105. Vancouver: Commonwealth of Learning.
- Wolfenden, F, Buckler, A and Keraro, F** 2012 'OER adaptation and reuse across cultural contexts in Sub Saharan Africa: Lessons from TESSA (Teacher Education in Sub Saharan Africa)'. *Journal of Interactive Media in Education*. Available from: <http://www-jime.open.ac.uk/articles/10.5334/2012-03/> (last accessed 19 May 2017).
- Wyk, T V** 2012 'Taking OER beyond the OER community: Policy issues and priority'. In: Glennie, J, Harley, K, Butcher, N, and Wyk, T V (eds.), *Open educational resources and changes in higher education: Reflection from practice*, 13–25. Vancouver: Commonwealth of Learning.

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