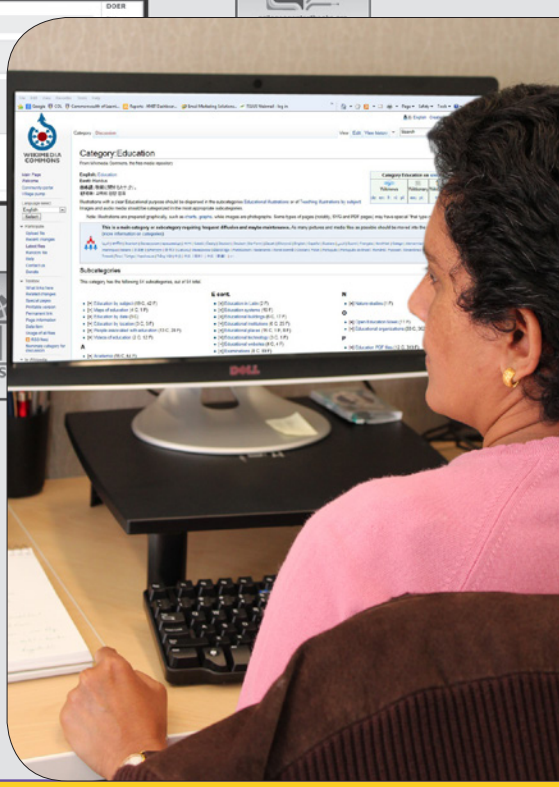
Creating, Using and Sharing Open Educational Resources



KNOWLEDGE SERIES

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A TOPICAL, START-UP GUIDE TO DISTANCE EDUCATION PRACTICE AND DELIVERY

INTRODUCTION

Open Educational Resources (OER) are free learning resources available on the Internet. OER can be openly licensed or in the public domain, and can be used or reused for free. They can exist in many formats: text (either print or digital); audio, video, multimedia or hypermedia; or various combinations of these. They can be based on a single learning point, a lesson, a series of lessons (a module), a whole course or even an entire programme of study. They can support a specific learning methodology or approach — whether that be behaviourist, constructivist, connectivist, etc. — or any combination of methodologies or approaches. Although they may differ in format, structure or approach, they share a common characteristic: their openness.

OER are also **open** (mostly). What does that mean in practical terms? With an open licence, the creators retain ownership of their work and can specify how open they want their resources to be, from fully open to closed for specific purposes (see **Creative Commons**, below). Unlike commercial resources, OER can be used and reused as needed and/or desired by learners and teachers:

- They can be **edited** to reflect the styles and approaches of the users.
- They can be **augmented** by the insertion of new material as it becomes known or available.
- They can be **customised** to reflect the ethos of your organisation.
- They can be **repurposed**. For example, a Sociology statistics package can be adapted for Psychology or Nursing or Economics, etc.

In addition:

- OER can be **combined** to assemble lessons, courses and programmes.
- Content can be **reformatted** to make it suitable for use on different devices (e.g. mobile phones, tablets).
- **Mash-ups** can be created by using blended resources from a variety of sources.

These characteristics of OER make possible a shift away from creating courses to **assembling** them. Rather than depending on commercial textbooks to develop courses from scratch, educators can gather together OER from a variety of sources, using accessible content from the Internet, and assemble them into lessons, courses and programmes. As a start, course designers can begin by "**debon-ing**" their courses — that is, removing the commercial resources and replacing them with OER.

WHY OER?

OER are supported by educators who believe that sharing is important for learning. They want to:

- use affordable (free) learning resources;
- have the legal rights to use these (free) learning resources;
- have updated content;
- translate resources into other languages;
- broaden access to learning; and
- ensure publicly funded educational resources are available to the public.

There are many benefits to using OER in addition to sharing, which is an important component of any educational experience. With OER, the author retains ownership of his or her copyright without having to assign it to a publisher, so author rights are preserved. Moreover, open licences require that attribution be given to the author when an OER is reused, revised, remixed or redistributed. Plagiarism becomes less of a problem when a work can be freely copied — there is no incentive to lie about the source or to deny attribution. OER are also an excellent way of marketing an institution and spreading its name internationally.

As more and more educators learn about OER, the supply keeps increasing. There are now large numbers of OER on many subjects. They are becoming more relevant and their quality is improving. Not only are OER free of cost, they are also free to use in any way that a learner or instructor desires and are free of technological and legal restrictions, so no time has to be spent seeking permissions. Highly structured OER can support traditional teaching methods, while more open examples lend themselves to constructivist, connectivist or other approaches. And because OER can be changed to meet the needs or requirements of the user, they can be used to support a wide range of learning environments. An important benefit of this ability to change OER is that it facilitates timely updating as well as localising, translating and otherwise adapting the material to specific contexts. This freedom is also important for the training of course developers within institutions as more instructors learn how to access, adapt, improve and deploy open content.

OER are not only a good thing because they are free and accessible. They have also been linked to improved achievement and student completion rates when students can readily access the course material. With global sharing, which is facilitated by OER, there is less and less unnecessary duplication or "reinventing of the wheel." Sharing reduces the cost of course development by spreading materials among many different institutions. Copyright clearance, which can be quite laborious, is eliminated with OER. And, most importantly, the active sharing of content among scattered institutions and jurisdictions engages open communities and builds capacity. **For online learning, OER are essential.**

When many different educators are working on developing and improving curricula, many divergent techniques and approaches can be experimented with. This can be an ongoing exercise and can support constant improvement and updating of the resources not only for lessons and courses but also for entire programmes. The talents of those involved can be pooled in the development of assessment tools such as examinations, tests, assignments and essays.

QUALITY OF OER

Concerns about the quality of OER are often overstated, but nonetheless must be addressed. The most obvious way of evaluating OER content is the same as for evaluating restrictively licensed content. The instructor validates the content, and tests its potential pedagogical effectiveness and ease of use. The perceived quality of any content can vary considerably depending on its purpose and fit with a particular course, its pedagogical framework and its generalisability.

Peer review is used at times to validate quality. A few subject matter experts all certifying that content meets, or exceeds, acceptable criteria is one of the best quality indicators. **User ratings**

OER are reusable; are adaptable to many lear should be interoperable in different formats (i devices, operating systems and applications.

are used in some sites, and can be useful; they are usually in the form of star ratings or numbers. Instructors can also conduct **self-evaluations** of resources to ensure that the quality meets their standards. Also, the **brand** or **reputation** of the course developers or their institutions can be an important indicator of quality.

Of course, the above quality indicators can and should also be used in evaluating restrictively licensed content. The ability to update content in a timely fashion without restriction gives OER a significant measurable quality advantage over closed content. Commercial vendors do not allow users to modify their content and so it cannot be updated by the users. Cost is another important variable in evaluating quality. If the content is too costly and essentially unaffordable, it is not useful. OER are free of charge and the costs of developing content as OER is **shared** among many institutions. An institution may develop one OER and receive thousands in return.

COPYRIGHT ISSUES

In the Commonwealth (and the USA), copyright law evolved from the *Statute of Queen Anne, 1710, An Act for the Encouragement of Learning* (http://en.wikipedia.org/wiki/Statute_of_Anne). **Fair dealing** (http://en.wikipedia.org/wiki/Fair_dealing) or "fair use" has been enshrined in copyright law from the beginning, particularly for research and education. Under fair dealing, educators have every right to use "a reasonable amount" of restrictively licensed content in their course packs or websites. (Analogous rights exist in other legal traditions.) However, please be careful when integrating restrictively licensed content. The use of this "closed" content should be avoided whenever possible as it can create problems for others who wish to share the course materials.

Linking to any content that is freely displayed on the Internet is legal and can be an excellent way of supplementing course material. Links can even be integrated into a course if the students have reasonably reliable Internet connections. Some YouTube videos are also openly licensed and so can be remixed inside YouTube, allowing teachers to create custom videos for their classroom.

CREATIVE COMMONS (CC) LICENCE

OER can usually be identified by their use of a **Creative Commons** (CC) licence (http://creativecommons.org). This licence gives instructors or their institutions copyright over their resources, while opening them up for use by others. With CC creators can:

- ensure that their name remains with the work when others use it (**attribution**);
- they can ensure that their work remains in its original form (though this restriction is not ideal for education as other teachers may want to modify the resource) (**no derivatives**);
- ensure that any changes to the work must also be openly licensed (**share-alike**);
- ensure that the resource cannot be used for commercial purposes without permission (**non-commercial**); or,
- employ any combination of these options.

In addition, many **public domain** (http://en.wikipedia.org/wiki/Public_domain) materials are also available for use as OER. These consist mainly of works where the author died before the 1940s in most jurisdictions (life +70 years), the 1960s (life +50 years) in others.

OER DEVELOPMENT

OER development is becoming more sophisticated as instructors and course specialists become more familiar with the environment. Most approaches to OER creation have been developed from the approaches used for face-to-face learning. However, the online environment opens up new possibilities for learning. When initiating and supporting OER assembly/development projects, OER users may want to bear in mind the following list of recommendations, which draws on direct knowledge of and experience in distance education and traditional learning, adapting to the online environment and the strengths and weaknesses of software applications.

1. BEG OR BORROW (OR STEAL!) LEARNING RESOURCES. DON'T REINVENT THE WHEEL.

Using previously created materials is almost always more efficient than creating your own. Take advantage of the freely and legally accessible OER that are accessible online. It is almost always easier to adapt existing materials to your needs than to develop them yourself. If course materials that you like are not available as OER, you can always take the idea and create your own content. You can make an OER. Remember, ideas are not copyrightable, only the specific expression of an idea is protected by copyright. If no OER are available you can also use fair dealing rights to access resources up to a reasonable amount or simply create a link.

2. TAKE WHAT EXISTS AND BUILD THE COURSE AROUND IT.

This is a tried and true approach to course development. Early universities developed around monasteries or religious study groups, where teachers based their lessons on traditional texts — that is, the content determined the learning. Now, many instructional design manuals insist that you start with a needs analysis and build your course materials based on the specific learner needs. While this approach has value, so does the more traditional approach. Instructors can construct relevant courses, or relevant sections of courses, based on materials that are already available. For example, a Geography instructor could design specific relevant tasks around a computer game or a computer simulation on running a city like **Lincity** (http://developer.berlios.de/projects/lincity-ng). Computer Programming instructors could refer students to specific free courses on Java programming that are available online. How about a history-teaching module based on the openly licensed ancient history game **0.A.D.** (http://play0ad.com)?

3. ASSEMBLE. DON'T CREATE. MIX AND MATCH.

Assembling courses rather than creating or developing them from scratch is enabled by OER. Mixing and matching modules from different sources can be more effective than creating them or spending too much time on adapting materials to make them "just right." "Good enough" is often preferable to "perfect" if it saves time and resources. The integration of modules can often take up more time than it is worth. Linking to external resources can also be effective. Everything does not have to be housed in a consistent look. Learning effectiveness is not always dependent on the maintenance of an "integrated whole." Seemingly disconnected modules can be used to promote effective learning experiences.

4. MOVE FROM "NOT INVENTED HERE" TO "PROUDLY BORROWED FROM THERE."

Curriculum specialists, instructional designers and individual teachers can find fault with any course material. "Turf protection" is alive and kicking in many learning institutions. Material developed or chosen by someone else is all too often judged to be inferior. Sometimes settling for someone else's course material that is "good enough" is better than going to the expense

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ning contexts and environments; and ncluding print) as well as on different

and effort of creating your own "perfect" materials. Quite often the only people who care about "perfection" are the curriculum specialists themselves — and they can spend years arguing over the relative merits of different approaches, techniques and content.

It is pedagogically justifiable and often most appropriate to adopt outright or adapt an entire course produced by other institutions. Specific modules on relevant course topics can sometimes be more suitable. Externally produced OER can form the component parts of specific modules or larger courses. Often they can serve as alternate pathways to accommodate differing learning styles or to allow students to use different devices. Course materials must be reusable and adaptable for repurposing. To facilitate this, organise lessons as modules.

5. BUILD FLEXIBLY FOR REUSE AND REPURPOSING. GENERALISABILITY REDUCES COSTS.

OER can facilitate change in the type and amount of your course materials' content, features and functionality. They are normally self-contained and portable to different environments. The costs of overall development are reduced significantly when materials are generic and available for use in multiple subject areas and formats. This approach also makes ongoing maintenance and error correction much easier.

Too many designers do not allow for multilingual capacity in their course structures. This is unfortunate, because many materials could be easily translated if the course structure were open. For example, if text is not used inside graphics, there is an option for translation into other languages and access by persons with varying degrees of visual impairment.

6. DESIGN FOR USE ON MOBILE DEVICES.

Mobile devices are becoming very popular. More than 90 per cent of the world's population can now access mobile signals. More people access the Internet using mobile phones and tablet computers than by any other means, including desktops. So, when developing OER, the developers should recognise this and design not for paper or desktop use, but for mobile device use. This may involve "chunking" — that is, dividing lessons into smaller, more manageable units.

7. BUILD TO STANDARDS.

When the technical resources are available, course materials should be built to commonly accepted technical standards to make the resources easier to assemble, adapt and repurpose. Resources should conform to the international metadata standards for learning objects and course packaging (IEEE LOM [http://en.wikipedia.org/wiki/Learning_object_metadata], SCORM [http://en.wikipedia.org/wiki/Scorm], IMS Common Cartridge [http://en.wikipedia.org/wiki/Common_cartridge#Common_Cartridge]). As well, institutions can implement local standards for interface design and quality. Create a standard procedure and "look" for course development in your institution and follow it intelligently. Be consistent in the wording of instructions, use of icons, etc. And be sure to add a Creative Commons licence to your resources. This can be done easily using the Creative Commons tool (http://creativecommons.org/choose/).

Most importantly, when assembling or building courses: **Keep it simple**. Do not make the interface difficult to navigate. Use simple commands and easily understandable icons. Simple, clean interfaces with no glitz are preferable to overly complex designs with bells and whistles. Make it easy for the learner. Use plain, simple language. Explicitly state the course objectives on a separate course objectives page. And lastly, don't procrastinate. **Just do it!**

PROBLEMS WITH COMMERCIAL CONTENT

DRM = DIGITAL RIGHTS MANAGEMENT (OR TPM, TECHNOLOGICAL PROTECTION MEASURES)

Commercial content can be expensive, but the real need for OER is driven by DRM, the technical protection measures that disable many functions and that are commonly known as "digital locks." Commercial publishers can technically control how, when, where and with what specific brands of technological assistance users can access content and applications. These restrictions include:

- restricting accessibility to one format and one device;
- disabling highlighting, annotating, hyperlinking and printing options;
- disabling audio and video applications used by those with audio or visual impairments;
- prohibiting the reuse, mixing and matching or augmenting of the resource;
- geographic restrictions whereby resources cannot be used outside of a certain region; and
- removing content when monthly payments stop or licences expire or at the company's discretion.

RESTRICTIVE LICENSING

When you click on many, if not most, licences for commercial content, you have agreed that:

- you accept many, if not all, of the above DRM restrictions;
- you cannot share the content with anyone else;
- you do not buy the product but merely purchase the privilege of using it;
- you waive any rights including ownership, resale and fair dealing or fair use rights;
- the owner can control how, when and where you access the resource;
- the owner has the right to access your device and disable applications;
- the owner can access and use your personal data without further permission;
- you accept that the company has no liability to ensure that the product works; and
- you accept that the licence can be changed by the company at any time.

With OER, you have none of these technical and legal restrictions. That is why **OER are essential in education**.

ON'T GET

David Wiley

MOOCS AND OER

Massive Open Online Courses (MOOCs) consist of lessons that are freely available to anyone on the Internet, and are accessed by large numbers of learners. They are generally not for credit and the majority of participants do not commit to the full course, but instead participate according to their personal needs and preferences. MOOCs have grown out of the online learning movement, but many are not quite so "open" and use closed licences. These closed xMOOCs are typically for-profit, venture-capital-backed and characterised by their focus on knowledge transmission (e.g. video lectures) rather than interaction. The original cMOOCs stress connectivity and rely on student discoveries, discussions and the shared creation of knowledge among participants. However, both types may or may not use both open and closed licensed content that is freely accessible on the Internet.

HOW TO FIND OER? A LIST OF RESOURCES

OER are available in repositories on the Internet.

SELECT LIST OF SPECIALISED SEARCH ENGINES

The Commonwealth of Learning's Directory of Open Educational Resources was designed to aid distance education practitioners in particular and it seeks out OER in the major repositories.
http://doer.col.org

Creative Commons Search is not limited to OER and contains links to open content of all sorts.
http://search.creativecommons.org
http://open4us.org/find-oer

Google University Learning searches through a collection of OER and Open Courseware sites.
https://www.google.com/cse/home?cx=009190243792682903990:e40rcqv1bbo

OERCommons is a large database of OER with resources suitable for a variety of education environments, from K–12 to higher education.
www.oercommons.org

OER Dynamic Search Engine provides a list of websites that house various OER.
http://edtechpost.wikispaces.com/OER+Dynamic+Search+Engine

SELECT LIST OF OTHER OER SEARCH ENGINES

Computer Science OER Portal
http://iiscs.wssu.edu/drupal/csoer_collections

OpenTapestry is a repository of OER from Saylor.org and other OER sites. It "also provides tools that help organizations easily adopt and adapt open courses into existing learning management systems."
www.opentapestry.com/courses

TEMOA Knowledge Hub is a public multilingual portal searchable by subject area or media type. It also includes social networking tools.
www.temoa.info

Xpert can be used to search a database of open learning resources. Note that not everything is openly licensed.
www.nottingham.ac.uk/xpert

MORE USEFUL REPOSITORIES

Academic Earth houses US college courses.
http://academicearth.org

Ariadne Finder searches a European repository that hosts content in many languages.
http://ariadne.cs.kuleuven.be/AriadneFinder

Connexions in the US has more than 20,000 OER.
http://cnx.org/

Curriki is a US OER repository with mainly K–12 content.
www.curriki.org

The Federal Registry for Educational Excellence is a US government search engine. Many resources in this repository are public domain but not all.
http://free.ed.gov

JISC in the UK provides search advice and a list of open and free repositories.
www.jiscdigitalmedia.ac.uk/guide/finding-video-audio-and-images-online/#creative-commons

Jorum is a UK Further and Higher Education repository of OER.
http://www.jorum.ac.uk

MERLOT in the US has links to more than 40,000 resources, but some are subject to copyright restrictions.
www.merlot.org/merlot/index.htm

The National Repository of Open Educational Resources in India contains a wide variety of OER types.
http://nroer.in/home

OER Knowledge Cloud is a repository of scholarly articles, research and reports about OER.
https://oerknowledgecloud.org

Siyavula houses a South African repository of K–12 books in science and technology. Sign-up is required.
http://projects.siyavula.com/technology-powered-teaching

Wikiversity links to wiki-based OER in several languages.
www.wikiversity.org

A catalogue of OER repositories is available in Appendix 6 (p. 87) of the Commonwealth of Learning's publication *Basic Guide to OER*
www.col.org/PublicationDocuments/Basic-Guide-To-OER.pdf

Creative Commons has a page dedicated to open educational resources.
http://creativecommons.org/education

Creative Commons has a page that highlights OER case studies.
http://wiki.creativecommons.org/OER_Case_Studies

USEFUL TOOLS

CC licence chooser simplifies adding a CC licence notice to a website.
http://creativecommons.org/choose

Compfight allows for searching openly licences photos in Flickr.
http://compfight.com

OpenAttribute consists of a suite of tools that simplifies copying/pasting the correct attribution for any CC-licensed work.
http://openattribute.com

FURTHER REFERENCES (ALL OPENLY LICENSED)

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CREATING, USING AND SHARING OPEN EDUCATIONAL RESOURCES
This guide was prepared by Rory McGreal, UNESCO/COL Chair in OER, as part of the UNESCO/COL Chair in OER initiative with the help of S. D'Antoni (Athabasca University), W. Mackintosh (OER Foundation) and C. Green (Creative Commons).

The Knowledge Series is a topical, start-up guide to distance education practice and delivery. New titles are published each year.
Editor: Lesley Cameron
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All Web references and links in this publication are accurate at press time.

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also available at www.col.org/knowledge