An Expert Survey on the Barriers and Enablers of Open Educational Practices

Author

Stefanie Panke
Director of E-Learning
Ulm University
stefanie.panke@uni-ulm.de

Tags

informal learning, open educational resources, expert survey, personal learning environments

This paper is a report on the findings of a literature review and an expert survey conducted in December 2010 with a self-selected panel. A total of 19 participants were recruited through the UNESCO OER mailing list and the Educational Technology and Change Journal. The findings depict current issues for debate, pinpoint potential obstacles and benefits of OER, and point towards future policy and research agendas. The respondents defined several challenges for the widespread adoption and use of OER that correspond to findings from the literature review. These challenges include: intercultural exchange, sustainable institutional policies, and formal accreditation. Despite the benefits of OER, such as sharing with other learners, following personal learning goals and encountering different points of view, learners continue to struggle to find relevant content and receive little or no recognition of their informal studies in more formal settings. Both teachers and students lack competencies for self-directed learning. Dialogue about OER needs to shift away from discussing access to materials and should look at how to foster co-creation, adaptation, and distributed curation.

1. Introduction

The term "open educational resources (OER)" was coined in 2002 during a forum held by the UNESCO 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." Leveraging information technologies (ICT) to equalize access to education has ever since been a core motivation for the OER movement – "*eliminate the access gap to high-quality education in the developing world*" (Pereira, 2007, 42). In the last decade, the concept has gained an undeniable momentum. In their report on OER achievements and challenges, Atkins, Brown & Hammond (2007) estimate a total of 68 million OER grants between 2002 and 2006. In 2010, the Horizon Report, which identifies emerging technologies likely to have a large impact on teaching and learning, described "Open Content" as a key trend, expected to reach mainstream within the next twelve months. In the fall of 2010, UNESCO initiated an international online discussion on OER-related topics. The "European Consultative group on Open Educational Practices" currently develops a roadmap towards quality management in OER (OPAL, 2010).

As these examples show, the idea of educational material, freely and openly accessible on the Web, attracts substantial attention. One major reason why the concept of open educational resources has gained such prominence is the everyday-experience of informal and incidental online learning shared by practitioners and researchers alike. Easy-to-use tools and wide access to networks make informal learning a more visible part of all learning (Kurhila, 2006). We use the World Wide Web as a convenient part of our everyday information infrastruc-

ture - in private contexts, for scientific purposes, in schools and universities, and at the workplace. Search engines and directories are often the starting point for navigating the World Wide Web. But where do users end up in their quest for easily accessible, yet valuable content? At this point, the open access to educational resources purposes becomes crucial to support the need for lifelong learning opportunities. The idea is as simple as it is convincing: Free access to educational material facilitates learning. As Elia Tomadaki from the British OpenLearn project pointed out: *With open learning, people have greater access to higher education material than ever before, at their pace and time and from anywhere in the world* (Scott & Tomadaki, 2007). Many scholars, journalists and educational practitioners predict OER to be a disruptive technology: *Open courseware is a classic example of disruptive technology […] an innovation that comes along one day to change a product or service* (New York Times, 8. April 2010). As Beck (2007) puts it: *Opening educational resources is an action that will take education to a new place* (3). A general consensus on the scope and classification of the term OER is yet to be found. Goertz and Johanning (2007) conclude that the design of OER-portals is extremely heterogeneous. Also, numerous projects are in accordance with the goals of the OER movement, without explicitly adopting the label. While it is difficult to give a clear-cut definition of OER, the following examples provide an overview of the variety of projects and their respective scope (Johnstone, 2005; OEDb, 2007; Stella, 2010; Butcher, 2010):

Source	Organisation	Launch	Scope	URL
OpenLearn	OU UK	2005	NN	http://openlearn.open.ac.uk
Connexions	Rice University	2000	16000 learning objects	http://cnx.org/
OpenCourseWare	Consortium of 250 institutions	NN	2500 courses	http://www.ocwconsortium.org/
MERLOT	Professional community	2003	22 500 learning objects	http://www.merlot.org
China Open Resources for Education	150 Chinese universities	NN	450 courses	http://www.core.org.cn/en/
University of the People	Non profit venture	2008	2 degree programs	http://www.UoPeople.org
ParisTech OCW	11 French universities	2006	130 courses	http://graduateschool.paristech.fr/
iTunes U	Apple	2007	350.000 learning objects	http://www.apple.com/education/itunes-u/
WikiEducator	OER foundation, community	2006	open Wiki environment	http://wikieducator.org/
MIT Open Courseware	MIT	2001	2000 courses	http://ocw.mit.edu
Japanese OCW Alliance	7 Japanese universities		140 courses	http://www.jocw.jp/
Open Learning Initiative (OLI)	Carnegie Mellon University	2002	11 courses	http://oli.web.cmu.edu/openlearning/
Teacher Education in Sub-Saharan Africa (TESSA)	Consortium of 18 African institutions	2005	Material on teacher education	http://www.tessafrica.net
OER Africa	Consortium, Repository, Research	1992	research reports on OER, various learning objects	http://www.oerafrica.org
JORUM	Repository	2007	9000 learning object packages for HE	http://www.jorum.ac.uk

Table 1: Open Educational Resources around the World: Initiatives and Repositories

Background

The public perception that anything open or "free" is of inferior quality proves to be a barrier to the widespread use of OER. Despite pre-conceptions that may or may not be justified, teachers and students understandably pose the question: "Are the materials worth searching for?" Providing educational material openly to large numbers and a diverse audience of teachers, students and informal learners requires a broad "minimum consensus" on innovative pedagogy and respective evaluation frameworks. What theoretical considerations account for the assumption that learners profit from OER in the first place? The theoretical framework can build on concepts such as learner autonomy (Bouchard, 2009), self-efficacy (Bandura, 1997), open-ended learning environments (Land & Hannafin, 1996) and cognitive flexibility theory (Spiro at al., 1992). OER provide the building-blocks to construct personal learning environments (PLE) - "*a metaphor to describe the activities and milieu of a modern online learner*" (Martindale & Dowdy, 2010). PLEs comprise tools, communities, and services learners use to direct their own learning and pursue educational goals (Educause, 2009, Couros, 2010) and *migrate the management of learning from the institution to the learner* (Downes, 2007).The concept of OER is promising not only for the individual learner, but also for the learning organization : As universities make strategic decisions to increase their levels of investment in design and development of better educational programs, the cost effective way to do this is to embrace open licensing environments (Butcher, 2010). Strategic alliances allow universities to develop high-quality open content in key subject and disciplinary areas (see Table 1). At the same time, using OER poses several challenges to self-organized learners and learning organizations:

- **Balance between *globalism and localism*** (Osei, 2010): OER nurtures utopian visions of greater equality in the educational system worldwide. However, there is potentially an element of neo-colonialism the promotion of OER developed elsewhere. "Sharing across different cultures raises a challenge on its own" (Madiba, 2008). Local content development is crucial in order to avoid the risk of training students who are useful for other markets rather than providing education and training that is relevant to the regional conditions and demands.

- **Policy frameworks**: Many "one off" attempts to OER are destined to fail because there is no framework of sustainability. Issues to be addressed are intellectual property, recompensing staff contributions and incentives for creating OER materials. Petrides & Jimes (2006) see institutional hierarchies and the proprietary nature of educational content as barriers to content provision. This idea of ownership skews institutional motivation for implementing OER and establishing measurements for success (Helsdingen, Jansen & Schuwer, 2010).

- **Filtering**: The quantity of OER poses problems in itself - filtering what is useful and applicable to the individual learner's needs can be a large task. Various search facilities were developed to allow users to search for relevant OER. For example, the Commonwealth of Learning (COL) provides a Google custom search (http://www.col.org/resources/crsMaterials/Pages/OCW-OER.aspx) and the widget Folksemantic (http://www.folksemantic.com) allows for including related OER material into any given Web site.

- **Reuse**: In higher education institutions are commonly wary of augmenting and reusing learning materials. Training teachers in creating, sharing and reusing OERs is a critical issue for the OER movement. At the University of Nottingham, the local e-learning center regularly offers workshops to promote the use and re-use of OER materials (http://www.nottingham.ac.uk/toolkits/play_2588). Another example currently under development is part of the OpenLearn project: http://labspace.open.ac.uk/course/view.php?id=5732

- **Learner Competency**: Given that "*the level of adoption of OERs into common teaching practices remains quite low*" (De Liddo, 2010), many university students are unaware of open learning opportunities or struggle to negotiate and integrate open educational resources with the formal, institutionalized parts of their education. Making effective use of OER in instructional contexts requires strategies to support coherence formation to integrate multiple representations from multiple sources (Seufert, 2003).

- **Assessment and accreditation**: How can self-organized learners bridge their open learning experiences and their formal accreditation needs? Findings from a survey on the OpenLearn environment indicate that users value the content that OpenLearn provides but desire means of integrating standardized (?) assessment components (Godwin and McAndrew, 2008). How to assess student activities in open learning environments remains an open question (Reinmann, 2007).

The Survey

Based on a systematic review of research literature and mailing lists, I created an online expert survey to reflect and share expertise and experiences of open educational resources. While the benefits of the use of online surveys for conducting research include speed of response, low cost, and ease of design; this method has some inherent limitations due to "limited coverage, sampling, non-response, and measurement" (Wang & Doong, 2007, p.3). Respondents chose whether or not to participate in the study, thereby introducing bias and limiting the population sample. The uncertainty surrounding non-response rates makes rigorous validity and statistical analysis difficult (Wang & Doong, 2007). Accordingly, the research design is exploratory and seeks to gather preliminary information to illuminate the phenomenon. The focus of the study is not to draw representative picture, but to invite researchers and practitioners to share their ideas. To this end, an online questionnaire was administered, using the software oFB (https://www.soscisurvey.de/). The questionnaire comprised 26 questions and covered demographic data, personal experience and involvement with OER, opinions about learning potential and barriers of usage as well as directions for research and policy agendas (https://www.soscisurvey.de/oer-forum). The link to the online questionnaire was distributed in December 2010 among the forum participants of the UNESCO mailing list discussion "Taking OER beyond the OER community" (http://oerworkshop.weebly.com/) and the readership of Educational Technology and Change Journal (http://etcjournal.com/).

Findings

A total of 19 respondents completed the questionnaire. The participants were between 27 and 70 years old; 53% female, 59% male; and from various countries: Canada (4), Iran, Malaysia, Mauritius, Netherlands, Pakistan, South Africa, Sweden, UK and USA (5). The majority of respondents represented a traditional campus or online university (University of Regina, Open Universiteit (?), State University of New York/Empire State College, Lund University, Wawasan Open University, Allama Iqbal Open University Islamabad Pakistan, Purdue University Calumet, University of Mauritius, University of the Witwatersrand, The Open University UK). In addition, several not-for profit organizations and a research and development institution ("National Research Council Canada") were represented in the sample. One respondent had a company background ("Education and Training Solutions"). With regards to professional experience, participants were active in the fields of educational research (10), instructional design (9), university teaching (8), community college teaching (1), members of OER initiatives (2) students (1), and educational consultancy (1). The majority (12) has been involved in both the design of OER material and training of producing / using OER.

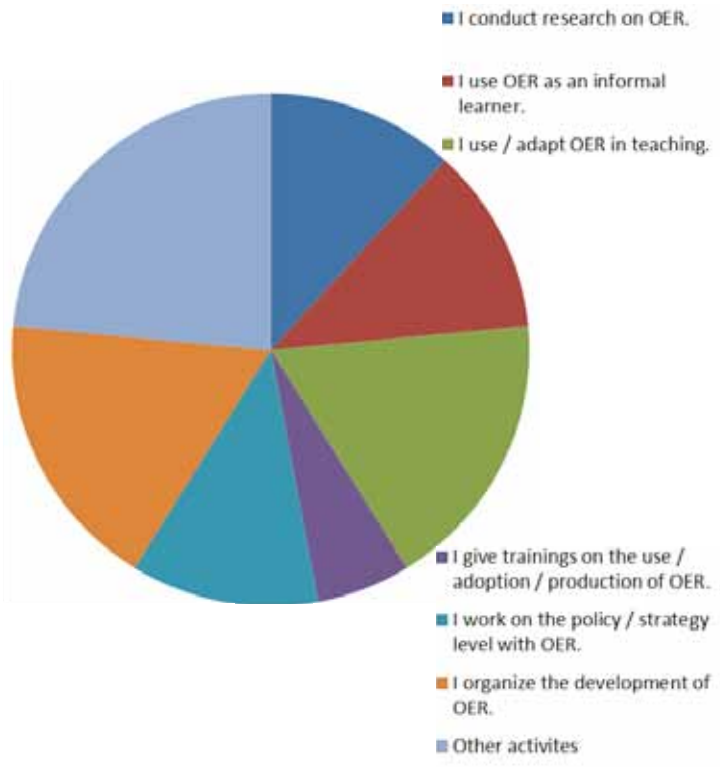

Figure 1: Describe your experience with OER (n=19).

The participants were asked to identify open educational resources they use as a) learners and b) instructors.

a) For personal learning purposes, the respondents named the resources cnx.org, connect.downes.ca, creativecommons.org, doaj.org, E-Books by AU Press, hippocampus.org, iberry.org, iTunes U, MERLOT, oercommons.org, oerconsortium.org, Online Journal of Distance Learning Administration, OpenLearn, p2pu.edu, Slideshare, tecfa.unige.ch, Wikibooks, Wikieducator, Wikipedia, Youtube and zunia.org.

b) For teaching purposes, the respondents listed cnx.org, archive.org, doaj.org, flatworldknowledge.com, Flickr, florida.theorgangegrove.org, Google E-Books, hippocampus.org, i-jim.org, MERLOT, OCW.use.edu, oercommons.org, p2pu.org, pedagogy.ir, Slideshare, Wikibooks, Wikieducator and Youtube.

What are the benefits of learning with OER? (not important at all=1, very important=5), n=17	Mean	STD
Following personal learning goals.	4,3	0,704
Encountering different points of view.	4,2	0,752
Sharing with other learners.	4,5	0,717

What are the problems of learning with OER? (not important at all=1, very important=5)	Mean	STD
Language barriers	2,4	1,21
Finding relevant content	4,1	0,82
Organizing one's own learning process	3,5	1,06

Table 2 a/b: Benefits and Barriers of OER

Sharing with other learners, following personal learning goals and encountering different points of view were seen as important benefits of OER. Other advantages mentioned were the support of life-long learning, no/low costs, and the instructional quality of the material (i.e. encouraging collaboration, encountering other cultures). The main problem for learning with OER was identified as "finding relevant content." Other problems included the recognition of informal studies, the inability to edit PDF-documents, and lack of learner competency for self-directed learning. As one participant puts it: "*I have few problems organizing my own learning process, but I think students do because there is so much out there and it is hard to prioritize. I want to work … on making the conversion of knowledge gained through OER's more convertible to college credit.*"

15. From your point of view, who profits most/least from OER? Order groups according to profit (top = most, bottom = least) [ET 19]

Informal learners	Students	1
Teachers	Human Resources Departments	2
Educational Researchers	Textbook Publishers	3
		4
		5
		6

Figure 2: Sorting question

Asked to estimate who profits most resp. least from OER (fig. 2) the majority of participants saw major benefits for informal learners, students and teachers; whereas, textbook publishers profit least. Important benefits for informal learners included on demand learning, choices about the kind of content, and low/ no cost of access: *Having a world of information available for free*. Students within an institution can use OER to find different perspectives other than the one being given in the classroom and are able to research the subject in depth. Also, prospective students gain orientation from OER: "*Opening up the content would allow prospective students to have an apercu of the level of the courses and of course it would bring up the level of the teaching.*"

Some participants pointed out that the clear-cut distinction of formal education and informal learning insufficiently describes the practices of today's learners.

"*The lines between formal and informal learning have blurred. In many ways, informal learners are more likely to be able to learn things they want or need to know faster and better than formal learners since they already understand that much of the responsibility of organizing and following through with successful learning experiences is on their shoulders. As the educational enterprise grows more and more disaggregated, especially courtesy of OER, the supposed distinction between formal and informal learning will disappear.*"

"*For individuals, whether as formal students, doing non-formal work related training or being self-directed lifelong learners studying informally, the greater availability and accessibility of resources has been found to help them to (in no particular order): Learn new things or enrich other studies; share and discuss topics asynchronously or synchronously with other learners; assess whether they wish to participate in (further) formal education; decide which institution they want to study at; improve their work performance; create or revise OER themselves.*"

Despite these potentials, the respondents see several challenges for the widespread adoption and use of OER that correspond to findings from the literature review and center around the issue of content provision. What structures and processes should be in place for higher education institutions to be able to create and manage OER? Are institutional contributions integral? Or should OER rely on the work of enthusiasts building tools and content units in their spare time? Regarding funding, one participant advises to seek sustainable funding from within the institution: "*Stay away from government and meta-government funding (i.e. UNESCO and Commonwealth of Learning) as much as possible to avoid over bureaucratization. Use private foundation, institutional membership, and private individual funding as much as possible to maintain flexibility.*" Cross-institutional development can save resources: "*Convert from individually designed courses to collaboratively designed OER courses that then can be adapted to the needs of individual institutions*".

What are the main challenges for taking OER beyond the OER community? (very true=1, not true at all=5)		
	Mean	STD
Teachers lack knowledge about OER.	2,00	1,323
Teachers lack incentives to produce OER.	2,12	1,054
OER initiatives lack financial sustainability	2,18	1,185
Students lack knowledge about OER.	2,18	1,380
There is no shared pedagogical understanding for effectively developing OER.	2,29	1,359
Teachers lack incentives to use OER.	2,65	1,272
OER material is too Anglo centric.	2,71	,772
Copyright restrictions hinder the development of OER.	2,71	1,263
There are not enough quality controls for effectively filtering OER.	2,82	1,131
There is too much OER material and it is hard to find relevant resources.	3,00	1,369
There is not enough OER material and it is hard to find relevant resources.	3,06	1,249
Students lack incentives to use OER.	3,18	1,380

Table 3: Benefits and Barriers of OER

Success factors and challenges on the institutional policy level include licensing of OER, effective tutoring and administrative support:

- *"Realizing that the content is not the most important but the tutoring and administrative support is the most important."*
- *"Content created by the repository staff is licensed under the Creative Commons- BY NC SA whenever possible."*
- *"The OER policy is that OER are free to use and adapt, but the institution does not use a CC license due to the challenge of explaining the nature of those licenses to potential contributors (members) to the organization."*
- *"A curious contradiction is occurring: as we learn more about OER and become more adept at using it, there is a counter force having more control, prescriptiveness and demands over specific published copyright material that is to be used."*

What should be done to foster OER through national policies? Several participants see their national policies already favorable towards open practices. *I could not say for sure but in general, educational content created using US grant dollars is open access*".

"There is no national OER policy. More and more, fortunately, we are seeing that certain government (both federal and state) agencies are encouraging (and, rarely, requiring) that government-funded resources be openly licensed. I am hopeful that this trend will accelerate, and in the future I would hope that there is a popularly understood requirement that all publicly funded materials must be released to the public domain, or perhaps with an IP license that allows unfettered redistribution and adaptation, even for commercial purposes, by anyone."

"There is no single OER policy but a range of policies and funding programs are supportive of OER, mostly at higher education level. There is a trend towards open publication being the expected norm of much public grant funding. However reviews of copyright laws do often go counter to this trend."

Perceived as problematic are the attitude of academics and the accreditation of informal learning. ("*Progressive at the national policy level; lots of countercurrent where academics are concerned"; "Self learning in this country doesn't help in terms of a degree unless you can get a certificate and then apply it to a university or college that evaluates and accepts life credits*").

Asked about potential international initiatives to support OER, ideas include infrastructures for cross-institutional development, repositories and overcoming licensing barriers.

- *"Web conference room where motivated people could develop materials together, share ideas, etc."*
- *"Funding provided by interested countries to support a world wide database for the sharing of educational resources, harvested resources of open educational resources would be available, membership for contributing resources would be open to any individual from the member countries AND individuals outside of these countries. Outside membership would require the person to contribute a 'number' of resources in place of a fee."*
- *"Internationally, the key barrier to the growth of OER is the lack of legally interoperable terms. CC licenses partially resolve this problem, but even they are too legalistic in form and suffer from myriad addendums and constraints according to the specific laws in each jurisdiction. The international OER community should simply generate a new way of managing IP which applies social norms, rather than legal constraints, to motivate the behavior we seek and unlock the potential for OER globally.*

From your point of view, what should future research focus on? (very true=1, not true at all=5)		
	Mean	STD
We need to develop trainings for teachers on making effective use of OER.	1,53	1,06
We need to develop trainings for students on making effective use of OER.	1,87	0,83
We need more research on intercultural learning with OER.	1,87	1,13
We need new pedagogical approaches for open learning environments.	2	1,13
We need research on the effective development of OER.	2,07	1,03
We know too little about how teachers use OER in the classroom.	2,15	1,28
We know too little about how informal learners interact with OER.	2,33	1,44

Table 4: Research Perspectives

With regards to research (Table 4), training and intercultural learning are priorities: "*develop self-directed learning techniques for students to use OER efficiently, create easily accessible paths for teachers to develop and use OER.*" Respondents see the potential to innovate through OER to support teaching and research: "*We want to find ways to use OER to creatively help our students, to contribute to our own community service mission around the world, and to collaborate with others to increase the quality of our own online course offerings.*" When the roles of professors, tutors, administrators, and students are distinct and embedded, users may lack the confidence or capacity to contribute to OER. There is a need to "*shift the dialog about OER away from access to materials and towards co-creation, adaptation, and distributed curation*". Understanding the ideas and concepts related to open education and the ability to actively participate in creating and sharing OER are crucial elements for the success. "*The OER movement will only succeed if anyone in the world both understands and is empowered to become a meaningful participant in building the educational commons*".

Conclusions

Today's learners ride the open frontier between formal and informal learning. As educational content is increasingly available for free over the Internet, making effective use of informal and incidental online learning opportunities has become a challenge for students, teachers, researchers and self-organized learners. With growing repositories of online educational material and social software, learners may interact with different digital representations, and apply new forms of self-assessment.Current research usually focuses on benefits of OER at the institutional and organizational level as well as models for the sustainable production and provision. To fully understand the concept's role in informal as well as institutional learning, we need to shift our attention towards the learners' use and adoption of OER (comp. Atkins, Brown & Hammond, 2007 "*culture of contribution*"). Information is everywhere; but how can learners actively make sense of their everyday information ecology and contribute to their learning environment? To adequately inform instructional design practice, we need empirical studies, training programs and theoretical frameworks that address effective self-organized learning strategies for open environments. As one of the respondents points out: "*How we learn determines the kind of society we build*".

References

Atkins, Brown & Hammond (2007). A Review of the Open Educational Resources (OER) Movement: Achievements, Challenges, and New Opportunities. http://www.oerderves.org/wp-content/uploads/2007/03/a-review-of-the-open-educational-resources-oer-movement_final.pdf

Bandura, A. (1997). *Self-Efficacy: The Exercise of Control.* New York, NY: Worth Publishers.

Beck, J. (2007). Introduction to Special Issue on Open Educational Resources. *Educational Technology, 47 (6)*, pp. 3-5

Bouchard, Paul (2009). Some Factors to Consider When Designing Semi-Autonomous Learning Environments. *European Journal of E-Learning 7, (2)*.pp. 93-100

Butcher, N. (2010) Open Educational Resources and Higher Education. http://oerworkshop.weebly.com/uploads/4/1/3/4/4134458/03_open_educational_resources_and_higher_education.pdf

Couros, A. (2010). Developing Personal Learning Networks for Open and Social Learning. In G. Veletsianos (ed.). Emerging Technologies in Distance Education. Athabasca University Press. pp. 124-128

De Liddo, A. (2010). From Open Content to Open Thinking. In *Proceedings of World Conference on Educational Multimedia, Hypermedia and Telecommunications 2010* (pp. 3178-3183). Chesapeake, VA: AACE.

Downes, S. (2007). Models for Sustainable Open Educational Resources. Interdisciplinary Journal of Knowledge and Learning Objects, 3. http://www.ijklo.org/Volume3/IJKLOv3p029-044Downes.pdf

Educause (2009). 7 Things you should know about PLE's. online: http://net.educause.edu/ir/library/pdf/ELI7049.pdf

Godwin, S. & McAndrew, P. (2008). Exploring User Types and What Users Seek in an Open Content Based Educational Resource. In *Proceedings of World Conference on Educational Multimedia, Hypermedia and Telecommunications* (pp. 3711-3718). Chesapeake, VA: AACE.

Goertz , L. & Johanning, A. (2007). OER – Deutschlands Hochschulen im internationalen Vergleich weit abgeschlagen? M. Merkt, K. Mayrberger, R. Schulmeister, A. Sommer & I. van den Berk (eds.). *Studieren neu erfinden – Hochschule neu denken* (pp. 253-263). Münster: Waxmann.

Helsdingen, A.S., Janssen, B. Schuwer, R. (2010). Business Models in OER, a Contingency Approach. *OpenEd Conference 2010*, Barcelona.

Hennis, T., Veen, W. & Sjoer, E. (2008). Future of Open Courseware; A Case Study. In J. Luca & E. Weippl (Eds.), *Proceedings of World Conference on Educational Multimedia, Hypermedia and Telecommunications 2008* (pp. 686-696). Chesapeake, VA: AACE.

Johnstone, S.M. (2005). Open Educational Resources serve the world. *Educause Quartely* (3), pp.15-18

Kurhila, J. (2006). "Unauthorized" Use of Social Software to Support Formal Higher Education. In T.C. Reeves, & S.F. Yamashita (Eds.), Proceedings of the E-Learn 2006. Association for the Advancement of Computing in Education (pp. 2602-2607). Chesapeake, VA: AACE.

Land, S.M., & Hannafin, M.J. (1996). A conceptual framework for the development of theories-in-action with open-ended learning environments. *Educational Technology Research & Development*, 44 (3), 37-53.

OPAL (2010). OER Case studies. http://cloudworks.ac.uk/cloudscape/view/2085

Madiba, M. (2008). Landscaping e-learning research agenda in the light of Open Educational Resources. In C. Bonk et al. (Eds.), *Proceedings of World Conference on E-Learning in Corporate, Government, Healthcare, and Higher Education 2008* (pp. 1030-1035). Chesapeake, VA: AACE.

NMC / Educause (2010). Horizon Report. http://wp.nmc.org/horizon2010/

McGuire, M. (2010). Using Podcasting and Blogging to Create and Share Open Educational Resources. In *Proceedings of World Conference on Educational Multimedia, Hypermedia and Telecommunications 2010* (pp. 1536-1544). Chesapeake, VA: AACE.

Osei, P.D. (2010, September 23rd). Posting on the mailing list "Taking OER beyond the OER community".

OEDb (2007) 80 Open Education Resource (OER) Tools for Publishing and Development Initiatives. Online Education Database. http://oedb.org/library/features/80-oer-tools

Richards, G., Marshall, S., Elias, T., Quirk, D., Ives, C. & Siemens, G. (2010). Developing University Courses with OERs. In *Proceedings of World Conference on Educational Multimedia, Hypermedia and Telecommunications 2010* (pp. 1069-1073). Chesapeake, VA: AACE.

Seufert, T. (2003). Supporting coherence formation in learning from multiple representations. *Learning and Instruction*, 13, 227-237.

Spiro, R.J., Feltovich, P.J., Jacobson, M.J., & Coulson, R.L. (1992). Cognitive flexibility, constructivism and hypertext. In T. Duffy & D. Jonassen (Eds.), Constructivism and the Technology of Instruction. Hillsdale, NJ: Erlbaum.

Pereira, M. (2007). Open Educational Resources: A Bridge to Education in the Developing World. Educational Technology Nov-Dec. pp. 41-43.

Petrides, L. & Jimes, C. (2006). Open Educational Resources: Toward a New Educational Paradigm. iJournal (14). http://www.ijournal.us/issue_14/ij_14_04_articleframe_Petrides_Jimes

Reinmann, G. (2007). Bologna in Zeiten des Web 2.0. Assessment als Gestaltungsfaktor (Arbeitsbericht Nr. 16). http://imb.phil.uni-augsburg.de/imb/system/files/Arbeitsbericht16.pdf

Richards, G., Marshall, S., Elias, T., Quirk, D., Ives, C. & Siemens, G. (2010). Developing University Courses with OERs. In *Proceedings of World Conference on Educational Multimedia, Hypermedia and Telecommunications 2010* (pp. 1069-1073). Chesapeake, VA: AACE.

Reynolds, T. (2009). Corroboration, Association and the Vetting of Open Education Resources. In T. Bastiaens et al. (Eds.), *Proceedings of World Conference on E-Learning in Corporate, Government, Healthcare, and Higher Education 2009* (pp. 1879-1883). Chesapeake, VA: AACE.

Stella, A. (2010). Quality in higher education and the role of quality teaching and learning materials. http://oerworkshop.weebly.com/uploads/4/1/3/4/4134458/02_oer_and_quality_assurance_challenges.pdf

Stacey, P. (2007) Open educational resources in a global context. First Monday, (12, 4). http://firstmonday.org/issues/issue12_4/stacey/index.html

Wang, H. & Doong, H. (2007). Validation in Internet Survey Research: Reviews and Future Suggestions. Paper presented at the 40th Hawaii International Conference on System Sciences, Hawaii.

Edition and production

Name of the publication: eLearning Papers
ISSN: 1887-1542
Publisher: elearningeuropa.info
Edited by: P.A.U. Education, S.L.
Postal address: c/Muntaner 262, 3r, 08021 Barcelona (Spain)
Phone: +34 933 670 400
Email: editorial@elearningeuropa.info
Internet: www.elearningpapers.eu