



MOOCS AND OPEN EDUCATION IN CANADA 2015

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Abstract

Canada has important areas of expertise in MOOCs and open education, which are beginning to be built upon or replicated more broadly in all education and training sectors. This paper provides an overview of the state of the art in MOOC delivery and open higher education in Canada, providing insights into what is happening nationally and in the different provinces. There are growing examples of MOOC delivery from several Canadian institutions offering free courses to Canadians and international learners.

Introduction

Despite a growing body of literature and public opinion supporting the economic, social and political benefits of open education including MOOCs, there is a growing need for policies at government and institutional levels to become actively engaged (D'Antoni et al., 2012; Dhanarajan & Abeywardena, 2013; European Parliament, 2014; van der Vaart, 2013). The concept of open education includes provision of activities for educators, programs to support not only the development of MOOCs, but also the distribution of open education resources and textbooks and for research and development initiatives to ensure effective practices. This paper consists of a pan Canadian overview of government and key institution practices designed to support MOOC initiatives and enhance openness in many areas in postsecondary education. This overview provides a mapping of significant initiatives with the aim of sharing and promoting more vigorous policies designed to maximize MOOC development using open education practices in Canada.

Background

Canada has important areas of expertise in open education, mostly on the tertiary level, which are beginning to be built upon or replicated more broadly in all education and training sectors. There is no federal government strategy specifically supporting open educational practices at present, but there is activity at the provincial level in Western Canada. Other than the western Canadian initiatives on open practices, there are not yet any governmental policies to support them. With only the western Canadian exception, there are few other signs of any significant initiatives designed to support MOOC development and open practice-related activity across Canadian governments or industry. MOOC development and open initiatives in Canada tend to focus at the level of individual institutions and concentrate on

access and availability issues as opposed to development of practice and policy and/or initiatives to encourage openness.

Canada is unique in the world, in that it is the only country whose national government has no authority in education, which in Canada is exclusively a provincial responsibility. The federal government can however intervene in other areas relevant to open education. For example, there is a federal program underway to promote the growth of the open data movement¹ through the introduction to businesses and citizens of an open data pilot project².

The British Columbia government has also undertaken open government initiatives that provide public access to government information and data, giving citizens opportunities to collaborate on matters such as policy and service delivery. Its open government licence enables use and reuse of government information and data.

Canadian universities are becoming familiar and comfortable with the concept of open access and are actively sharing scholarly research and data through university repositories; providing author funding to assist researchers with open access fees; or working to minimize or avoid open access fees levied by publishers. This includes support for open university presses such as Athabasca University Press (AUPress)³ and limited open titles from the University of Ottawa Press⁴ and other university presses. There is also participation in the promotion of Canadian Creative Commons licences⁵ While openness along with and supported by the MOOC phenomenon can be seen as a growing trend, specific or detailed Canadian open education initiatives, in many sectors, are difficult to isolate. Few Canadian institutions are visibly working on open education and/or policy development.

The concept and activities of openness are clearly evident in the many Canadian universities and community colleges developing programs and policies to broaden open access and designing, developing and building learning object repositories (e. g., Athabasca University, Memorial University, Concordia University, University of Calgary, etc.). Of these, Athabasca University – sometimes referred to as Canada’s “First OER University”⁶ – was the first Canadian institution to adopt an open access policy⁷ in 2006, revised in 2014, which recommends that faculty, academic and professional staff deposit an electronic copy of any published research articles (as elsewhere accepted for publication) in an AU repository. In 2009, The University of Ottawa adopted “a comprehensive open access program that supports free and unrestricted access to scholarly research”⁸. Some of the initiatives in its open access program include a promise to make accessible for free, through an online repository, all its scholarly publications; an author fund designed to minimize open access fees charged by

¹ http://en.wikipedia.org/wiki/Open_data_in_Canada

² <http://open.canada.ca/en?lang=En&n=F9B7A1E3-1>

³ <http://www.aupress.ca/>

⁴ <http://www.press.uottawa.ca/>

⁵ <http://www.creativecommons.ca/>

⁶ http://wikieducator.org/Athabasca_University/Meet_Athabasca_U_-_Canada's_First_OER_university

⁷ <http://ous.athabascau.ca/policy/research/openaccess.htm>

⁸ <http://scholarlycommunication.uottawa.ca/>

publishers; funding for the creation of digital educational materials accessible by all online, for free; and commitment to publish a collection of open access books and research funds to continue studies on open access.

Other universities are following suit. University of Toronto/OISE, for instance, adopted a formal policy⁹ on open access in March 2012, referencing the Open Data pilot (Government of Canada initiative). Nonetheless, while the concepts of openness and open access appear to be gaining considerable ground, and in spite of the apparent endorsement by government, their growth – similar to that of OER – is threatened by lack of public funding.

While openness can be seen as a growing trend, specific or detailed Canadian OER initiatives, in many sectors, are difficult to isolate. Few Canadian institutions are visibly working on open practices and/or policy development. Nevertheless, the western region of Canada does have real projects and initiatives in progress and is engaged assembling, developing and using OER.

MOOCs

MOOCs (Massive Open Online Courses) grew out of the open education movement. Yuan and Powell (2013) describe how MOOCs developed out of the open education, open source, open access, open educational resource movements. Although there are commercial versions of MOOCs now in operation such as Udacity and Coursera, their origins can be tracked back to earlier open initiatives. Weller (2014) noted that MOOCs didn't appear overnight from nowhere claiming that MOOCs (at least the non-commercial ones) “can be seen as part of a continuum”, positing MOOCs as the clearest case for the argument that openness has been successful.

First in Canada

MOOCs have a Canadian origin. The name dates to an experimental course led by George Siemens at the University of Manitoba and Stephen Downes at the National Research Council in 2008 (Tamburri, 2014). They taught an online university certificate credit course, *Connectivism and connective knowledge* (Downes & Siemens, 2008) with 25 students; and more than 2,200 additional learners joined the course online. As Siemens reports, this course, delivered in 2008, was the first MOOC, combining open content with open teaching. This concept was developed from the idea of an open Wiki pioneered by David Wiley at Utah State University and an open session on social media in which international guest experts led discussions, implemented by Alex Couros at the University of Regina (Siemens, 2012).

“The MOOC is open and invitational” (McAuley et al., 2010), anyone can participate and each learner determines for him/herself the extent of their participation. This decision may be based on personal interest, workplace requirements, academic goals or for other reasons. This openness allows many people to participate who may otherwise be unable to access learning.

⁹ http://www.oise.utoronto.ca/research/UserFiles/File/OA_Policy.pdf

In 2011, Sebastien Thrun at Stanford University delivered a MOOC on Artificial Intelligence to more than 100,000 learners. But, this MOOC was more teacher and content-centric than the original connectivist MOOC. This and later primarily US-based MOOCs are exporting the “sage on the stage” lecturing model of classroom learning to the online world.

cMOOCs and xMOOCs

Downes coined the term cMOOC to describe their course — the “c” stands for “connectivist.” He called the new instructivist courses xMOOCs (Downes, 2013). Whereas cMOOCs had the goal of using the Internet to create an extended network of learners who generate content and learn from one another. David Cormier at the University of Prince Edward Island is continuing this tradition with a pre-university preparatory course as a MOOC – *ExperienceU* or *XPU*.

The xMOOCs have become the predominant form of MOOC delivery in Canada, with more than 30 MOOCs being offered by Canadian institutions or individuals presently. Most of them are provided by top-tier traditional institutions using the commercial Coursera platform (McMaster University, University of British Columbia, University of Toronto); or the non-profit EdX platform (McGill University, University of Alberta, University of British Columbia, University of Toronto). Others, mainly middle-tier institutions use the openly licensed CanvasNet platform (Dalhousie University, Royal Roads University, University of Saskatchewan). There are also several self-published Canadian MOOCs¹⁰.

The majority of Canadian MOOC deliverers are aligned with the for-profit US company Coursera, with some others aligned with the not-for-profit EdX group led by the Massachusetts Institute of Technology and Harvard. Udemy is a for-profit company that hosts a platform for independent instructors, who run their own MOOCs, so far there is only one delivered from Canada. Wide World Ed is a Canadian grass roots organization that has tried to implement some home-grown Canadian MOOCs “for the public good” with limited success.

OER Universitas

OER Universitas (OERu) while not using the term “MOOC” (preferring short “micro” courses), is offering free online university courses in collaboration with Canadian partners so that learners can gain formal credentials from the partner institutions. OERu is a consortium of more than 30 institutions and several organizations on five continents. It is dedicated to widening access and reducing the cost of post-secondary education for learners internationally by providing OER pathways to achieve formal credible credentials (McGreal, Mackintosh & Taylor, 2013). There are seven members of the OERu in Canada: three universities (Athabasca, Thompson Rivers and Kwantlen); one community college (Portage College in Alberta); and three organizations (BCcampus, eCampus Alberta and Contact North in Ontario).

¹⁰ <https://www.mooc-list.com/countrys/canada>

Commonwealth of Learning

Based in Vancouver, British Columbia, the Commonwealth of Learning (COL) is charged with promoting open education throughout the 53 countries of the Commonwealth. In 2013, in collaboration with the Indian Institute of Technology, Kanpur (IITK)¹¹, they delivered a MOOC on *Mobiles for development* to more than 2,000 learners from 116 countries including many non-Commonwealth countries (e.g. in eastern Europe). They used a modified model of the cMOOC on an open source platform (Sakai), developing appropriate OER as YouTube videos (Reporter, 2014).

Athabasca University

Athabasca University delivered a cMOOC in 2013 on Open Education. It could be described as an “embedded” MOOC (not to be confused with a MOOC on *Embedded Systems* as a subject¹²) because it was based on and delivered with a for-credit Master of Education course at the Centre for Distance Education (Davis, 2014). The MOOC learners followed the same course materials, but they were separated from the enrolled students and it proved unsuccessful as synergies between the two groups suffered from the separation. This illustrates a common challenge, in that the students (and teachers) who enrol in regular online courses expect to participate in teacher/student interactions, and often collaborative learning as well as assessment. It is hard to scale this to massive numbers of non-fee-paying students.

There is significant OER activity at Athabasca University. AU was the first university in Canada to join the Open Courseware Consortium (now the Open Education Consortium – OEC¹³), and as of 2014, was still the only Canadian institutional member. This includes the OEC website¹⁴. The province of Alberta and AU have been chosen to host the 2015 OEC Conference. AU was also given an OEC ACE Award in 2014 for its highly visible OER research website, the OER Knowledge Cloud¹⁵. AU has also made available courses and course modules including multimedia objects at the AU OEC site licensed for use, generally with a Creative Commons Attribution licence.

AU is home to the Technology Enhanced Knowledge Research Institute (TEKRI)¹⁶, and (as mentioned previously) the UNESCO/COL/ICDE Chair in OER¹⁷, which promote research into and the use of OER at the institutional, national and international levels. The OER Knowledge Cloud was created as a goal of the Chair initiative. The Chair is a member of the board of the OER Foundation¹⁸, which hosts the OER universitas (OERu). AU’s open access started with the scholarly journal, *International Review of Research in Open and Distance*

¹¹ <http://www.iitk.ac.in/>

¹² <http://austinblackstoneengineering.com/ut-6-01x-the-first-embedded-systems-mooc-with-hardware-requirement/>

¹³ <http://www.ocwconsortium.org/>

¹⁴ <http://ocw.lms.athabascau.ca/>

¹⁵ <http://oerknowledgecloud.org/>

¹⁶ <https://tekri.athabascau.ca/>

¹⁷ <http://unescochair.athabascau.ca/>

¹⁸ <http://wikieducator.org/OERF:Home>

Learning (IRRODL)¹⁹ in 1999 and in 2005, with the implementation of AUSpace²⁰, a DSpace repository of scholarly articles, theses, and other documents produced in the AU community. In addition, AUPress at AU was the first open access university press in Canada in 2010 and currently offers over 100 volumes. Other AU open initiatives include participation in workshops and conferences, conducting a mapping of open educational activities with POERUP²¹ and eMundus Europrojects²², and supporting GO-GN²³, the Global OER Graduate Network.

University of Alberta

The University of Alberta delivered Canada's first xMOOC, *Dino 101: Dinosaur Paleobiology* (University of Alberta, 2013) and this too might also be considered a type of embedded MOOC as there were three options, a free non credit learning experience, registration in Coursera's signature track (\$69), or a paid for-credit course (\$263) with two invigilated examinations. The first iteration of the course attracted 17,000 students with a relatively high completion rate of 17% with 77% engaging in at least one course activity (Onlea, n.d.). This course also led to spin off company OnLea which hopes to sustain a commercial business by creating MOOCs for institutional and commercial clients.

BCcampus

BCcampus, arguably the most active collaborative Canadian organization in the open practices arena, is a publicly funded service which has turned to open concepts and methods to create a sustainable approach to online learning for BC public post-secondary institutions. BCcampus was created to enhance students' ability to not only identify, choose, register for, and take courses but also to apply any academic credits earned against credentials from a selected home institution; it was also intended to benefit institutions through the rationalisation of demand for academic opportunities from students with the supply of online courses from BC public post-secondary institutions.

It has been the leader in Canada in promoting OER. BCcampus also played a major role in the BC Ministry of Advanced Education, Innovation and Technology's decision to support the Open Textbook Project²⁴, which they are implementing. BCcampus hosted a working forum on OER²⁵ for senior post-secondary institution representatives in Vancouver in October, 2012 with the objective of developing a common understanding of what OER could mean for BC and building a shared vision of how to develop and use them. The session also studied ways BC can take advantage of the promise of OER and specifically, open textbooks. This led to the announcement by the MAE that they will collaborate with post-secondary institutions in implementing open textbooks. As mentioned above (see BC government) the Project started

¹⁹ <http://www.irrodl.org/>

²⁰ <http://auspace.athabascau.ca/>

²¹ <http://www.poerup.org/>

²² <http://wikieducator.org/Emundus/Home>

²³ <http://oer-unescochair-ounl.ning.com/go-gn>

²⁴ <http://bccampus.ca/open-textbook-project/>

²⁵ <http://open.bccampus.ca/2012/09/23/open-educational-resources-oer-forum-in-vancouver-october-18th/>

with 40 open textbooks at the postsecondary level and now is committed to 90 (BCcampus, 2014).

University of British Columbia (UBC)

UBC partnered with Coursera to produce and trial five pilot MOOC courses in 2013. As is common of the 330,150 people who registered for the courses only 164,935 actually logged and 8,174 completed the courses (2.5% of registrants or 4.9% of those who enrolled). The University lists production costs for the mostly video MOOCs at \$54,000 per MOOC, excluding faculty time and co-ordination support, but including academic assistance. These numbers exclude cost for faculty development and administration and the time requirements for negotiations with Coursera (University of British Columbia, 2014).

Thompson Rivers University Open Learning (TRU)

TRU houses the former BC Open University as its distance education wing, called TRU Open Learning²⁶. It is working with several OERu partner institutions providing initial prototype courses²⁷ to be released as OER. TRU Open Learning, like AU, has a robust PLAR system²⁸ that includes challenge examinations and transfer of credit, which makes it a key partner for OER initiatives nationally and internationally.

OCAD U Inclusive Design Research Centre (IDRC)

IDRC, a research and development centre²⁹ at OCAD U in Ontario, consists of an international community of open practice advocates. The learning technologies and products that have been developed and distributed by IDRC are distributed under the GNU General Public License³⁰ meaning that the code is open source and requires users to share products on the same liberal licensing that they have acquired it.

A key project, FLOE³¹ (Flexible Learning for Open Education) is one of the Centre's biggest initiatives. FLOE takes advantage of the fact they have a set of curricula that is openly licensed that can be repurposed and reused to make content accessible. This makes FLOE heavily dependent on OER. OER present an optimal learning environment to meet the needs of all learners, including those with disabilities. FLOE advances the strengths and values of open education and encourages pedagogical and technical innovation. FLOE also promotes OER for their content portability, ease of updating, internationalization and localization, content reuse and repurposing, and more efficient and effective content discovery. FLOE's work is international and broad: to support adoption in Africa and other areas where mobile devices are more prevalent than internet access, FLOE creates tools and services for delivery as OER via audio, text messages and the small screens found on popular cell phones. These same tools and services are intended to support accessibility, through inclusive design.

²⁶ <http://www.tru.ca/distance.html>

²⁷ http://wikieducator.org/OER_university/Planning/OERu_2012_Prototype

²⁸ <http://www.tru.ca/distance/plar-ol.html>

²⁹ <http://idrc.ocad.ca/index.php/about-the-idrc>

³⁰ <http://www.gnu.org/licenses/gpl.html>

³¹ <http://floeproject.org/>

Contact North/Contact Nord (CN/CN)

CN/CN³² is Ontario's distance education and training network. It works to provide programming from public college, universities and schools with a focus in smaller towns, rural and remote communities. Contact North published a major position paper on OER, Open Educational Resources (OER) Opportunities for Ontario³³ which "set(s) out the case for the implementation of an Ontario OER initiative (Contact North, 2011); it has also published an introduction to MOOCs and promotes their implementation in the province

Université de Montréal (UdeM)

Hautes Études Commerciales (HEC) at UdeM has been offering a series of MOOCs since 2012. These course are offered in French and about 60% of the students are from Francophone countries outside of Canada. The MOOC courses were developed on the Sakai platform and supported by the University without collaboration with any commercial MOOC providers. The courses were also used to support research on the relationship between motivation, behavioural engagement and persistence for MOOC participants. A final logistic regression model correctly predicted persistence for 90% of MOOC participants based on early MOOC behaviour (Pollhuber, Roy & Anderson, submitted paper)

Téléuniversité du Québec (TÉLUQ)

TÉLUQ³⁴ has a policy on the dissemination of educational resources – Politique de gestion de la diffusion des ressources d'enseignement et d'apprentissage (REA)³⁵. These policies relate to learning content in general and could include OER and MOOCs, although initially designed for proprietary content. Because TÉLUQ faculty retain the intellectual property of all original material they produce for teaching, institutional policy has limited impact on what professors do with their material outside TÉLUQ. The LICEF – Laboratoire en Informatique Cognitive et Environnements de Formation³⁶ is a research centre at TÉLUQ, which is hosting the Banques des ressources éducatives en réseau (brer)³⁷ a repository of French language OER.

Summary

Rogers (2013) identified five factors associated with adoption of innovation. Three of these are relative advantage of the innovation; visibility of adoption by others; and the capacity for potential adaptors to make trial applications of the innovation. In this paper we have documented efforts, policies and programs in the public postsecondary sector that are designed to address all three of these factors. Efforts by institutions in creating MOOCs and organizational support for open access are designed to determine and demonstrate relative advantages of open education from both pedagogical and economic perspectives. In large and

³² <http://www.contactnorth.ca/>

³³ <https://oerknowledgecloud.org/?q=content/open-educational-resources-oer-opportunities-ontario>

³⁴ <http://www.telug.ca/>

³⁵ <http://www.bdeb.qc.ca/fichiers/2013/10/polgrh-amendeca-16avril13-1.pdf>

³⁶ <http://www.licef.ca/>

³⁷ <http://www.brer.ca/>

complex countries with diverse educational institutions it is difficult to be aware of many divergent practices and policies that are emerging.

Finally, we have documented the efforts of governments and institutions to provide incentives for the development and trialling of MOOCs, open education courses, textbooks and scholarly publications. The implementation of MOOCs and open education in Canada is in its early stages. However, with the growing interest in MOOCs, and recent OER initiatives, it could very well be on a fast track towards a massive increase in educational accessibility using MOOCs and OER. Although there are only a few organizations in Canada currently working to develop and establish higher level government policy, standards and protocols related to open education, the process has begun and one can optimistically forecast expansion of these efforts.

The multiple affordances of the Internet create opportunities for both disruptive and incremental change to the way in which both formal and informal learning are designed, organized and delivered. In particular, the ability to both deliver and replicate educational content at cost approaching zero creates tremendous opportunity but at the same time challenges current means of educational provision. In this paper, we have overviewed Canadian responses to these opportunities focussing on OERs and MOOCs. It is clear that many pilot projects and programs are in progress, but equally clear that change is slow and piece meal.

References

1. BCcampus (2014, February 20). *5 questions with Mary Burgess on our open textbook project and the future of open education*. Available: <http://bccampus.ca/2014/02/20/5-questions-with-mary-burgess-on-our-open-textbook-project-and-the-future-of-open-education/>
2. Contact North (2011, October). *Open Educational Resources (OER) opportunities for Ontario*. Available: <https://oerknowledgecloud.org/?q=content/open-educational-resources-oer-opportunities-ontario>
3. Contact North (2014). *Are Massive Open Online Courses (MOOCs) enabling a new pedagogy?* Retrieved from <http://contactnorth.ca/trends-directions/are-massive-open-online-courses-moocs-enabling-new-pedagogy>
4. Council of Ministers of Education Canada (2012, July 6). *Ministers of Education mark a milestone in education cooperation*. Available: http://www.cmec.ca/278/Press-Releases/Ministers-of-Education-Mark-a-Milestone-in-Education-Cooperation.html?id_article=508

5. D'Antoni, S.; Hylén, J.; Mulder, F. and van Damme, D. (2012). *Open Educational Resources: Analysis of responses to the OECD country questionnaire*. Retrieved from http://www.oecd-ilibrary.org/open-educational-resources_5k990rjhvtlv.pdf?contentType=/ns/WorkingPaper&itemId=/content/workingpaper/5k990rjhvtlv-en&containerItemId=/content/workingpaperseries/
6. Davis, H. (2014). *The place for MOOCs in the changing educational landscape*. [Slideshow]. Retrieved from http://www.bibsyskonferansen.no/files/2014/03/HughDavis_MOOCS1.pdf
7. Dhanarajan, G. and Abeywardena, I.S. (2013). Higher education and Open Educational Resources in Asia: An overview. In G. Dhanarajan & D. Porter (eds.), *Perspectives on open and distance learning: Open Educational Resources: An Asian perspective*. Vancouver: Commonwealth of Learning. Retrieved from <http://www.col.org/resources/publications/Pages/detail.aspx?PID=441>
8. Downes, S. and Siemens, G. (2008). *Connectivism and connective knowledge*. The Daily Archives. Available: <http://connect.downes.ca/>
9. Downes, S. (2013). What the 'x' in 'xMOOC' stands for. In *Steven Downs Google+ blog*, 9 April, 2013. Available: <https://plus.google.com/+StephenDownes/posts/LEwaKxL2MaM>
10. European Parliament. (2014). *On new technologies and open educational resources*. A7-0249/2014 Retrieved from <http://www.europarl.europa.eu/sides/getDoc.do?type=REPORT&mode=XML&reference=A7-2014-0249&language=EN#title3>
11. McAuley, A.; Stewart, B.; Siemens, G. and Cormier, D. (2010). *The MOOC model for digital practice*. Retrieved from http://www.elearnspace.org/Articles/MOOC_Final.pdf
12. McGreal, R.; Mackintosh, W. and Taylor, J. (2013). Open Educational Resources University: An Assessment and Credit for Students Initiative In R. McGreal, W. Kinutha & S. Marshall (eds.), *Open Educational Resources: Innovation Research and Practice*. Vancouver: Commonwealth of Learning. Retrieved from http://www.col.org/PublicationDocuments/pub_PS_OER-IRP_web.pdf
13. Onlea (n.d.). *Dino 101 Results*. Retrieved from <http://www.onlea.org/>
14. Pollhuber, B.; Roy, N. and Anderson, T. (submitted for review). The relations between motivation. Behavioral engagement and persistence for MOOC participants.
15. Reporter (2014, January). *MOOC on Mobiles for Development*. COL News. Available: <http://www.col.org/progServ/programmes/KM/Pages/MOOCM4D.aspx>
16. Rogers, E. (2003). *Diffusion of Innovations*. New York: Free Press.
17. Siemens, G. (2012). *MOOCs are really a platform*. Elearnspace. Available: <http://www.elearnspace.org/blog/2012/07/25/moocs-are-really-a-platform/>
18. Tamburri, R. (2014). An interview with Canadian MOOC pioneer George Siemens. In *University Affairs, blog*, 12 February, 2014. Available:

<http://www.universityaffairs.ca/features/feature-article/an-interview-with-canadian-mooc-pioneer-george-siemens/>

19. University of Alberta (2013). *Dino101: Dinosaur paleobiology*. Available: <http://uofa.ualberta.ca/courses/dino101>
20. University of British Columbia (2014). *UBC MOOC pilot report: Design and delivery overview*. Retrieved from <http://flexible.learning.ubc.ca/news-events/ubc-mooc-pilot-report-design-and-delivery-overview/>
21. van der Vaart, L. (2013). *e-InfraNet: 'Open' as the default modus operandi for research and higher education* (M. v. Berchum, R. Bruce, M. Burgess, G. Hanganu, N. Jacobs, D. Lecarpentier, S. Pinfield & P. Stokes (Eds.)), Retrieved from <http://www.surf.nl/nl/publicaties/Documents/e-InfraNet-Open-as-the-Default-Modus-Operandi-for-Research-and-Higher-Education.pdf>
22. Weller, M. (2014). The Battle for Open: How openness won and why it doesn't feel like victory. Retrieved from <http://dx.doi.org/10.5334/bam>
23. Yuan, L. and Powell, S. (2013). *MOOCs and Open Education: Implications for Higher Education*. CETIS White Paper. Retrieved from <http://publications.cetis.ac.uk/2013/667>