

## GLOBAL TRENDS IN THE DEVELOPMENT AND USE OF OPEN EDUCATIONAL RESOURCES TO REFORM EDUCATIONAL PRACTICES

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### INTRODUCTION

Open educational resources (OER) have become a major focus of discussion and action within educational circles, particularly those related to higher education. There are a number of names associated with this movement that was initiated in the late 1990s but gained global prominence in 2001 when MIT launched their Open Courseware initiative<sup>1</sup>. Names such as open content, open educational content, open learning resources, open educational technologies, open academic resources and open courseware are variously used in the literature and in online and face-to-face discussions; but it is the term open educational resources adopted at a UNESCO meeting in 2002, that is most commonly used. There are also a number of definitions but this modification of the original UNESCO definition is often quoted:

*OER 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 or re-purposing by others. Open educational resources include full courses, course materials, modules, textbooks, streaming videos, tests, software, and any other tools, materials, or techniques used to support access to knowledge (Atkins, Brown and Hammond, 2007, p. 4).*

<sup>1</sup> <http://ocw.mit.edu/index.htm>

This definition does not make an explicit distinction between resources created specifically for an educational purpose (e.g. lecture notes) and those resources that can be used for educational purposes (e.g. historical images from an archive) but implicitly it is dealing more with the former.

Since that time there has been a rapid expansion in OER provided through funded institutional repositories (e.g. MIT, UK Open University<sup>2</sup>), funded and non-funded community based initiatives (e.g. Connexions<sup>3</sup>, WikiEducator<sup>4</sup>), proprietary channels (e.g. iTunesU<sup>5</sup>, YouTubeEDU<sup>6</sup>), and many web sites of projects, groups and individuals. This growth in OER matches the growth in the use of the Creative Commons intellectual property licences for allowing free use and re-purposing of digital content in general<sup>7</sup>.

Equally there have been a number of international, regional and national consortia set up and/or take on responsibility for extending the role and scope of OER amongst their members (e.g. Open Courseware Consortium<sup>8</sup>, EADTU<sup>9</sup>) as well as organised global discussion and knowledge sharing initiatives (e.g. UNESCO OER Community<sup>10</sup>, OER Commons' OER Community<sup>11</sup>). Much of this growth has been organic, been driven by funding from The William and Flora Hewlett Foundation<sup>12</sup>, or more recently through Government backed publicly funded initiatives (e.g. UKOER programme<sup>13</sup>). All this activity has led to a great diversity of OER being published and used in a large variety of ways and settings. Nevertheless, while OER activity is global (as can be seen, for instance, by the membership of the Open Courseware Consortium coming from at least 41 countries), the largest and best funded initiatives have mostly been in developed countries from North America and Europe, and have mostly been in English. While interest is widespread, significant implementation and use is patchy but growing.

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<sup>2</sup> <http://www.open.ac.uk/openlearn/>

<sup>3</sup> <http://cnx.org/>

<sup>4</sup> [http://wikieducator.org/Main\\_Page](http://wikieducator.org/Main_Page)

<sup>5</sup> <http://www.apple.com/education/itunes-u/>

<sup>6</sup> <http://www.youtube.com/education?b=400>

<sup>7</sup> <http://creativecommons.org/about/who-uses-cc/>

<sup>8</sup> <http://ocwconsortium.org/>

<sup>9</sup> <http://www.eadtu.nl/>

<sup>10</sup> [http://oerwiki.iiep-unesco.org/index.php?title=Main\\_Page](http://oerwiki.iiep-unesco.org/index.php?title=Main_Page)  
and <http://oerworkshop.weebly.com/>

<sup>11</sup> <http://www.oercommons.org/community>

<sup>12</sup> <http://www.hewlett.org/programs/education-program>

<sup>13</sup> <http://www.jisc.ac.uk/whatwedo/programmes/elearning/oer.aspx>

### THE FORCES DRIVING PUBLICATION AND USE OF OPEN EDUCATIONAL RESOURCES

The initial major force driving OER is that set out by MIT – the unlocking or opening up of knowledge to as many people as possible in as many countries as possible. Higher education institutions and academics have been involved in most OER developments to date as they see OER as an extension of the mission of higher education in general to create and disseminate existing and new knowledge. Building on the Open Access Publishing movement which began a few years earlier<sup>14</sup>, OER are seen as pivotal in helping to open up education as set out in the Cape Town Declaration<sup>15</sup>.

It is almost certainly the greater availability of digital technologies to produce and consume content, the communicative power of the Internet and the advent of open licenses that has enabled this belief to be put into any form of practice. Further, it is probably the very open nature of OER that is most important in sustaining them and enabling them to create so much impact so far (Lane and McAndrew, 2010). This openness has enabled both bottom up community-led (e.g. WikiEducator, P2P University<sup>16</sup>) and institutional-led level initiatives (e.g. MIT Open Courseware; TESSA<sup>17</sup>) and top down policy-led initiatives (e.g. UKOER; WikiWijs<sup>18</sup>) such that OER are given prominence in many international fora and publications such as this extract from the 2009 World Conference on Higher Education Communiqué:

*ODL approaches and ICTs present opportunities to widen access to quality education, particularly when Open Educational Resources are readily shared by many countries and higher education institutions. (Communiqué, 2009 World Conference on Higher Education, UNESCO, Paris, 5-8 July 2009, p. 3).*

While the above developments have created favourable conditions for OER publishing and use it is still the case that it is dedicated funding from Foundations and Government departments or agencies that has been necessary to kick start most developments or fund investigations into how best to sustain OER activities (e.g. see the work of the Strategic Content Alliance<sup>19</sup>). One significant strand in these investigations and discussions is the issue of whether public or philanthropic funding of educational resources should be expected to lead to the openly licensed publishing of those resources just as open access publishing of the results of publicly or philanthropically funded research is now normally expected.

<sup>14</sup> <http://www.earlham.edu/~peters/fos/overview.htm>

<sup>15</sup> <http://capetowndeclaration.org/>

<sup>16</sup> <http://p2pu.org/>

<sup>17</sup> <http://www.tessafrica.net/>

<sup>18</sup> <http://www.wikiwijs.nl/sector/>

<sup>19</sup> <http://sca.jiscinvolve.org/wp/about-2/>

This trend has to be balanced against the large educational publication market, which varies enormously between countries and levels of education. Free and open educational resources threaten sales of copyrighted educational materials. But equally so does the illegal copying and use of digital materials published on the internet, even if behind a pay wall. This issue is similar to that faced by the music industry but is somewhat different in that higher education academics are often the primary creators and mediators for the use of both closed and open educational resources, as they decide what resources are used within their courses and which they expect students to study.

While there are these driving factors it must be reiterated that access to digital technologies and proficiencies in digital literacy are very variable within and between countries and are major barriers for some to engage with OER. Openness and digital technologies can potentially unlock knowledge for many people but that does not mean they can take advantage of that potential without a lot of assistance or unless the OER are distributed by other means, e.g. paper based versions (Lane, 2009).

The motivations for developing and/or using OER reported in the literature are numerous and vary between the different stakeholders. (For this report the major stakeholders are taken as those most involved in formal education, namely learners, teachers, educational institutions and governments/national agencies; but community groups and other types of public and commercial organisations involved in non-formal and informal education are also becoming users if not yet significant developers of OER).

For **individuals**, whether as formal students, doing non-formal work related training or being self directed lifelong learners studying informally, the greater availability and accessibility of resources has been found to help them to (in no particular order):

- Learn new things or enrich other studies;
- Share and discuss topics asynchronously or synchronously with other learners;
- Assess whether they wish to participate in (further) formal education;
- Decide which institution they want to study at;
- Improve their work performance;
- Create or revise OER themselves.

For **teachers**, individually and collectively, OER make it possible for them to:

- Create courses more efficiently and/or effectively, particularly using rich media resources that require advanced technical and media skills;
- Investigate the ways in which others have taught their subject;
- Create resources or courses in collaboration with others rather than doing it all themselves;
- Join in communities of practice which help improve their teaching practices as they reflect on the community use of new open tools and technologies;
- Customise and adapt resources by translating or localising them.

For **educational institutions**, OER offers up opportunities to:

- Showcase their teaching and research programmes to wider audiences;
- Widen the pool of applicants for their courses and programmes;
- Lower the lifetime costs of developing educational resources;
- Collaborate with public and commercial organisations in new ways, including educational publishers;
- Extend their outreach activities.

For **governments and national agencies** OER offer scope to:

- Showcase their country's educational systems;
- Attract international students (to higher education at least);
- Help drive changes in educational practices;
- Develop educational resources in 'minority' languages that commercial publishers are reluctant to do so;
- Develop educational resources that reflect local cultures and priorities;
- Cooperate internationally on common resources to meet common needs.

These lists are not exhaustive and hard evidence to support the idealism present in some of these motivations is only just appearing in the literature and through initiatives like the Open Learning Network<sup>20</sup>, but as noted earlier there is growth in the use of Creative Commons licensing by major content channels and growth in claimed reuse of such licensed content<sup>21</sup> that indicate slow and steady change rather than revolutionary change in educational practices and systems.

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<sup>20</sup> <http://olnet.org/>

<sup>21</sup> <http://creativecommons.org/weblog/entry/23714>

## FROM OPEN EDUCATIONAL RESOURCES TO OPEN EDUCATIONAL PRACTICES

OER are usually a means to an end and not an end in themselves. While learners value good resources, it is more highly skilled and qualified learners who most benefit from an OER on its own. Most learners, even skilled learners, prefer to have their learning take place in structured experiences guided by an experienced teacher and/or with a supportive cohort of fellow learners. They also like to have some form of assessment or recognition of their learning achievements, both to benchmark their own progress and as a permanent record of their attainments. Teachers also value good resources but they are looking at them as to how they can use them in their own courses and as support for their teaching practice.

A major value of OER, reflected in the lists of motivations above, is the way that they can facilitate changes in educational policies and practices to the benefit of learners, teachers and institutions. Thus, while many of the early funded initiatives focussed on the publication of OER most now focus as much if not mostly on what OER mean for learning and teaching policies and practices, with some substantive research programmes on OER (in Europe at least).

The types of issues being investigated are:

- Who should have responsibility for checking IPR and publishing the OER – the creator or a dedicated support team?
- How might the quality of an OER be determined?
- How should courses be designed for e-learning using OER?
- What are the incentives, either rewards or recognition, for academic staff in developing OER?
- Which media are best used for which teaching or learning purposes?
- What partnership models are best for developing collaborative, collective and common resources?

Many governments and agencies have recognised the power of OER not only as a public good but also as a means for helping improve current educational systems.

## IMPACTS ON EDUCATIONAL SYSTEMS

To date OER have mostly changed the discourse around educational systems, highlighting the potential value of OER for improving the availability, accessibility, affordability and acceptability of knowledge bound up in those resources. The quantity of resources, the numbers of people accessing them, the volumes being downloaded and the quality of the reactions around the world is substantive, albeit tempered by the variable availability, accessibility, affordability and acceptability of digital devices and communications networks. Thus developing countries have generally been less involved than developed countries in publishing or using OER. The corollary is that OER may offer greater value and impact for improving educational systems in developing countries than developed countries as is being demonstrated in part by the work of the Commonwealth of Learning<sup>22</sup> and OER Africa<sup>23</sup>. They are particular in supporting local solutions to local problems, trying to facilitate the organic expansion and enhancement of existing educational systems.

The major challenges for most countries in managing primary, secondary and tertiary level education are the:

- Physical capacity and costs needed to either accommodate the maximum number of students at primary and/or secondary level and increase and/or widen participation in higher education;
- Availability and pedagogical competence of the teachers to effectively develop and/or use content and technologies;
- Availability, cost and adequacy (including language of instruction and local relevance) of the educational resources needed to support the teaching process.

As noted earlier most OER activity has been within higher education and with a few exceptions there is very little happening at primary or secondary levels. At the moment individual institutions are beginning to adopt and adapt policies that favour the use of OER to improve their existing capabilities. Some government backed initiatives are trying to reach out to new audiences through consortia (e.g. WikiWijs) or setting out as policy the use of open source software and open educational resources by public institutions. Nevertheless, of the three challenges noted above the last is rapidly being addressed, the second is only just being thought about while little is being done yet to widen participation in education through the use of OER.

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<sup>22</sup> <http://www.col.org/Pages/default.aspx>

<sup>23</sup> <http://www.oerafrica.org/>

## RECOMMENDATIONS

Open educational resources are here to stay. The quantity (and quality) of digital resources are growing fast. Where those digital resources also have an open licence, like Creative Commons, then there is the potential for greater impacts for learners, teachers, institutions and governments. The trends in OER, in terms of their relevance to these stakeholders and to systems of education in general, can be summarised under social, technical, cultural, economic and political dimensions.

In a **social** or societal sense then more and more people are finding and using OER or related resources. In most cases they use them as they find them and not modify or change them. They use them as information sources, to supplement their formal studies or to learn from informally, although there are concerns that it is only better educated and more skilled learners who are getting value from these open resources. Both organisations and community groups are beginning to use OER to improve and enhance what they are doing anyway to support the learning and training needs of their employees or members and to act as mediators between the learner and the resources, offering structured support that some may require to get value from them.

While there are many issues about access to appropriate technologies within many countries and while there are issues about the **technical** formats and hence reusability of many OER this is less of a problem for learners who can usually learn from whatever format is provided through whichever medium (although usability can vary greatly). It is more of a problem for teachers at all levels who may lack the technical and pedagogical skills and also the confidence to rework or adapt material rather than use it as found. This is particularly the case for more substantive OER that use multiple media and are designed for self study as open and distance learning materials. In such cases there is a need to move to collaborative 'team teaching' whereby a number of people share the load and their skills to create the desired OER for their collective purposes.

In effect the biggest barrier for teachers is a **cultural** one around teaching practices and overcoming academic norms about using, reusing or remixing other people's material for fear of infringing copyright or being accused of committing plagiarism; or of believing that it is inappropriate for local needs or of poor quality. Equally the culture in many institutions or academic communities of practice is to value research or producing your own content rather than put effort into teaching or use other people's content.

The **economic** trend is to greater sharing within certain communities, a philosophy that fits well with academia. Nevertheless, while OER may be ‘free’ at the point of use, they still take time and effort to produce and this has to be paid for in some way. Where teachers already produce educational resources and are paid for through public funding then many feel that such resources should be made open. Nevertheless many teachers work in private institutions paid for through fees while many academics may make additional income through writing books or gain reputation through publishing in paid for journals. The academic publishing industry has developed over many years to provide structures and funding for publishing quality assured resources, with the revenue coming mainly from sales of such works. Free resources compete with this market sector although the publishing sector itself is variously exploring Freemium models<sup>24</sup> whereby some content is given away for free and fees are charged for additional content or services (e.g. Flatworld Knowledge<sup>25</sup>). The education sector is also looking at such models as ways to sustain educational resources development and use but this will vary from institution to institution and country to country depending on how their educational systems are organised and funded and the prominence they attach to local rather than global solutions to their problems. All are busy working out how best to invest money to gain longer term savings or new revenue streams.

Finally, the **political** trend around OER is one of accepting that OER have a role to play in reducing costs, changing teaching practices and/or increasing participation and attainment in education. As yet there are few examples of formal policies based around using OER apart from that of expecting open licensing where public money is involved and particularly for educational purposes. However this needs to be seen in contrast with the national and international efforts to tighten up IPR regimes and enforce copyright laws especially for digital materials published or delivered on the Internet. There are a few examples of governments committing money to educational initiatives that have OER as a fundamental part of them and to research projects to investigate their value.

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<sup>24</sup> <http://en.wikipedia.org/wiki/Freemium>

<sup>25</sup> <http://www.flatworldknowledge.com/>

Therefore the **key policy recommendations** for promoting the wider development and use of open educational resources are:

1. Attaching, wherever possible, an open licence to any educational publication or resource that you or your colleagues create and also incorporating openly licensed material in your own works. By contributing to the OER culture you will encourage others to do likewise;
2. Encouraging, where practicable, teachers, teachers' bodies and educational institutions to examine and revise their own academic practices, professional development and reward policies, using OER as one aspect of improving the effectiveness and efficiency of their curriculum, teaching and outreach activities. A key feature with OER is that they are a visible product subject to public scrutiny and impact assessment in the way that published research publications are (albeit by different mechanisms);
3. Insisting, wherever feasible, that national and/or regional government policy should support the principle that where there is public investment in educational resource development that should normally lead to that resource being openly published as a public rather than a private good. Governments should also take a lead in reviewing their policies and laws to do with IPR in material used for educational purposes from other public sources such as Public Collections, Libraries and Museums. They should also encourage and facilitate (a) the use of OER by adult learners, community groups, and commercial companies as part of life long learning and (b) the translation of OER to increase the value of them to citizens in their own country as well as other countries.

### SOURCES

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This policy brief examines the major trends in the development and use of open educational resources (OER). It notes the growing expansion in the quantity of OER and how that is already impacting learners, teachers, educational institutions and governments. It argues that to be truly successful in improving educational opportunity and attainments OER are a necessary stimulus for a broader shift in opening up educational policies and practices. It concludes that such a cultural change needs a wider societal change to thinking of educational resources as largely a public rather than a private good.

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