Open Educational Resources and Practices

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Summary
In the last few years, Open Educational Resources (OER) have gained much attention. From January 2006 to December 2007 the Open e-Learning Content Observatory Services (OLCOS), a project co-funded by the European Commission under the eLearning Programme, explored how OER can make a difference in teaching and learning. The project aimed at promoting OER through different activities and products such as a European OER roadmap and OER tutorials. In this paper we present some results of the roadmap which provides an overview of the OER landscape and describes possible pathways towards a higher level of production, sharing and usage of OER. Moreover, the roadmap provides recommendations on required measures and actions to support decision making at the level of educational policy and institutions.

The roadmap emphasises that the knowledge society demands competencies and skills that require innovative educational practices based on open sharing and the evaluation of ideas, fostering creativity and teamwork among the learners. Collaborative creation and sharing among learning communities of OER is regarded as an important catalyst of such educational innovations.

The OLCOS project also developed free online tutorials for practitioners. The objective of these tutorials is supporting students and teachers in the creation, re-use and sharing of OER. To promote hands-on work, the tutorials advise on questions such as the following: How to search for OER? Which materials may be re-used and modified? How to produce and license own OER? The tutorials will be accessible and, potentially, will evolve beyond the end of the OLCOS project, because they are published on an open and successful Wiki based platform (Wikieducator.org) and can be updated by anybody.
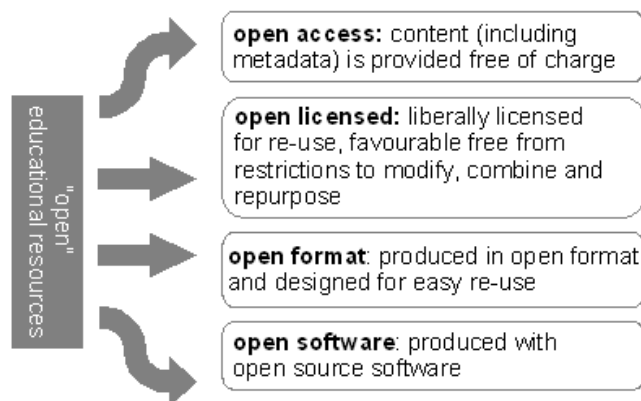
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1 Definition and Background

In the last few years Open Educational Resources (OER) gained much attention, though, an authoritatively accredited definition of such resources does not yet exist. However, at the UNESCO-IIEP Forum (2001) it was agreed that OER include Open Course Content, Open Source development tools, and Open Standards and licensing tools. (cf. The International Institute for Educational Planning/UNESCO 2001)

Stephen Downes observes that "there is a great deal of debate extant concerning the definition of 'open' resources". (Downes 2007a, p. 299) In the OLCOS project, Guntram Geser (2007) argued that experts who understand OER as a means of leveraging educational practices and outcomes will define OER based on the following core attributes (see also figure 1):

- "that access to open content (including metadata) is provided free of charge for educational institutions, content services, and the end-users such as teachers, students and lifelong learners;
- that the content is liberally licensed for re-use in educational activities, favourable free from restrictions to modify, combine and repurpose the content; consequently, that the content should ideally be designed for easy re-use in that open content standards and formats are being employed;
- that for educational systems/tools/software is used for which the source code is available (i.e. Open Source software) and that there are open Application Programming Interfaces (open APIs) and authorisations to re-use Web-based services as well as resources." (Geser 2007, p. 20)

Figure 1: The meaning of "open" in "Open Educational Resources", own illustration following Geser 2007, p. 20

These are rather demanding principles and, in fact, repositories of educationally relevant resources often do not fully abide by them. Hence, readers should be aware that when we refer to "open" resources, there may be several criteria that current OER projects do not meet while still being developed in the spirit of the current Open Access movement.

Following Geser (2007), OER are understood to be an important element of policies that want to leverage education and lifelong learning for the knowledge society and economy. This expectation is to some degree influenced by the observation that the huge investments made so far in ICT-enabled teaching and learning have not brought about profound changes in educational practices. In particular, notions that the use of ICT would promote student-centred and collaborative approaches have not been fulfilled. Rather there is a considerable mismatch between teaching and learning as framed and maintained by typical educational institutions and the fabric of work in a knowledge-based economy "out there". In addition, there is an obvious gap between current educational practices and what a younger generation of students uses almost naturally to communicate and form communities of interest outside "the classroom".

In this context, the importance of Open Content and Open Source Software tools that enhance learning processes has been acknowledged by international initiatives and organisations. For example, the OECD (2007) published a study about OER based on an international survey, and the William and Flora Hewlett Foundation commissioned a review about the OER movement (Atkins, Brown and Hammond 2007). Furthermore, there are some projects co-financed by the European Commission, for example OLCOS (focus on open educational content) and Bazaar (focus on Open Source tools).

Open e-Learning Content Observatory Services (OLCOS), a project that ran from January 2006 to December 2007 under the eLearning Programme, explored how OER can make a difference in teaching and learning. The project consortium comprised the European Centre for Media Competence (Germany), the European Distance and E-Learning Network (Hungary), the

FernUniversität in Hagen (Germany), the Mediamaisteri Group (Finland), the Open University of Catalonia (Spain) and the project co-ordinator Salzburg Research, EduMedia Group (Austria).

The project aimed at promoting OER through different activities: OLCOS produced a roadmap to provide educational decision makers with orientation and recommendations on how to foster the further development and use of OER. This study can be downloaded freely from the project website, www.olcos.org. Furthermore the OLCOS project developed free online tutorials for practitioners. The objective of these tutorials is to support students and teachers in the creation, re-use and sharing of OER.

2 Open Educational Practices

The OLCOS road mapping has been carried out to inform and support a transformation in educational practices that brings learning processes and their outcomes closer to what individuals will need to participate successfully in the knowledge society. The OLCOS Roadmap 2012 on Open Educational Practises and Resources (Geser 2007) explores possible pathways towards a higher level of production, sharing and usage of OER and provides recommendations on required measures to support decision making at the level of educational policy and institutions.

The roadmap emphasises that the knowledge society demands competencies and skills that require innovative educational practices based on open sharing and evaluation of ideas, fostering of creativity, and teamwork among the learners. Collaborative creation and sharing among learning communities of OER is regarded as an important catalyst of such educational innovations. Therefore, OER should become a key element of policies that aim to leverage education and lifelong learning for the knowledge society and economy.

However, the project also emphasises that for achieving this goal it is crucial to promote innovation and change in educational practices. In particular, OLCOS warns that delivering OER to the still dominant model of teacher-centred knowledge transfer will have little effect on equipping teachers, students and workers with the competences, knowledge and skills to participate successfully in the knowledge economy and society.

Therefore the OLCOS project focuses on open educational practices that are based on a competency-focused, constructivist paradigm of learning and promote a creative and collaborative engagement of learners with digital content, tools and services in the learning process.

Recommendations for Open Educational Practices and Resources
The OLCOS Roadmap 2012 provides recommendations on measures different stakeholders from educational policy makers and funding bodies to individual teachers and students can apply to promote and support open educational practices and benefit from sharing and re-using OER.

3 Recommendations for educational policy makers and funding bodies

- Promote open educational practices that allow for acquiring competences and skills that are necessary to participate successfully in the knowledge society
- Foster the development of OER, e.g. through creating a favourable environment for Open Access to educational content
- Support the development of widely used, state-of-the-art and sustainable open access repositories
- Demand public-private partnerships to concentrate on ventures for innovating educational practices and resources

In particular, educational policy makers and funding bodies should demand that academic and educational resources that have been fully or to a larger part publicly funded are made freely

accessible under an appropriate license (e.g. Creative Commons or similar). With respect to educational open access repositories, funding criteria should demand an in-depth understanding of how an as broad as possible active usage of the repository can be established. Funding schemes should provide for a longer-term perspective, through initial funding for achieving full operation, and further funding based on a critical assessment of factual usage.

Recommendations for boards, directors and supervisors of educational institutions

- Scrutinise whether educational institutions are employing innovative approaches beyond teacher-centred knowledge transfer
- Promote sharing and re-using of Open Educational Resources and experiences from open educational practices
- Establish reward mechanisms and supportive measures for developing and sharing of Open Educational Resources and experiences
- Clarify copyrights and define licensing schemes for making Open Educational Resources available

As very critical in initiatives for OER are considered reward mechanisms and supportive measures to drive the development and sharing of resources on the institutional level. Boards, directors and supervisors will need to question established values, traditions and practices, for example, the greater value that is often attached to research than to teaching, particularly when it comes to academic promotion.

The roadmap also urges that in many institutions it is far from clear who owns IPR/copyrights and what licenses should be employed when making resources available to others. A recommendation here is that contracts of employed researchers and educators should acknowledge the IPR of authors, but require non-exclusive copyrights for the institution to make accessible educational resources under appropriate licenses.

Recommendations for teachers

- Clarify the professional role, appropriate approaches and required skills of a teacher in a knowledge society
- Employ open educational practices to help learners acquire competences for the knowledge society
- Make use of tools and services that support collaborative learning processes and learning communities
- Share proven learning designs, content and experiences through open access repositories and open licenses

In particular, teachers should change their role from dispensers of knowledge to facilitators of open educational practices that emphasise learners' own activities in developing competences, knowledge and skills. Hence, teachers should favour learning designs that make use of novel, low-barrier tools and services (e.g. Weblogs, Wikis, RSS-based content provision, etc.) for collaborative learning and sharing of ideas, experiences and study results.

The roadmap also suggests that teachers should share within a community of practice experiences, lessons learned and suggestions on how to better foster the development of students' as well as their own competences and skills. This would be part of a new understanding of teachers' professional work that includes a permanent questioning, evaluation and improvement of educational practices and resources.

Recommendations for learners and students

– Demand educational approaches that allow for acquiring competences and skills for the knowledge society
– Suggest open learning practices using new tools and services
– Develop one's own ePortfolio and make study results accessible to others
– Respect IPR/copyright of others and make one's own creative work accessible under an open content license

Students should demand educational approaches that ensure that learning experiences are real, rich and relevant, for example through addressing real world problems, working collaboratively, using new tools and information services, and critically discussing content and study results. Students will also benefit from an own e-portfolio for documenting and reflecting the progress and results of their study work, and to make results they are proud of accessible through an open access repository under an open content license (see also Attwell, Chrzaszcz, Hilzensauer, Hornung-Prähauser & Pallister 2007).

Recommendations for educational repositories

– Do not follow a top-down strategy of delivering learning objects; empower teachers and learners
– Support individual content creators and communities of practice with useful tools and services
– Make licensing of content as easy as possible
– Allow for easy discovery of and access to resources
– Assist open content initiatives in the creation of rich metadata and provide semantically enhanced access to resources

The key point with respect to educational repositories is that they should abandon the currently dominant top-down approach of trying to deliver learning objects to teacher-centred education, as this reinforces the still dominant knowledge transfer model of education and will not promote innovation in teaching and learning. Instead, repositories should promote open educational practices and empower teachers and learners to do and achieve something themselves. This is not about repository users as consumers but as potential co-creators of shared, commons-based resources.

Recommendations for developers and implementers of e-learning tools and environments

– Involve teachers and students in the development of learning tools
– Promote open educational practices through help in setting up appropriate tools
– Favour institutional learning environments that support group-based, collaborative learning practices
– Closely observe the development and consider testing of Learning Design based systems

At present there is a considerable gap between developers of e-learning tools and teachers and students. Developers should actively seek to involve teachers and students in collaborative development, which could help greatly in making tools more usable in educational contexts. In fact, for the adoption of a tool it will be important that the users develop a sense of ownership and take an interest in its further development.

Within educational institutions implementers of e-learning tools should favour environments that support collaborative, self-managed learning practices and allow for making use of a variety of information sources. Such practices do not require large, centrally managed systems; rather, they will make use of easy to implement and manage tools and services such as Wikis, Weblogs, Web-based e-portfolios, RSS feed aggregators, and others.

4   How-to Guidance through Tutorials

Besides the roadmap and recommendations, the OLCOS project developed a series of free online tutorials for practitioners. (Córcoles, Ferran Ferrer, Hornung-Prähauser, Kalz, Minguillón, Naust-Schulz & Schaffert, 2007) These tutorials provide information and guidance on how to plan, search, produce/re-use, share and publish open educational content for e-learning. In addition, an OLCOS collection has been built that presents and provides links to many online resources such as OER repositories.

To support the idea of OER, the OLCOS tutorials had to be open, free and collaboratively developed. The project team decided to use the WikiEducator project as a suitable platform to collaborate with authors external to the project and involve other interested parties. The WikiEducator is a community project "working collaboratively with the Free Culture Movement towards a free version of the education curriculum by 2015". Its technical infrastructure is supported by the Commonwealth of Learning, which is an intergovernmental organisation created by Commonwealth Heads of Government to "encourage the development and sharing of open learning and distance education knowledge, resources and technologies". (WikiEducator, 2007)

The choice of this platform has been fruitful for both parties, as can be seen from the fact that the launch of the OLCOS tutorials in September 2006 was a highlight for the WikiEducator team with an average of 1000 hits per day; today, the hits are often even higher. (WikiEducator 2007) In December 2007, Steven Downes in his Weblog named WikiEducator as "best educational wiki": "Numerous educational wikis could have taken the podium here - Curriki, Wikiversity, more. WikiEducator is chosen as the most (apparently) active of these initiatives." (Downes 2007b)

Concerning the content of the OLCOS tutorials, the basic concept is that through practical information and case descriptions the learners should be enabled to themselves solve some concrete assignments. The didactical templates of the WikiEducator (e.g. assignment, web-resources) as well as links to existing content on the Web have been used. The tutorials have been tested and evaluated in several workshops. Originally written in English, since August 2007 they also are available in German and Spanish.
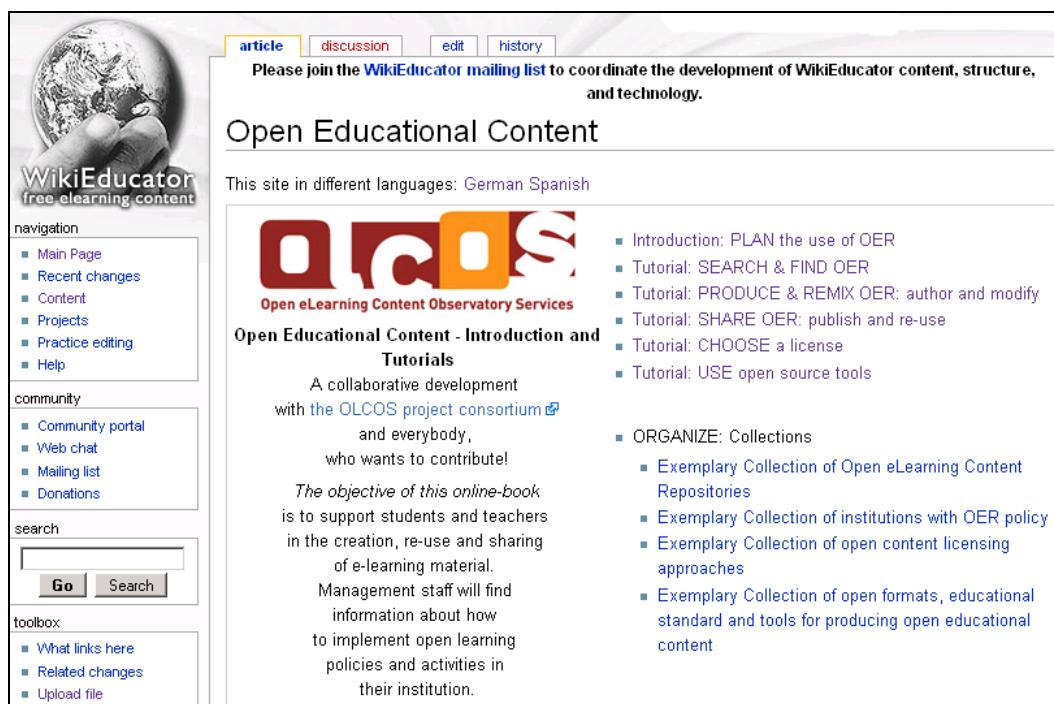

Figure 2: Screenshot of the tutorials

Users of the tutorials firstly are introduced to basic definitions and to the overall planning of didactical, technical and legal aspects. Then the tutorials show how open content practices can be developed.

The top-level topics for this development are as follows:
- Find and evaluate existing Open Content
- Create Open Content with Open Source tools
- Publish and share of the content
- Technical considerations and planning
- Legal/license considerations and planning

In the following, the tutorials are described briefly.

4.1 Introduction: PLAN the use of OER

The introductory section provides a definition of OER, information about benefits of using OER, and instruction on how to plan the (re-)use and creation of open content in the daily work of teachers, trainers, students and learners.

In addition, we present some exemplary collections of
- Open e-learning content repositories
- Institutions with OER policy
- Open Content licensing approaches
- Open formats, educational standard and tools for producing open educational content

4.2 Tutorial: Search & Find OER

The first learning scenario we use in this tutorial is the following: In a project, a group of students is working on a presentation about pollination of apples. The group is trying to find materials which they can use for a project webpage. They not only want to collect hyperlinks, but also want to re-use the materials. For this purpose they need more information and advice. The tutorial provides practical information and guidance on how to find Open Content that can be re-use in a project. It shows efficient ways of searching the Internet for relevant material and how to keep up-to-date about resources of interest.

4.3 Tutorial: Produce & Remix OER

Following the advice of the first tutorial, a user may find a course module or learning unit which fits her or his requirements very well. Usually, however, one will create own material by mixing and adapting Open Content. Therefore, it is important to be aware of what is permitted by the content creators. In addition, Open Content is often produced collaboratively, which means that several teachers and learners work together in an open process. Furthermore, this tutorial provides information on content formats that can be published as OER, tools that support this process, and how to use standards and metadata.

4.4 Tutorial: Share OER

There are many possibilities to publish and to share Open Content. But one should bear in mind that employers might have interests and rights in one's work. This means that authors may have to ask before publishing their work as Open Content. This tutorial provides information and practical tasks in publishing and sharing OER, and how to facilitate the sharing of the new content by using suitable formats, licenses, educational metadata, and visibility strategies.

4.5 Tutorial: Choose a License

Before authors publish their content or before they start to build up a collaborative community creating Open Content, they should decide about the legal requirements for re-using the learning material. This is needed, because the established international copyright requires to ask the owner of the copyright of the material for permission to use, copy, modify the content, and to enter into a contractual relationship. With an Open Content licensing scheme such as Creative Commons the authors and users can benefit in several ways: From clear descriptions of the rights of the author(s) and the users, licensing formulations which are approved by legal practitioner, the awareness level of the license and the possibility (for others) to more easily discover the content with the most popular search engines. This tutorial provides information and practical tasks for choosing one of the most common licensing models, the Creative Commons licenses, and how they can be attached to learning materials.

4.6 Tutorial: Use open source tools

Open Source Software is based on and supports open standards and, hence, particularly suits the creation of Open Educational Content. As ever more such tools become available, this tutorial provides information about other services and lists that offer useful overviews and recommendations on which tools to use for particular purposes.

5 Summary

Open Educational Resources (OER) can be an important element of policies that want to leverage education and lifelong learning for the knowledge society and economy. The urgency of the lifelong learning agenda in Europe and beyond makes OER initiatives targeted at driving participation particularly welcome. The OLCOS road mapping work was conducted to provide decision makers with an overview of current and likely future developments in OER and recommendations on how various challenges in OER can be addressed.

In particular, OLCOS emphasises that besides offering OER it is crucial to also promote innovation and change in educational practices. Because delivering OER to the still dominant model of teacher-centred knowledge transfer will have little effect on equipping teachers, students and workers with the competences and skills to participate successfully in the knowledge society and economy. Teachers should change their role from dispensers of knowledge to facilitators of open educational practices that foster learners' own activities in developing competences and skills.

Today the digital environment offers many opportunities for a creative and collaborative engagement of learners with digital content, tools and services in the learning process ("e-learning 2.0" instead of "click & learn"). One such opportunity is the collaborative creation, evaluation and sharing of open content and learning experiences. A new generation of easy-to-use Web-based tools and services, e.g. Wikis, Weblogs, platforms for content sharing, RSS-based content provision, makes this easier then ever before.

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