

# Open Educational Resources: Opportunities and Challenges

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Although learning resources are often considered as key intellectual property in a competitive higher education world, more and more institutions and individuals are sharing their digital learning resources over the Internet openly and for free, as Open Educational Resources. The OECD's OER project asks why this is happening, who is involved and what the most important implications are of this development. In the following paper some preliminary findings are presented.

## The OECD/CERI study on OER

There are many critical issues surrounding access, quality and costs of information and knowledge over the Internet as well as on provision of content and learning material. As it becomes clearer that the growth of Internet offers real opportunities for improving access and transfer of knowledge and information from universities and colleges to a wide range of users, there is an urgent need to clarify these issues with special focus on Open Educational Resources (OER) initiatives. There is also a need to define the technical and legal frameworks as well as business models to sustain these initiatives. That is the background to the OECD/CERI study which aim to map the scale and scope of Open Educational Resources initiatives in terms of their purpose, content, and funding and to clarify and analyse four main questions: How to develop sustainable costs/benefits models for OER initiatives? What are the intellectual property right issues linked to OER initiatives? What are the incentives and barriers for universities and faculty staff to deliver their material to OER initiatives? How to improve access and usefulness for the users of OER initiatives? (<http://www.oecd.org/edu/oer>)

## What is OER? – a conceptual discussion

OER is a relatively new phenomenon which may be seen as a part of a larger trend towards openness in higher education including more well-known and established movements such as Open Source Software (OSS) and Open Access (OA). But what is meant by “open” and what are the arguments for striving for openness?

The two most important aspects of openness have to do with free availability over the Internet and as few restrictions as possible on the use of the resource. There should be no technical barriers (undisclosed source code), no price barriers (subscriptions, licensing fees, pay-per-view fees) and as few legal permission barriers as possible (copyright and licensing restrictions) for the end-user. The end-user should be able not only to use or read the resource but also to adapt it, build upon it and thereby reuse it, given that the original creator is attributed for her work. In broad terms this is what is meant with “open” in all three movements. It is also what is more or less covered in the definition used by The Open Knowledge Foundation when they say that knowledge should be legally, socially and technologically open. (<http://www.okfn.org>)

The term Open Educational Resources first came to use in 2002 at a conference hosted by UNESCO. Participants at that forum defined OER as: “The 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.”

The currently most used definition of OER is: “Open Educational Resources are digitised materials offered freely and openly for educators, students and self-learners to use and re-use for teaching, learning and research.” To further clarify this, OER is said to include:

- Learning Content: Full courses, courseware, content modules, learning objects, collections and journals.
- Tools: Software to support the development, use, re-use and delivery of learning content including searching and organization of content, content and learning management systems, content development tools, and on-line learning communities.
- Implementation Resources: Intellectual property licenses to promote open publishing of materials, design principles of best practice, and localization of content.

Although the most used, this definition needs further refinement. To start with it is not obvious what is meant by “open”. Walker defines “open” as “convenient, effective, affordable, and sustainable and available to every learner and teacher worldwide” and Sir John Daniel speaks of “the 4 As: accessible, appropriate, accredited, affordable” (Downes, 2006). Downes argues that “the concept of ‘open’ entails, it seems, at a minimum, no cost to the consumer or user of the resource” and goes on:

It is not clear that resources which require some sort of payment by the user – whether that payment be subscription fees, contribution in kind, or even something simple, such as user registration, ought to be called ‘open’. Even when the cost is low – or ‘affordable’ – the payment represents some sort of opportunity cost on the part of the user, an exchange rather than sharing. (Downes, 2006)

He also argues that there is no consensus the term “open” should mean “without restrictions” as is apparent from the Creative Commons license, where authors may stipulate that use requires attribution, that it be non-commercial, or that the product be shared under the same license. So while “open” may on the one hand mean “without cost”, it does not follow that it also means “without conditions”.

Furthermore the term “educational” is not unambiguous. Does it mean that only materials produced with the intention of being used within formal educational settings should be included? If so it would exclude resources produced outside schools or universities but used in formal courses, and materials produced inside such institutions but used for informal or non-formal learning outside. One alternative is to say that only materials actually used for teaching and learning should be considered. (OLCOS, 2006) The advantage with this option is that it avoids making an a priori stipulation that something is, or is not, an educational resource. The disadvantage would be the difficulty to know whether a resource is actually used for learning or not, be it formal or non-formal learning settings.

Finally it is also open to debate what the term “resources” should mean. It is possible to distinguish between the type and the media of the resource. Resource types might be courses, animations, simulations, games etc. and resource media might be web pages on the Internet, radio, television or paper. In this paper only digital resources will be considered although this limitation is not obvious in the general discussion on OER.

The ambiguous situation regarding the conceptual issues is probably due to the fact that OER as a concept is still in its infancy. Earlier on the OA and OSS movements have had the same kind of – often heated – discussions regarding conceptual issues. The conceptual discussion is an important part of the OECD/CERI study and by the end of the project we hope to be able to present a more clear-cut definition.

### Mapping OER – who is the user and the producer?

It is still early days for the OER movement and at the moment it is not possible to give an accurate estimation of the number of on-going OER initiatives. All that can be said so far is that the number of projects and initiatives is growing fast. Side-by-side with a number of large institution-based or institution supported initiatives; there are numerous small scale activities. Building on Wiley (2006) the following brief overview can be given over the OER movement in post-secondary education:

- Over 150 universities in China participate in the China Open Resources for Education initiative, with over 450 courses online.
- 11 top universities in France have formed the ParisTech OCW project, which currently offers 150 courses.

- 9 of the most prestigious universities in Japan are engaged in the Japanese OCW Alliance that offers over 250 courses in Japanese and an additional 100 in English.
- 7 universities in the United States have large scale OER programmes (MIT, Rice, Johns Hopkins, Tufts, Carnegie Mellon, and Utah State University).
- Altogether there are over 2 000 freely available university courses currently online. And more OER projects are emerging at universities in Australia, Brazil, Canada, Hungary, India, Iran, Ireland, the Netherlands, Portugal, Russia, South Africa, Spain, Thailand, the UK, the US, and Vietnam.

There are also several translation efforts underway to broaden the impact of OER initiatives. These include Universia's Spanish and Portuguese translations and China Open Resource for Education's simplified Chinese translations and the traditional Chinese translations by OOPS. Universities in South Korea and Thailand are also considering launching additional translation projects.

The number of non-course OER available increases rapidly as well. Rice's Connexions project currently hosts over 2 800 open learning objects available for mixing and matching into study units or full courses. MERLOT offers almost 15 000 resources, European based ARIADNE offers links and federated searches in several networks and repositories. Textbook Revolution contains links to hundreds of freely available, copyright-clean textbooks. Freely accessible encyclopaedias like Wikipedia and Math World grow in size and quality. UNESCO/IIEP hosts a Wiki called "OER useful resources" listing several other portals, gateways and repositories. Even more difficult than to list the number initiatives would be to estimate the quantity of available resources, even with a narrow definition of OER. On top of resources accessible through initiatives like the ones listed above, it can be estimated to be far more resources available by way of search engines like Google or Yahoo!.

What can be offered is a draft of a typology of different repositories. As already mentioned, there are both large scale operations and small scale activities. It is also possible to distinguish between different providers – institution based programmes and more community based bottom-up initiated activities, which will be more discussed later in this paper. In both cases there are all kind of in-between-models forming a continuum which can be used to forms a diagram.

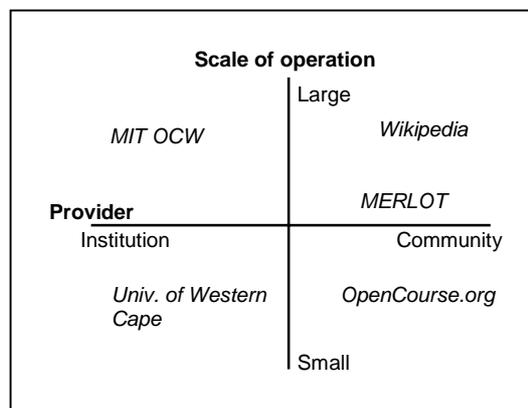


Diagram 1: Categories of OER providers

In the upper left corner of the diagram, large scale and institution based or supported initiatives would be found. A good example is the MIT OCW programme. It is large scale in the number of resources provided and regarding the number of people involved. It is totally institution based in the sense that all materials originate from MIT staff. Other initiatives like Connexions, run by Rice University, uses a mix of resources both from their own staff and from external people contributing materials. In the upper right corner, large scale operations without a base within an institution should be placed. The best example is probably Wikipedia – one of the Internet's real success stories and a good example of a large scale and

community based operation. Another example, although not as big as Wikipedia, is MERLOT. In the bottom left corner of the diagram, an example of a small scale but institution based initiative is listed. University of Western Cape, South Africa announced in October 2005 that they would launch a “free content and free open courseware strategy”. Finally, in the bottom right corner there is one example of a small scale community based initiative. The OpenCourse is a “collaboration of teachers, researchers and students with the common purpose of developing open, reusable learning assets (e.g. animations, simulations, models, case studies, etc.)”.

A third dimension to consider is whether the repository provides resources in a single discipline or if it is multidisciplinary. There are examples of single disciplinary programmes, like Stanford Encyclopedia of Philosophy and Planet Math, but the multidisciplinary approach seems to be more common at the moment.

#### *Users and producers of OER*

So far we do not know much about who is actually using and producing all the available OERs. Of course institutions based initiatives like the OCW programmes at different universities use their own staff to produce their material and some of them, like MIT try to continuously evaluate who their users are. But as a whole very little is known about whom the users and the producers are. To accommodate this deficiency the OECD project launched two web based surveys during spring 2006, one targeting institutions and one aimed at individual teachers and researchers. The first received only a very small number of answers although over 1 800 e-mails were sent to universities in the 30 OECD member countries. The e-mails were sent to the rector/vice chancellor's office and the poor result may be a sign that OER is still mostly a bottom-up phenomenon, where the managerial level of the institutions are not involved and not aware of the activities going on.

The survey for individuals was answered by 193 people from 49 different countries covering all parts of the world. The geographical spread is interesting although there is a clear bias towards teachers from English speaking countries, which may be due to the fact that the questionnaire was only available in English. The small number of replies also in this case calls for great caution in the interpretation of results. The majority of the respondents worked at institutions with 10 000 students or less and about one third worked at institutions with 11 000 – 50 000 students. More than half of the respondents worked in the area of education, and two out of three represent publicly funded institutions. A majority of the respondents said they were deeply involved in OER activities, mostly as users of open content and only slightly less as producers. About half of them said they experienced good support from the management in their use of open content, somewhat less support for producing content and using OSS. About one out of four felt good support from the management level in his/her production of OSS. The majority of the respondents said they were engaged in some sort of co-operation regarding production and exchange of resources, be it on regional, national or international level.

Other findings in this field results from individual programmes. According to Carson (2005) the traffic to the MIT OCW site is increasingly global but with a predominance of North American visitors. In the period from November 2003 to October 2004 36% of MIT OCW visitors came from North America; 16% each came from East Asia and Western Europe; 11% each from Latin America and Eastern Europe; and the remaining 9% from the Middle East, Africa, the Pacific, Central Asia and the Caribbean combined. Self learners, typically with a bachelor's or master's degree, seems to make up the bulk of traffic to MIT OCW (48%), followed by students (31%), and educators (15%). Tufts OCW reports that in their user survey half of the respondents identified themselves as self-learners, while 43% were faculty members or students at educational institutions. Over half have masters' degrees or higher. (Tufts 2006)

About two thirds of the respondents to the OECD questionnaire said they were involved in the production of open content, either to a large or a small extent. When asked to value nine possible barriers for involving other colleagues, the most significant barriers were said to be lack of time followed by the lack of a reward system to encourage staff members to devote time and energy to producing open content, and lack of skills. The lack of a business model for open content initiatives was also perceived as an

important factor with negative impact. The least significant barriers were said to be lack of access to computers and other kinds of hardware, and lack of software.

To sum up the typical OER user seem at the moment to be a single enthusiast – either a well educated self-learners, likely to live in North America, or a faculty members both using and producing learning resources with some support from the institution management and often involved in exchange of resources with other institutions.

### WHY are individuals and institutions engaged in OER?

The first and most fundamental question anyone arguing for free and open sharing of software or content has to answer is – why? Why should anyone give away anything for free? What are the possible gains in doing that? Advocates of the OSS, OA and OER movements of course have arguments in favour of their specific cause. But there are also general arguments that apply to all three. These can be divided into pull arguments which lists the gains that can be reached by open sharing of software, scientific articles and educational materials, and push arguments that registers threats or negative effects that might appear if software developers, scientists and educationalists do not share their work openly.

Starting with the push side, it is sometimes argued that, if universities do not support the open sharing of research results and educational materials, traditional academic values will be increasingly marginalised by market forces. The risk of a software monopoly if everyone is using Microsoft programmes or a combination of a combined hardware and software monopoly by too many using Apple's iPod music players listening to iTunes, is often used to support the OSS movement. The same is true regarding the risk of monopoly ownership and control of scientific literature from opponents of the large scientific publishing houses. The possibility for researchers to keep a seat at the table in decisions about the disposition of research results in the future is sometimes said to be at risk. Increased costs and vulnerability, increased social inequality and slower technical and scientific development are other concerns.

On the other side, a number of possible positive effects from open sharing are put forward, such as that free sharing means broader and faster dissemination and thereby more people are involved in problem-solving which in turn means rapid quality improvement and faster technical and scientific development; decentralised development increases quality, stability and security; free sharing of software, scientific results and educational resources reinforces societal development and diminishes social inequality. From a more individual standpoint, open sharing is claimed to increase publicity, reputation and the pleasure of sharing with peers.

#### *Arguments for institutional involvement in OER*

From an institutional point of view there seems to be five main arguments to be engaged in OER projects. One is the altruistic argument that *sharing knowledge is a good thing to do and also in line with academic traditions*, as pointed out by the OA movement. Openness is the breath of life for education and research. Resources created by educators and researchers should subsequently be open for anyone to use and reuse. Ultimately this argument is supported by the United Nations Human Rights Declaration which states that "Everyone has the right to education. Education shall be free, at least in the elementary and fundamental stages." (Article 26)

A second argument is also close to what the OA movement claims – namely that *educational institutions should leverage on taxpayers' money by allowing free sharing and reuse of resources* developed by publicly funded institutions. To lock in learning resources behind passwords, means that people in other publicly funded institutions sometimes duplicate work and reinvent things instead of standing on the shoulders of their peers. It might be seen as a drawback for this argument that it does not distinguish between taxpayers in different countries – learning resources created in one country may be used in another country sparing taxpayers in the second country some money. But, as pointed out by Ng (2006), free-riding of this kind may not pose so much of a problem since the use of a learning resource in a foreign country does not hinder the use of the same resource by domestic teachers. Instead, he says "allowing free-riding may be necessary for the growth of a good community as they help draw new

members by words of mouth. Also, free-riders themselves may learn to value the community more over time, so much that some of them may share eventually.”

A third argument is taken from the OSS movement: “What you give, you receive back improved”. *By sharing and reusing, the costs for content development can be cut, thereby making better use of available resources.* Also the quality would improve compared to a situation where everyone starts from the beginning.

A fourth argument for institutions to be engaged in OER projects is that *it is good for public relations and can function as a show-window attracting new students.* Institutions like MIT receive a lot of positive attention for their decision to make their resources available for free. Other institutions could do the same.

A fifth argument is that many institutions feel a growing competition as a consequence of the increasing globalisation of higher education and a rising supply of free educational resources on the Internet. In this situation there is *a need to look for new business models, new ways of making revenue,* such as offering content for free both as advertisements and as a way of lowering the threshold for new students that still would need to pay for tutoring and accreditation.

To what extent the above incentives are the driving forces behind the initiatives taken by individual institutions is hard to say. It is also true that a combination of several of the motives listed here could be in play simultaneously, both altruistic motives and economic driven incentives.

#### *Motives for individuals*

The incentives for individual researchers, teachers and instructors to share learning resources are so far less mapped and well known compared to motives for OA publishing or participating in OSS projects. The motives to be engaged in OER are probably similarly complex. Findings from the OECD questionnaire to teachers and researchers involved in OER activities suggest that, when presented with a list of proposed goals or benefits with using OER in their own teaching, the most commonly reported motive was to gain access to the best possible resources and to have more flexible materials. More altruistic ambitions, such as assisting developing countries, outreach to disadvantage communities or bringing down costs for students seems somewhat less important. At the same time the least important factor was to personally be financially rewarded.

When asked about the most significant barriers among colleagues not using OER in their teaching, the respondents pointed out lack of time and skills together with the absences of a reward system. A perceived lack of interest for pedagogical innovation among colleagues is also mentioned. The barriers described correspond with lessons learned from an Australian evaluation of an institutional learning environment which included a learning resource catalogue (Koppi, 2003). The authors conclude that “[t]he issue of reward for publicising teaching and learning materials is of paramount importance to the success of a sustainable learning resource catalogue where the teaching staff themselves take ownership of the system”. To establish a credible academic reward system that includes the production and use of OER might be the single most important policy issue for a large scale deployment of OER in teaching and learning.

## Challenges to the Growing OER Movement

Although the idea of OER is thriving at the moment, it is important also to look at some challenges that might stifle the further growth of the movement. In this paper three challenges will be touched upon: the lack of awareness among academics regarding copyright issues; how to assure quality in open content; and how to sustain OER initiatives in the longer run.

#### *Lack of awareness of copyright issues*

While publication, consumption and distribution of texts were mediated through physical media, academics remained for the most part unaware of the licensing that underpinned the exploitation of copyright. Internet and other digital media have changed this. (McCracken, 2006) By having access to publishing and production tools, and by licensing access to a digital, ephemeral product rather than a physical object such as a book or print, researchers as well as teachers now interrelate with licensing as

never before. And for the most part they seem either unprepared or unwilling to engage with cumbersome licensing procedures.

Although many academics are willing to share their work, they are often hesitant as how to do this without losing all their rights. Although some people release work under the public domain, it is not unusual that authors would like to retain some rights over their work. The RoMEO project in UK made a survey in 2002-2003 among 542 researchers about what kind of rights they wanted to retain. (Gadd, 2003) A majority (over 60%), were happy for third parties to display, print, save, excerpt from and give away their papers, but wanted this to be on the condition that they were attributed as the authors and that all copies were done so verbatim. 55% wanted to limit the usage of their works to educational and non-commercial use. The RoMEO report concluded that the protection offered to research papers by copyright law is in excess of what is required by most academics.

Several open content licenses have been developed, like the Creative Commons and the GNU Free Documentation Licence, to accommodate this problem. Open licensing provides a way of controlled sharing with some rights reserved to the author. They have the benefit of introducing certainty and clarity into the process of obtaining permission to use the work of others. They also reduce the administrative burden of having to clear rights before use. This is particularly useful in the educational context where users have little or no inside knowledge of the mechanisms used by the media industries. Finally, open licenses establish a body of works licensed as "open content" that may be freely shared. However, it must also be recognised that they have some disadvantages. Rights holders must be prepared to grant and to live with exercising only a "broad-sweep" control over their works, replacing the case by case control with which they are familiar. Moral rights are waived under licences offering the right to make derivative works and different and often blurred and overlapping boundaries emerge between not-for-profit, educational and commercial exploitation or distribution. Despite some shortcomings, there seems to be a growing interest for open licenses, as shown by the increasing number of objects released under the Creative Commons license.

The RoMEO project also showed that 41% of authors "freely" assign copyright to publishers without fully understanding the consequences. Preliminary findings from the OECD survey on OER shows a low awareness regarding the importance of using open licenses among teachers and researchers producing learning resources, and few initiatives from institutions to accommodate this deficiency. Given that the scholars in the RoMEO survey and those responding the OECD questionnaire are more or less representative of academics from other countries, the conclusions seems to strengthen the assumption that raising the awareness on copyright and licenses is an important challenge for both the OER and OA movements. Maybe even easier ways of retaining only those rights that the individual author wants to retain are needed, together with active advice and support from higher educational institutions. A recent comparison of seven Australian universities underpins previous international research showing that relying solely on voluntary deposits by academics of research articles to OA archives will result in approximately 15% contribution. (Sale, 2006) Requirements to deposit research output in an open archive coupled with effective author support policy, results in much higher deposit rates.

#### *Quality assurance*

The overview of the current state of OER showed that a growing number of initiatives and digital resources are available. Teachers, students and self-learners looking for resources should not have difficulties finding resources, but still might have problems of judging their quality and relevance. The issue of the quality of resources is fundamental and can not be dealt with at depth in this paper. Instead a few different approaches to the issue of quality management will be listed.

Some institution-based providers use the brand or reputation of the institution to persuade the user that the materials on the website are of good quality. If not, the prestige of the institution is at risk. Most probably they use internal quality checks before the release of the courses, but these processes are not open in the sense that the user of the resource can follow them.

Another approach is to have the resources reviewed by peers. As described in the section on OA, the peer review process is one of the most used quality assurance processes in academia. As well as being a

well known and well understood routine, there are other arguments for using peer review schemes to guarantee the quality of resources in a repository. Taylor (2002) argues the process can be used to come to terms with the lack of a reward system by giving recognition and reward to the creator of a learning resource, as well as a dissemination method. Furthermore, there is a need for making the review decisions credible, and for that purpose an open peer review according to agreed criteria is well suited, Taylor claims.

A third quality management approach is not to have a centrally designed process, but rather let individual users decide on whatever ground they like whether a learning resource is of high quality, useful, or good in any other respect. This can be done by letting users rate or comment on the resource or describe how they have used it, or by showing the number of downloads for each resource on the website. This is a kind of low level or bottom-up approach often used on Internet based market places, music sites, etc. The argument for such an approach would be that quality is not an inherent part of a learning resource, but rather a contextual phenomenon. It is only in the specific learning situation that it can be decided whether a resource is useful or not, and therefore it is the user who should be the judge.

To sum up there are several alternative ways of approaching the quality management issues. As shown in Diagram 2, it can be done by a centrally designed process or in a decentralised manner, one might use open processes or more closed ones. Arguments can be made for all these approaches (maybe with the exception of the word-of-mouth method), much depending on which kind of OER initiative or programme one is considering. All sorts of combinations could also be used.

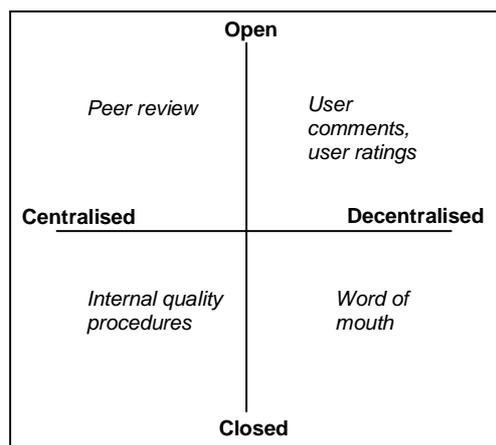


Diagram 2: Quality management processes for OER initiatives

### *Sustainability of OER initiatives*

The fact that so many OER initiatives have started during the last years has created competition for funding. Although some projects have a strong institutional backing it is most probably start up funding that will cease after a few years. Therefore it is important to seriously consider how the initiatives can be sustained in the long run. There are many different kinds of OER providers and no single sustainability model will fit all. Instead there is a need to discover different approaches that might be useful in a local context. Two different approaches will be discussed here that might be looked upon as ideal types at each end of a continuum, where a lot of models could be invented in between. These two are the institutional model and the community model.

The growing competition among institution based OER initiatives calls for the development of a strong brand, user communities, increased site usability and improved quality of the resources offered.

Community “marketing” is important for the institutional OER initiatives for several reasons:

- It enables users to form strong connections with the website;
- The institution can learn from the community about what works and what does not work on the website;

- It gives possibilities for rapid diffusion;
- Strong communities influence user behaviours – users come back to the repository.

Institutions launching OER programmes might also need to look into different revenue models for the long term stability and viability of their initiative. To this end some alternative models identified by Dholakia (2006) might be considered, such as:

- The *Replacement model*, where OER replaces other use and can benefit from the cost savings which is a result of the replacement. It was noted though that this model has a natural limit since it can only generate the same amount of resources as it replaces.
- The *Foundation, Donation or Endowment model*, where the funding for the operations are provided by an external actor such as foundations. This model was primarily seen as a start up model that will most probably not be viable in the long run. It might be transferred into a *Government support model*, which could be a long-term option in some (mostly European?) countries but not others.
- The *Segmentation model*, where the provider, simultaneously with resources for free, also provides “value-added” services to user segments and charges them for these services – such as sales of paper copies, training and user support, ask-an-expert services etc. This model, together with the conversion model, is among the most used in the education sector.
- The *Conversion model*, where “you give something away for free and then convert the consumer to a paying customer”.
- The *Voluntary support model*, which is based on fund-raising campaigns. Another version of this model is the *Membership model* where a coalition of interested parties – organisations or individuals – is invited to contribute a certain sum as seed money or on an annual basis.
- The *Contributor-Pay model* where the contributors pay the cost of maintaining the contribution, which the provider makes available for free. This model is used to give OA to scientific publications and might work also for OER.

The alternative approach to building an OER programme with a strong institutional backing is the community model. This is more of a grass roots activity where individuals contribute with their time, knowledge and resources on a voluntary basis. In this model, production, use and distribution is decentralised, compared to the institutional model where at least production and distribution are centralised. From a community perspective, one might take an alternative view on the over-all concept of sustainability. From this standpoint, it is not enough to look at the advantages and disadvantages of different revenue or funding models – one should look not only at who pays for the resources but also who creates them, how they are distributed and how one can work with them. Some of the aspects to consider are:

- Technical considerations such as discoverability of the resources;
- The kind of openness and constraints on access and use that is given users;
- Different content models (the possibility to localise content) and issues of licensing;
- Different staffing models and incentives for people to contribute resources;
- Alternative workflows to the traditional design—use—evaluation model, to models without a clear distinction between production and use or between the user and the producer. The concept of co-production is important here.
- Maintenance and updating of resources.

Since the community model builds on voluntary work and enthusiasts, sustainability is not so much a matter of financial resources as of dismantling barriers that hinders the community to flourish and grow. Tentative actions could be to find alternatives to the existing IPR regime and changing the mind set of donators not only to include funding to institutional OER initiatives but also to loosely composed communities.

### Concluding remarks

Although there are a growing number of OER initiatives at the moment, a lot of fundamental questions still remains to be answered such as who is involved, in what way are they involved and why? A wide variety of reasons seem to be at play for both institutions and individuals: some are altruistic and idealistic, others

are economic. The phenomenon – that individuals and institutions give away learning resources for free – which at first seems counter intuitive and difficult to explain within the old economic and educational context, might be better understood as a part of a new culture and an emerging economic reality with partly different characteristics. The apparently contradictory trends that were mentioned in the introduction to this paper – on the one hand a growing competition among universities and on the other that some do not protect their intellectual capital, but share it for free – might not be so contradictory after all. For some universities free sharing of learning resources might be a strategy to create a competitive advantage by using unorthodox methods. One can predict a growing debate within the OER movement concerning the role of commercial actors using open resources as part of their business model, as we have seen in the OSS and OA movements.

During the coming months the OECD study will concentrate on the issues of pedagogical, financial and other motivations, benefits and barriers for institutions to use and produce OER; usability issues together with management concerns around quality and validation; and finally policy implications on regional and national level of the OER movement. The final report will be published in early 2007.

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