

Giving Knowledge for Free: The Emergence of Open Educational Resources

Summary in English

An apparently extraordinary trend is emerging. Although learning resources are often considered as key intellectual property in a competitive higher education world, more and more institutions and individuals are sharing digital learning resources over the Internet openly and without cost, as open educational resources (OER). This study, which builds on previous OECD work on e-learning, asks why this is happening, who is involved and what the most important implications are.

Higher education is facing a number of challenges: globalisation, an aging society, growing competition between higher educational institutions both nationally and internationally, and rapid technological development. OER is itself one of these challenges, but may also be a sound strategy for individual institutions to meet them. The trend towards sharing software programmes (open source software) and research outcomes (open access publishing) is already so strong that it is generally thought of as a movement. It is now complemented by the trend towards sharing learning resources – the open educational resources movement.

The report's title, *Giving Knowledge for Free*, reveals the potential implications of the OER movement. OER is not only a fascinating technological development and potentially a major educational tool. It accelerates the blurring of formal and informal learning, and of educational and broader cultural activities. It raises basic philosophical issues to do with the nature of ownership, with the validation of knowledge and with concepts such as altruism and collective goods. It reaches into issues of property and its distribution across the globe. It offers the prospect of a radically new approach to the sharing of knowledge, at a time when effective use of knowledge is seen more and more as the key to economic success, for both individuals and nations. How paradoxical this may turn out to be, and the form it will eventually take are entirely unforeseeable. The report offers some preliminary handles for understanding the issues raised.

OER projects can expand access to learning for everyone, but most of all for non-traditional groups of students, and thus widen participation in higher education. They can be an efficient way of promoting lifelong learning, both for individuals and for government, and can bridge the gap between non-formal, informal and formal learning.

What are open educational resources?

The definition of OER currently most often used is “digitised materials offered freely and openly for educators, students and self-learners to use and reuse for teaching, learning and research”. OER includes learning content, software tools to develop, use and distribute content, and implementation resources such as open licences. This report suggests that “open educational resources” refers to accumulated digital assets that can be adjusted and which provide benefits without restricting the possibilities for others to enjoy them.

Who is using and producing OER and how much?

The learning content at issue is open courseware, *i.e.* educational material organised as courses and typically distributed as PDF files, as well as smaller chunks of learning, often referred to as learning objects. The content may involve websites, simulations, text files, images, sound or videos in digital format, some only for use and others open also for adaptation and reuse. Although no definite statistics are available, there is a rapid expansion in the number of OER projects, as well as the number of people involved and the number of resources available. In January 2007 the OECD identified over 3 000 open courseware courses available from over 300 universities worldwide. In repositories such as MERLOT, Connexions, OpenLearn and others, there are hundreds of thousands of pieces of content or materials representing thousands of freely available learning hours. Although the dominant language so far is English, translation of resources combined with a growing number of non-English OER projects cater for greater language diversity and increased global use. The potential number of users is enormous.

With the scattered data available, only a general picture can be given of the users and producers of OER. The majority of producers of resources and OER projects are located in English-speaking countries in the developed world. The movement grows both top-down and bottom-up: new projects are started at institutional level and individual teachers and researchers also use and produce OER on their own initiative. The institutions involved so far seem to be well-reputed internationally or in their countries, rather than institutions that are unknown or have low status.

Why are people sharing for free?

The reasons for individuals and institutions to use, produce and share OER can be divided into basic technological, economic, social and legal drivers.

- The technological and economic drivers include improved, less costly and more user-friendly information technology infrastructure (such as broadband), hardware and software. Content is cheaper and easier to produce and costs can be further reduced by sharing. New economic models are emerging around the distribution of free content. Legal drivers are new licensing schemes that facilitate free sharing and reuse of content. Social drivers include increased willingness to share.
- A technical barrier is lack of broadband availability. Lack of resources to invest in hardware and software for developing and sharing OER is an economic barrier. Barriers such as these are

often mentioned as significant obstacles in developing countries. Social barriers include lack of skills to use the technical innovations and cultural obstacles against sharing or using resources developed by other teachers or institutions.

There are three arguments for governments to support OER projects.

- They expand access to learning for everyone but most of all for nontraditional groups of students and thus widen participation in higher education.
- They can be an efficient way of promoting lifelong learning for both the individual and the government.
- They can bridge the gap between non-formal, informal and formal learning. Institutions mention six types of reasons for being involved in OER projects.

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- The altruistic argument that sharing knowledge is in line with academic traditions and a good thing to do.
- Educational institutions (particularly those publicly financed) should leverage taxpayers' money by allowing free sharing and reuse of resources.
- Quality can be improved and the cost of content development reduced by sharing and reusing.
- It is good for the institution's public relations to have an OER project as a showcase for attracting new students.
- There is a need to look for new cost recovery models as institutions experience growing competition.
- Open sharing will speed up the development of new learning resources, stimulate internal improvement, innovation and reuse and help the institution to keep good records of materials and their internal and external use.

A further motivation, mentioned by some major distance teaching institutions, is the risk of doing nothing in a rapidly changing environment.

Incentives for individual teachers and researchers can be summarized under four headings.

- The altruistic motivation of sharing (as for institutions), which again is supported by traditional academic values.
- Personal non-monetary gain, such as publicity, reputation within the open community or "egoboo" as it is sometimes called.
- Free sharing can be good for economic or commercial reasons, as a way of getting publicity, reaching the market more quickly, gaining the first-mover advantage, etc.

- Sometimes it is not worth the effort to keep the resource closed. If it can be of value to other people one might just as well share it for free.

Independently of whether institutions are engaged in OER projects or not, OER can be expected to affect curriculum, pedagogy and assessment. With thousands of (opencourseware) courses from internationally reputed higher education institutions available for free, teachers will need to consider that students compare their curriculum with others. Since the teacher's role as supplier of reading lists and teaching materials is diminishing, OER is likely to accelerate changes in the traditional teaching role and the evolution of more independent learners. An increase in nonformal and informal learning can be expected to enhance the demand for assessment and recognition of competences gained outside formal learning settings.

Copyright and open licences

Copyright law takes its definition from international conventions and is similar in most countries. Copyright primarily serves an economic function by granting creators monopoly rights in their creations for a limited time.

While information technology makes it possible to multiply and distribute content worldwide and almost at no cost, legal restrictions on the reuse of copyright material hamper its negotiability in the digital environment. Frustrated by this obstacle, academics worldwide have started to use open licences to create a space in the Internet world – a creative commons – where people can share and reuse copyright material without fear of being sued. To do this, copyright owners have to agree or give permission for their material to be shared through a generic licence that gives permission in advance. The Creative Commons licence is by far the best-known licence for such content, the use of which is growing exponentially.

How can OER projects be sustained in the long run?

The actual costs of an OER project vary considerably. Some initiatives have institutional backing involving professional staff, others build on communities of practitioners and rely on their voluntary work. There are all sorts of in-between models as well. Repositories can be organised as a place to share and exchange resources, which means that people are either users or producers, or they can promote the collaborative production of common resources. The first model is called the *user-producer* model and the second the *co-production* model, although again there are intermediate positions.

The first model is more likely to be centralised than the latter. Although real costs can be met with resources other than money, most initiatives need to raise some capital. To this end a number of models for cost recovery are identified in the report: the *replacement* model, in which open content replaces other uses and benefits from cost savings; the foundation, donation or *endowment* model in which funding for the project is provided by an external actor; the *segmentation* model, in which the provider offers “valueadded” services to user segments and charges them for these services; the *conversion* model, in which “you give something away for free and then convert the consumer to a paying customer”; as well as the voluntary support model or *membership* model, which is based on fund-raising campaigns or paying members.

Improving access to and usefulness of OER

Advocates of the open movement should consider actions for improving access to and usefulness of existing resources. The rapidly growing number of learning materials and repositories makes it important to find the most relevant and highest quality resources. *Metadata* (descriptive information about the resources) may improve the function of search engines, but adding good quality metadata to resources is difficult and timeconsuming. Alternative approaches such as automatically generated metadata and folksonomies are being tested, but whether these are scalable solutions remains to be seen. *Quality* can be improved in many ways.

There is a troublesome imbalance between the *provision* of OER and its *utilisation*. The vast majority of OER is in English and based on Western culture, and this limits their relevance and risks consigning less developed countries to playing the role of consumers. However, a number of projects now exist in developing countries to develop OER based on their own languages and cultures.

Since the concept of OER builds on the idea of reusing and repurposing materials, *interoperability* is a key issue. Learning resources need to be searchable across repositories and possible to download, integrate and adapt across platforms. Software applications developed at different points in time and by different developers should be able to operate together. Open standards makes this possible. The development of new standards is a specialised task which requires financial support.

Policy implications and recommendations

The OER movement has implications at many policy levels. *Interoperability* issues, such as harmonisation of copyright legislation and agreements on standards, are dealt with at the international level. A good *knowledge base* regarding the OER movement needs to be developed internationally, with *awareness raising* activities to make the concept of OER better known. Funding bodies on all levels are recommended to support these activities.

At a national level OER represents a further *blurring of the borders* between formal and informal learning, and countries are recommended to study how OER can be efficiently used to meet some of the demand for increased lifelong learning. OER can make an important contribution to a diversified supply of learning resources. A plethora of digital learning resources supports methodological diversity, which again is a prerequisite for promoting individualisation of the learning process. Governments are advised to take a *holistic approach* towards digital learning resources, of which OER is but one part.

A *review of the existing copyright regime* in order to promote further use of information technology in education should consider actions to create at least a neutral policy regarding commercial actors and OER. Governments willing to promote OER should earmark a small proportion of funds made available for education for openly publishing education materials developed within publicly funded institutions, as well as open up national digital archives and museum collections to the education sector.

Public-private partnerships should be used more as a way to combine know-how and resources from both sectors. Wherever possible and reasonable *open standards* should be used and *open source software licensing* employed.

The rapid pace of development of the OER movement means that it will soon have an impact on all higher education institutions. This calls for management of institutions to consider *the risk of doing nothing*. Higher education institutions are advised to have an *information technology strategy* which includes, among other things, how the institution should deal with the opportunities and threats posed by the OER movement. Institutions willing to embrace the opportunities offered by OER should create *incentives* for faculty members to participate in the initiative, such as implementing teaching portfolios with at least one OER element, as part of the tenure process. The use of OER in teaching should also be encouraged and training offered.

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