



## **International Journal of Research in Education and Science (IJRES)**

### **Advantages and Limitations of Usage of Open Educational Resources in Small Countries**

**Elena Krelja Kurelovic**  
Polytechnic of Rijeka, Croatia, elena@veleri.hr

[www.ijres.net](http://www.ijres.net)

#### **To cite this article:**

Krelja Kurelovic, E. (2016). Advantages and limitations of usage of open educational resources in small countries. *International Journal of Research in Education and Science (IJRES)*, 2(1), 136-142.

This article may be used for research, teaching, and private study purposes.

Any substantial or systematic reproduction, redistribution, reselling, loan, sub-licensing, systematic supply, or distribution in any form to anyone is expressly forbidden.

Authors alone are responsible for the contents of their articles. The journal owns the copyright of the articles.

The publisher shall not be liable for any loss, actions, claims, proceedings, demand, or costs or damages whatsoever or howsoever caused arising directly or indirectly in connection with or arising out of the use of the research material.

## Advantages and Limitations of Usage of Open Educational Resources in Small Countries

Elena Krelja Kurelovic\*  
Polytechnic of Rijeka, Croatia

### Abstract

Educational resources in the competitive world of higher education were often considered as key intellectual property, so access to those resources was restricted to privileged groups of students and professors, which is unacceptable in today's networked society. Today, an increasing number of institutions and individuals share such digital resources via the Internet free of any legal, financial or technical barriers. Open Educational Resources (OER) are the right way which enables free and accessible education to everyone and access to knowledge as public good. OER cherish the culture of participation, collaboration and sharing and with an open access to scientific information it brings a notable contribution in knowledge society development. The implementation of OER has certain limitations, in particular for small countries which use a non-English language, have limited resources and support to customize and create OER, their educational practice is founded on traditional teaching methods with occasional use of digital contents and ICT. The awareness raising and positive attitudes about OER are the first important step towards its acceptance. The empirical part of this paper is analysing attitudes toward OER among the scholars at few smaller public faculties in Croatia and their practice of sharing knowledge and teaching materials.

**Key words:** Open Educational Resources; Teaching materials; Share; Creative Commons

### Introduction

Access to information and knowledge are the fundamental right of every human, but this is not always achieved without limitations. Teaching and learning resources in the competitive world of higher education were often considered as key intellectual property accessible exclusively to privileged groups of students and professors. Today, an increasing number of institutions and individuals share such digital resources via the Internet free of any legal, financial or technical barriers. With Open Educational Resources (OER) education can become accessible to everyone who want to learn, while teachers have the opportunity to enrich their teaching practice. The beginning of the open access in education was marked by the OpenCourseWare (OCW) initiative of the Massachusetts Institute of Technology (MIT) which uploaded most of their course materials on the Web in 2001, thus making them accessible worldwide and free of charge. Their example was followed by numerous world-renowned universities which, in this way, extended their influence both within the academic community and among those who wish to learn. Although exchange of educational resources is not a new phenomenon, the concept of Open Educational Resources was mentioned for the first time in 2002 at the UNESCO Forum on Open Courseware for Higher Education, emphasizing the idea of free sharing of knowledge and digital teaching, learning and research materials (Butcher, 2011; Poposki, 2010). Open Educational Resources (OER) encompass any educational and research resources including curriculum maps, course materials, entire and parts of e-courses, lessons plans, learning materials, textbooks, audio and video records, simulations, experiments, multimedia content, applications and games, and any other materials that have been designed for use in teaching, learning and researching that are openly available for use without an accompanying need to pay fees (Butcher, 2011; Groom, 2013).

Furthermore, the concept of Open Educational Resources does not refer only to teaching and learning material, but includes software and tools which enable development, usage, adaptation and sharing of teaching/learning content, learning management systems (such as e.g. Moodle), tools for the development of learning communities and resources required for the implementation of the above-mentioned items, such as open licences (OECD, 2007). The most important documents which bring guidelines and recommendations for a wider acceptance of open learning resources are the Cape Town Open Education Declaration (2007), the Dakar

---

\* Corresponding Author: *Elena Krelja Kurelovic, elena@veleri.hr*

Declaration on Open Educational Resources (2009), the Commonwealth of Learning and UNESCO Guidelines on Open Educational Resources in Higher Education (2011) and the Paris OER Declaration (2012).

When someone puts their lesson plan or presentation on the Internet, those materials are copyright protected and others cannot share or modify them in any way, unless they have permission from author (copyright owner) or author makes them open. The main feature of the Open Educational Resources is that they can be freely and legally downloaded, adapted, remixed and used to create new ones while their authors retain credit for original creation, which allows the Creative Commons (CC) licences (Butcher, 2011; Klang, 2008). This is how the OER differ from other digital teaching and learning resources available on the Internet. "An OER is simply educational resource that incorporates a licence that facilitates reuse, and potentially adaptation, without first requesting permission from the copyright holder" (Butcher, 2011). With regard to educational resources, the UNESCO recommends two types of Creative Commons licences: CC-BY licence with author attribution, which allows for unlimited forms of use of the OER subject to giving credits to the author of the original. The second is the CC-BY-SA licence with the Share-Alike attribution, which requires that all derivative works be shared under the same conditions, thus augmenting the number of Open Educational Resources. The spreading of OER was further influenced by the idea of Tim O'Reilly on collaborative creation of contents and interaction within virtual communities of interest, with this idea being in the background of Web 2.0. applications, thus placing emphasis on the process of learning, not just its end result. In addition, OER cherish the culture of participation, collaboration and sharing in learning and creating of knowledge; together with an open access to scientific information and open source software, the OER brings in a notable contribution to economy based on knowledge and knowledge society.

### Usage of Open Educational Resources

Massive Open Online Courses (MOOCs), open digital textbooks and video lectures are most popular open educational resources. The greatest number of Massive Open Online Courses (MOOCs) in Europe is provided in Great Britain (234 courses), followed by France (137 courses) and Germany (111 courses), as shown in Figure 1. At the global level, 27% of MOOCs originate from the USA, 17% from India, 13% China, 4% from Great Britain, Australia and Canada each, while the remaining 31% come from other countries (<http://www.moocs.co/>). Accordance to this, mostly OERs in well-known repositories are on English language: in OER Commons 96%, in Curriki 94%, in Merlot 89%, in Coursera 70% of courses are on English and on edX 83%. But, MIT OpenCourseware repository, like leader in OER initiative, has some translated courses and other educational materials into at least 10 languages.

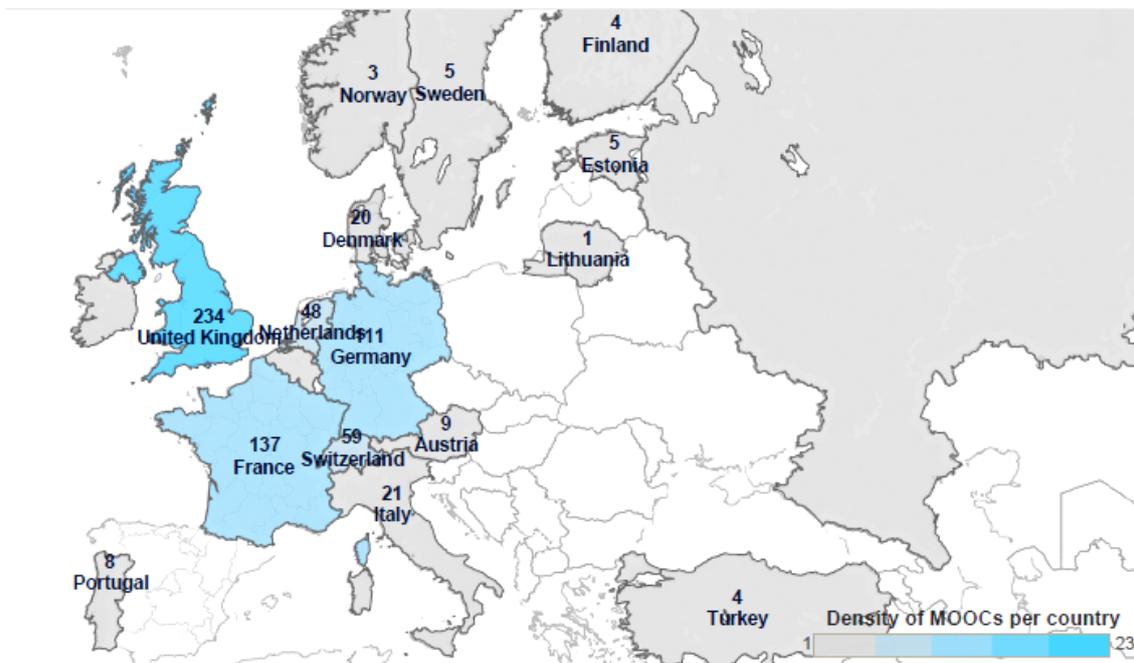


Figure 1. Distribution of MOOCs by country, in Europe  
Source: [http://openeducationeuropa.eu/en/european\\_scoreboard\\_moocs](http://openeducationeuropa.eu/en/european_scoreboard_moocs)

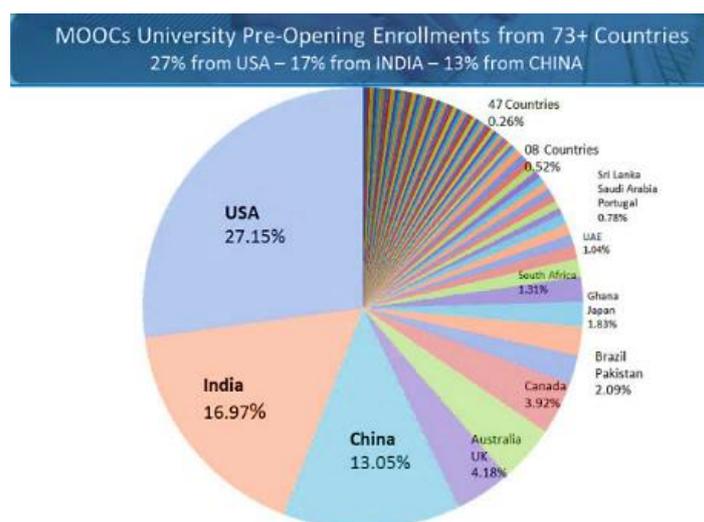


Figure 2. Distribution of MOOCs worldwide  
Source: [http://www.moocs.co/Higher\\_Education\\_MOOCs.html](http://www.moocs.co/Higher_Education_MOOCs.html)

### Advantages of Open Educational Resources

The advantages of the usage of Open Educational Resources are manifold. It is considered that OER and open education will reduce the gap between different strata of society and between countries, improve the quality of education, accelerate the knowledge flow and increase the number of people involved in the educational process (mostly informal and lifelong). From its definition stems that OER can be used, reused, edited, remixed and repurposed without restrictions. "One of the main values of OER is that they can be used worldwide independently of the system of education and national curricula frameworks" (Grodecka, Sliwowski, 2014). The European Commission has also recognized the values of OER, stressing that Open Educational Resources and open practices allow more personalised learning, a better learning experience, and an improved use of resources, which promote equity by increasing the availability of knowledge because individuals may learn anytime, anywhere, with the support of anyone, using any device (<http://ec.europa.eu/> and <http://openeducationeuropa.eu/>). By using OER, students are exposed to different educational resources that are in accordance with their learning style, learners can become more active participants in educational process through a collaboration in virtual communities of learning, teachers can compare their own teaching materials with other teachers all around the world, they can learn how to release their work under an open license and to improve quality of teaching practice and encourage pedagogical innovation, and finally OER can reduce the cost of accessing educational materials (McGreal et al, 2013).

### Limitation of Open Educational Resources

Despite its numerous advantages, OER are still in the early adoption stage (Mc Kerlich at al., 2013), which calls for a discussion on factors slowing the spread of their usage. Research has shown that a wider acceptance of OERs requires development of awareness and reaching an understanding of all their dimensions, increase of recognisability of the OER repositories, ensuring quality of content and development of online collaborative communities (Torres, 2013; Grodecka, Sliwowski, 2014; Mc Kerlich at al., 2013; Rolfe, 2012; Kortemeyer, 2013). Whilst teachers exchange informally their teaching material with colleagues within their own organisations and share them to their students, this is not very often the case at the global level and through formal channels, and when it is done, there is very little use of suitable licences (Reed, 2012). One of the obstacles hindering the larger-scale use of OER is an uncertainty regarding the copyright on educational content – does content belong to the teacher creating it and investing his knowledge, experience and time into it; or to the organisation, financed by the Government budget, that is paying the teacher's salary. Creative commons licences must therefore be popularised amongst teachers and those creating educational content. Production, and even modification of the existing OER does not come free; it requires certain hardware, software, organisational, human and time resources. Furthermore, the usage of OER may include adaptation to an actual pedagogic context (teaching or learning styles), but also to a country's cultural context (Torres, 2013). "The

localization process is at the heart of OER – it exemplifies its diversity, openness and reusability" (Grodecka, Sliwowski, 2014). One of the recommendations of the Paris OER Declaration (2012) reads that "Encourage the development and adaptation of OER in a variety of languages and cultural contexts. Favour the production and use of OER in local languages and diverse cultural contexts to ensure their relevance and accessibility. Intergovernmental organisations should encourage the sharing of OER across languages and cultures, respecting indigenous knowledge and rights."

Spreading of OER in small countries is additionally hindered by their lack of OER implementation policy at national or institutional levels; limited resources and support to customize and create OER; educational practice which is mostly founded on traditional teaching and learning methods; the digital competence and information literacy are mostly non-adjusted to search for appropriate OERs and to create new ones, and there is a "language gap" (Mc Kerlich et al., 2013; Iiyoshi, Kumar, 2008; Yuan et al, 2008; Cobo, 2013). Finally, "In the OER movement, educational systems face the greatest of challenges: to break the aversion to openness" because "...the mindset of the majorities is set on the culture of not-open" (Torres, 2013).

## Method

Because there is not much Open Educational Resources in Croatia and is only one MOOC course on Croatian language, the aim of this research is to determine attitudes towards Open Educational Resources by scholars and availability of their teaching materials. Research was conducted at four public institutions of higher education in Croatia. The institutions included in this research cover the fields of social sciences and humanities, and one institution has departments from different scientific fields. The research was conducted using an online questionnaire created in Google Forms. The main part of questionnaire contained statements with answers on 5-level Likert type scale (1 means "strongly disagree" while 5 means "strongly agree"). The questionnaire was distributed via mailing lists to 4 institutions of higher education. There are only 64 respondents who filled the questionnaire: 56% female and 44% male.

According to academic title, the sample consisted of: 28% teaching assistants, 22% lecturers, 16% senior lecturers, 14% assistant professors, 11% full professors, 5% associate professors and 5% college professors. The 61% respondents were from social sciences, 22% from humanities, 9% from technical sciences and 8% from natural sciences.

The main research question is if there are differences in attitudes toward the OER and differences in availability of teaching materials in regards to the academic title and scientific fields. Therefore were set two null-hypotheses:

*H1*: There are no differences in attitudes towards OER in regards to the academic title and scientific fields.

*H2*: There are no differences in availability of teaching materials in regards to the academic title and scientific fields.

Empirical data were analyzed using descriptive statistics and a hypothesis testing was done using nonparametric Mann-Whitney U test.

## Results and Discussion

The majority of the respondents support the idea of Open Educational Resources and were agreed (mostly 41% and strongly 48%) with the statement: "*The academic community should be the first to contribute to the realisation of the right of every individual on open access to educational resources*". There is a small dispersion of answers from the arithmetic mean ( $M=4.34$ ;  $SD=0.76$ ), as shown in Table 1. Only 8% of the respondents were undecided and 3% of them did not agree with this statement. When answering to the statement "*I have doubt about quality assurance of Open Educational Resources*", the respondents were mostly undecided (39%) or had diametrically opposite views, indicating need to raise awareness about these issues in academic community.

The majority of the respondents mostly (60%) or strongly (17%) agreed that: "*Most of Open Educational Resources needs customisation and localization before use in the classroom*", while 20% of them were undecided and only 3% disagreed. Whilst most of the respondents (56%) did not show any concern that the OER would reduce student's attendance in classes, there was an equal part of undecided (22%) and those who were concerned (22%). Most respondents (67%) agreed (mostly or strongly) that *sharing OER's increases the reputation of an educational institution*, but there were 20% of undecided respondents and 13% disagreed.

Furthermore, respondents agree (75%) that *educational institutions should publish Open Educational Resources in behalf of all people who want to learn.*

Table 1. Descriptive statistic of statements about attitudes toward OER

| <i>Statements - attitudes</i>  | <i>Mean<br/>M</i> | <i>Median<br/>C</i> | <i>Minimum<br/>Min</i> | <i>Maximum<br/>Max</i> | <i>Std.Dev.<br/>SD</i> |
|--|-------------------|---------------------|------------------------|------------------------|------------------------|
| 1. The academic community should be the first to contribute to the realisation of the right of every individual on open access to educational resources. | 4.34              | 4.00                | 2.00                   | 5.00                   | 0.76                   |
| 2. I have doubt about quality assurance of Open Educational Resources. ( <i>negative formulated statement</i> )  | 2.75              | 3.00                | 1.00                   | 5.00                   | 0.94                   |
| 3. Most of Open Educational Resources needs customisation and localization before use in the classroom.  | 3.94              | 4.00                | 2.00                   | 5.00                   | 0.73                   |
| 4. I have concern that the OER would reduce student's attendance in classes. ( <i>negative formulated statement</i> )                                    | 2.50              | 2.00                | 1.00                   | 5.00                   | 1.05                   |
| 5. Sharing OER's increases the reputation of an educational institution.   | 3.67              | 4.00                | 1.00                   | 5.00                   | 1.08                   |
| 6. Educational institutions should publish Open Educational Resources for all people who want to learn.  | 3.91              | 4.00                | 1.00                   | 5.00                   | 0.87                   |
| 7. I'm familiar enough with OER initiative and Creative Commons licences.  | 2.69              | 2.00                | 1.00                   | 5.00                   | 1.02                   |

Like in other similar studies (Masterman, Wild, 2011; Reed, 2012; Torres, 2013;), while the benefits of using OERs are mostly accepted, there is very little active contribution in the open sharing of knowledge and teaching materials. Only 20% of the respondents have their teaching material accessible on a public web (web pages of institutions of teachers, blogs, document exchange services, social networks), while 70% of the respondents answered that their teaching material was accessible in digitized formats only to students who are attending classes (login is required), like shown in figure 2. It shows that there are digital teaching materials that could be shared much wider and become OER. But respondents most often uploaded the simple documents (.doc, .pdf, and presentations), which require no additional time and effort.

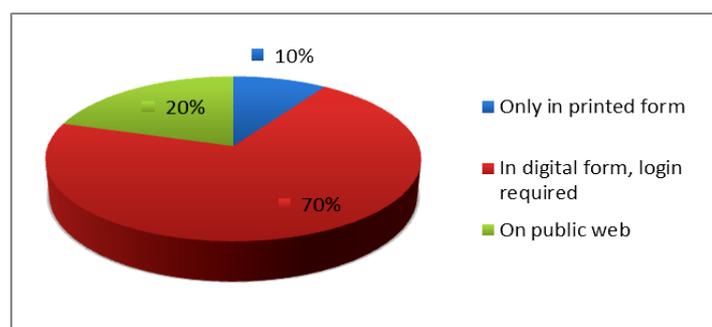


Figure 2. Accessibility of teaching materials – response distribution

From those respondents which published digitized teaching materials only 12.5% of them use Creative Commons licences. The reason for this may be that only 27% of respondents consider themselves familiar with open educational resources and Creative Commons licenses. This positively formulated statement has small arithmetic mean ( $M=2.69$ ) and median ( $C=2$ ), while standard deviation is big ( $SD=1.02$ ), as shown in Table 1.

### Testing the Hypotheses

Because of small number of responses in some variable's items, the categories in the independent variables had to be merged. Independent variable "*Academic title*" has two groups: "Group 1" includes all teaching titles and "Group 2" includes all scientific titles. The same situation is with independent variable "*Scientific field*", where "Group 1" includes Social sciences and Humanities while "Group 2" includes Technical and Natural sciences. The hypotheses are tested with Mann-Whitney U test for two independent samples. For testing the first hypothesis all items of attitudes are summed together to get the variable "*Attitudes*". The results of the test for H1 are not significant, thus we can accept the null-hypothesis that there are no differences between attitudes towards Open Educational Resources and academic titles ( $z=0.33$ ;  $p=0.74$ ) or scientific fields ( $z=0.125$ ;  $p=0,9$ ). But, for one attitude statement (attitude7) there are different results. We can say that there is significant difference in attitude toward familiarity with OER and Creative Commons licenses between persons with

teaching and scientific titles ( $z = -1.99$ ;  $p = 0.046$ ) where better results have shown those with scientific titles (Group 2). There is difference in attitude toward familiarity with OER and Creative Commons licenses between scientific fields (adjusted value of  $z = 2.25$  is significant with  $p = 0.024$ ) where better results have shown those in Social sciences and Humanities (Group 1). According to the results of Mann-Whitney U test for hypothesis H2 there is no significant difference in availability of teaching materials and academic titles ( $z = 1.11$ ;  $p = 0.267$ ), but the results are significant for scientific fields. We can say that there is significant difference in availability of teaching materials between academics in different scientific fields ( $z = -2.135$ ;  $p = 0.033$ ) where better results have shown those from technical and natural sciences (Group 2).

## **Conclusion**

The initiative of open access to scientific and educational resources indicates the direction the changes in the educational system are following. With this, the traditional systems of teaching and learning will be enriched with open education materials and online tools which can be used without limitations both in online or in standard teaching, through collaborative and constructivist learning, critical consideration and through creation of online communities aimed at the exchange of ideas, opinions, experience and creation of new knowledge. Following the records from the OER repositories it is obvious that the largest number of those resources is written in English language. Their usage requires adaptation to local languages, cultures and educational context, which, furthermore, requires certain digital skills, ICT resources, time and organizational resources. Teachers who altruistically share their teaching material usually don't use any licence for that.

The research that was carried out on a small number of respondents clearly shows that, despite positive attitudes toward OER, there is actually very little sharing of teaching materials by the respondents. The research was not aimed at determining the reasons for such a situation. The teaching materials are mostly accessible with some barriers and only 20% of them are available on public web. According to the availability of teaching materials, by testing the hypotheses, better results shows those from technical and natural sciences. The familiarity with OER and Creative Commons licences is very low and better results shows persons with scientific titles. So, it is required fostering awareness and educating teachers and scholars on the advantages and possibilities of Creative Commons licences and Open Educational Resources in general. Also, there is need to adopt an OER policy and implementation plan at the organisation level, just as it has been done by the world-renowned universities of MIT, Yale, Berkeley, Stanford, Rice and many others, and as it recommended European Commission in their "Horizon 2020" programme and through the "Opening up Education" initiative.

## **Recommendations**

The institutional, legal, cultural, technical and individual opportunities and barriers toward wider acceptance, usage, re-usage and creation of OER should be more deeply researched, especially in small countries, including scholars in all scientific fields and more public universities.

## **References**

- Butcher, N. (2011). A Basic Guide to Open Educational Resources (OER), Commonwealth of Learning & UNESCO, <http://www.col.org/resources/basic-guide-open-educational-resources-oer>
- Cobo, C. (2013). Exploration of Open Educational Resources in Non-English Speaking Communities, The International Review of Research in Open and Distributed Learning, Vol 14, No. 2, <http://www.irrodl.org/index.php/irrodl/issue/view/56>
- Grodecka, K. & Sliwowski, K. (2014). Open Educational Resources Mythbusting Guide, <http://mythbusting.oerpolicy.eu/>
- Groom, C. (2013). A Guide to Open Educational Resources, JISC, <http://www.oerafrica.org/resource/guide-open-educational-resources>
- Iiyoshi, T. & Kumar M. S. V. (2008). Opening up Education, MIT Press, Cambridge, Massachusetts
- Klang, M. (2008). Open Access Barriers: An Action Research, [http://www.kb.se/dokument/Om/projekt/open\\_access/upphovsratt\\_proofs\\_klang.pdf](http://www.kb.se/dokument/Om/projekt/open_access/upphovsratt_proofs_klang.pdf)
- Kortemeyer, G. (2013). Ten Years Later: Why Open Educational Resources Have Not Noticeably Affected Higher Education, and Why We Should Care, EDUCAUSE Review, <http://www.educause.edu/ero/article/ten-years-later-why-open-educational-resources-have-not-noticeably-affected-higher-education-and-why-we-should-ca>

- Masterman, L. & Wild, J. (2011). OER Impact Study: Research Report, JISC Open Education Resources Programme, Phase 2, University of Oxford, <http://icde.org/filestore/Resources/Reports/OERImpactStudyResearchReport.pdf>
- McGreal, R. & Kinuthia, W. & Marshall, S. (2013). Open Educational Resources: Innovation, Research and Practice, Commonwealth of Learning & Athabasca University, Vancouver, <http://oasis.col.org/handle/11599/486>
- Mc Kerlich, R. & Ives, C. & McGreal, R. (2013). Measuring Use and Creation of Open Educational Resources in Higher Education, *The International Review of Research in Open and Distance Learning*, Vol. 14, No. 4.
- MOOCs Directory, [http://www.moocs.co/Higher\\_Education\\_MOOCs.html](http://www.moocs.co/Higher_Education_MOOCs.html)
- Open Education Europa by European Commission, Open Education Scoreboard, [http://openeducationeuropa.eu/en/european\\_scoreboard\\_moocs](http://openeducationeuropa.eu/en/european_scoreboard_moocs)
- Paris OER Declaration (2012). [http://www.unesco.org/new/fileadmin/MULTIMEDIA/HQ/CI/WPFD2009/English\\_Declaration.html](http://www.unesco.org/new/fileadmin/MULTIMEDIA/HQ/CI/WPFD2009/English_Declaration.html)
- Poposki, D. (2010). Open Educational Resources and Open Access in Higher Education in Macedonia, 2010, <http://eprints.rclis.org/16131/>
- Reed, P. (2012). Awareness, attitudes and participation of teaching staff towards the open content movement in one university, *Research in Learning Technology*, Vol. 20.
- Rolfe, V. (2012). Open educational resources: staff attitudes and awareness, *Research in Learning Technology*, Vol. 20.
- Torres N. P. M. (2013). Embracing openness: The challenges of OER in Latin American education, *Open Praxis*, Vol. 5., No. 1, p. 81-89, DOI:10.5944/openpraxis.5.1.33
- Yuan, L. & MacNeill S. & Kraan, W. (2008). Open Educational Resources – Opportunities and challenges for higher education, JISC CETIS, 2008. P. 1-34, [http://wiki.cetis.ac.uk/images/0/0b/OER\\_Briefing\\_Paper.pdf](http://wiki.cetis.ac.uk/images/0/0b/OER_Briefing_Paper.pdf)