

HARMONISING OER RESEARCH ACROSS SOUTH AMERICA, SUB-SAHARAN AFRICA AND ASIA: THE CASE OF THE ROER4D PROJECT

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Harmonising OER research across South America, Sub-Saharan Africa and Asia: The case of the ROER4D project

By Cheryl Hodgkinson-Williams

Abstract

Enabled by the growing availability of the Internet, alternative intellectual property mechanisms such as Creative Commons, evolving metadata practices and the growing "open" movement, the emergence of open educational resources (OER) has been hailed as a potentially fruitful response to some of the key challenges faced by education in the Global South. While some research is emerging on the use and impact of OER in addressing these pressing educational challenges, most of this research is being undertaken in the Global North.

The Research on Open Educational Resources for Development (ROER4D) project was launched in August 2013 with the express intention of undertaking empirical research to better understand the use and impact of OER in countries in the Global South. As of March 2015 there are 18 research projects, one of which is an overview of OER in the three regions, nine are OER adoption studies, seven are OER impact studies and two are educational expenditure baseline studies. These studies are currently underway in 28 countries located across 16 time zones and undertaken by 86 researchers who speak at least 28 different languages.

This paper will explore some of the key benefits and challenges of conducting research on the use of and impact of open educational resources across languages and cultures. It will highlight successful strategies adopted to address the challenges associated with knowledge building, research capacity building, networking, curation of resources, communication, project management and leadership.

Key words: open educational resources, languages, cultures, open research, Global South, ROER4D

Introduction

Enabled by the growing availability of the Internet across countries in the so-called political Global South, which is variously referred to as "developing countries" or "Third World countries",

alternative intellectual property mechanisms such as Creative Commons¹, evolving metadata (JISC CELTIS 2010) and interaction data practices (Massart & Shulman 2013) as well as the growing "open" movement (OECD 2007), the emergence of open educational resources (OER) has been hailed as a potentially fruitful response to some of the key challenges faced by education in the Global South (Muegge, Mora, Hassin & Pullin 2008). According to Geith and Vignare, OER "hold potential for helping to address the global demand for education, particular in higher education, by expanding access to experts, curriculum and learning materials" (2008: 1).

Open Educational Resources (OER)

Open Educational Resources can be briefly defined as "teaching, learning, and research resources that reside in the public domain or have been released under an intellectual property license that permits their free use and/or re-purposing by others"². The most frequently used intellectual property rights mechanisms used to indicate the permissions for the creation and reuse of OER are Creative Commons licenses³. These indicate the original authors' permissions for reuse (copying), revision (customisation, including translation), remixing (or combination with other materials) which allow for the legal redistribution, and retention of the original or adapted materials.

OER have been made available through a range of OER global initiatives, repositories and portals (e.g. MIT's Open Courseware⁴, Open University's OpenLearn⁵, Stanford's iTunes U⁶, Oxford University's OpenSpines⁷, Washington State's Open Course Library⁸, OERCommons⁹). As an indication of the expectation of the potential benefit of OER to widen access to quality education and make it more affordable, UNESCO released the Paris OER Declaration at the World OER Congress in June 2012¹⁰, following on earlier calls for opening up education, for example the Cape Town Open Education Declaration¹¹. Funding allocated to OER development in the US¹² and more recent priorities identified by the European Commission¹³ (2012) provides evidence of the OER principles in practice. A few governments in the Global South have developed, or are in the process of developing, policies that support open initiatives including open source software, open access, open data¹⁴ and more recently open educational resources¹⁵.

Challenges facing education in the Global South

There are many challenges facing education in the Global South including, but not limited to:

- Increasing numbers of students requiring formal education in primary, secondary and tertiary institutions as well as for informal lifelong learning
- Increasing class sizes and decreasing numbers of educators

¹ <http://creativecommons.org/>

² Adapted from: <http://www.hewlett.org/programs/education-program/open-educational-resources>

³ <http://creativecommons.org/>

⁴ <http://ocw.mit.edu/index.htm>

⁵ <http://www.open.edu/openlearn/>

⁶ <https://itunes.stanford.edu/>

⁷ <http://openspires.oucs.ox.ac.uk/>

⁸ <http://opencourselibrary.org/>

⁹ <https://www.oercommons.org/>

¹⁰

http://www.unesco.org/new/fileadmin/MULTIMEDIA/HQ/CI/CI/pdf/Events/Paris%20OER%20Declaration_01.pdf

¹¹ <http://www.capetowndeclaration.org/>

¹² <http://www.dol.gov/opa/media/press/eta/eta20101436.htm>

¹³ http://ec.europa.eu/education/news/rethinking/com669_en.pdf

¹⁴ <https://opendata.go.ke/page/about>

¹⁵ http://www.che.ac.za/media_and_publications/documents-interest/dhet-draft-policy-framework-distance-education-south

- High attrition rates, especially in higher education
- Increasing costs of educational materials, especially textbooks
- Rapid changes in curricular content.

Implementation of OER in South America, Africa and Asia

There are a number of emerging OER initiatives, repositories and/or portals in South America, Sub-Saharan Africa and Asia. In South America these include REA¹⁶, OportUnidad¹⁷ and CoKREA¹⁸; in Africa these include the Africa Virtual University¹⁹, OER Africa²⁰, OpenUCT²¹, UNISA Open²², TESSA²³, African Veterinary Information Portal (AfriVIP)²⁴ and in Asia these include OERAsia²⁵, an Asian forum dedicated to sharing information, views, ideas, research studies, and knowledge resources on OER (Dhanarajan 2014). Other Asian OER initiatives include TESSIndia²⁶ and National Program on Technology Enhanced Learning (NPTEL) in India.

Uptake of OER in South America, Sub-Saharan Africa but better in South East Asia

However, when an analysis is made of the current adoption of OER in South America and Sub Saharan Africa, there is surprisingly little uptake of OER from some major OER portals (e.g. MIT reports on 2% OER uptake in Sub-Saharan Africa²⁷). While there are certainly some very successful OER initiatives, for example the TESSA Project, Wolfenden, Buckler and Keraro report that with respect to OER adoption the “overall the number of changes noted is small” (2012). Although there are some African institutions or educators contributing to OER as measured by the presence of materials on OER aggregators (e.g. OER Commons) or public OER platforms (e.g. MERLOT), there is yet to be an “African presence” of OER globally. Hopefully the new OER mapping initiatives, e.g. OER World Map²⁸ will help us to better understand the locations of OER uptake.

Researching OER

While some research is emerging on the use and impact of OER in addressing these pressing educational challenges, most of this research is being undertaken in the Global North (de los Arcos, Farrow, Perryman, Pitt & Weller 2014; Alves, Miranda & Morais 2014; Allen & Seaman 2012; Carson, Kanchanaraksa, Gooding, Mulder & Schuwer 2012). Research on the efficacy of OER in the Global South is embryonic and primarily focused on specific projects, for example the Teacher Education in Sub-Saharan Africa (TESSA)²⁹ project (Wolfenden, Buckler & Keraro 2012), the African Health OER Network³⁰ (Harley 2011) and the OER project at the University of Cape Town (Hodgkinson-Williams, Paskevicius, Cox, Shaikh, Czerniewicz & Lee-Pan 2013; Czerniewicz, Cox, Hodgkinson-Williams & Willmers in press, 2015). A recently published study on

¹⁶ <http://www.rea.net.br/site/>

¹⁷ <http://www.oportunidadproject.eu/>

¹⁸ <https://karisma.org.co/cokrea/>

¹⁹ <http://www.avu.org/>

²⁰ <http://www.oerafrica.org/>

²¹ <http://open.uct.ac.za/>

²² <http://www.unisa.ac.za/default.asp?Cmd=ViewContent&ContentID=27721>

²³ <http://www.tessafrica.net>

²⁴ <http://www.afrivip.org/>

²⁵ <http://www.oerasia.org/>

²⁶ <http://www.tess-india.edu.in/>

²⁷ <http://ocw.mit.edu/about/site-statistics/>

²⁸ <https://oerworldmap.org/#user-register>

²⁹ <http://www.tessafrica.net/>

³⁰ <http://www.oerafrica.org/healthoer>

OER in Asia has yielded research on the extent and practice of OER use in higher education in Indonesia (Daryono & Belawati 2013), Malaysia (Abeywardena, Dhanarajan & Lim 2013), Pakistan (Malik, 2013), the Philippines (Arinto & Cantada 2013) amongst others. With respect to Latin America, Torres notes that OER is still in its early stages, but that the OportUnidad³¹ project plans to provide a “comprehensive set of guidelines on pedagogical approaches, technological solutions, organizational frameworks and procedures, institutional business models and cooperative models that are relevant to the development of OER initiatives” (2013:86). Writing about design-as-remix in a Portuguese environment, Amiel (2013) highlights some of the challenges relating to licensing, attribution, context, and technical standards.

The Research on Open Educational Resources for Development (ROER4D) project

The Research on Open Educational Resources for Development (ROER4D) project was launched in August 2013 with the express intention of undertaking empirical research to better understand the use and impact of OER in countries in the Global South. The overarching research question is: “In what ways, and under what circumstances, can the adoption of OER impact upon the increasing demand for accessible, relevant, high-quality, and affordable education in the Global South?” This question is further subdivided into four guiding questions:

- What is already known about the adoption and impact of OER in the regions of South America, Sub-Saharan Africa and Asia?
- In what ways, and under what circumstances are OER being adopted in South America, Sub-Saharan Africa and Asia?
- In what ways, and under what circumstances can the adoption of OER impact upon the increasing demand for accessible, relevant, high-quality, and affordable education in countries in South America, Sub-Saharan Africa and Asia?
- What is the current expenditure on educational materials in countries in South America and Sub-Saharan Africa?

These four questions frame seven clusters of research, namely:

1. Desktop reviews of existing studies and/or evidence of OER adoption and/or impact of the use of OER in the regions of South America, Sub-Saharan Africa and Asia
2. A cross regional survey of OER adoption by students and educators in formal post-secondary institutions
3. Qualitative investigations of academics’ views on sharing OER in India and South Africa
4. Action research studies on the creation of OER for teacher education in India, Colombia and Malaysia
5. A qualitative investigation of OER adoption within a country - Mongolia
6. Mixed methods studies of the impact of OER adoption in 18 countries primarily in Sub-Saharan Africa and Asia
7. Mapping of public funding for educational resources in South America and Sub-Saharan Africa.

As of March 2015 there are 18 research projects, one of which is an overview of OER in the three regions, nine are OER adoption studies, seven are OER impact studies and two are educational expenditure baseline studies. These studies are currently underway in 28 countries located across 16 time zones and undertaken by 86 researchers who speak at least 28 different languages. The project is hosted at the University of Cape Town (UCT) and Wawasan Open University (WOU), with the central management team located at UCT. For the purposes of the study English is used

³¹ <http://www.oportunidadproject.eu/>

as the main lingua franca between the researchers. However, as English is not readily understood in all parts of the Global South a range of languages has been used for the desktop and empirical research (or what we refer to as ‘knowledge building’) for networking and communication, and will be used for the curation and dissemination of project outputs. Moreover, with so many countries as part of the project, it is important to be aware of and embrace various cultural norms to better understand how and why, if at all, OER adoption is making a meaningful impact upon relieving some of the critical educational challenges faced in various parts of the Global South. Attention to the often subtle cultural norms has influenced aspects of the project management and overall leadership of the project. The following discussion highlights some of the initial reflections on how the ROER4D team is ‘harmonizing’ research across different cultures and through various languages.

‘Harmonizing’ research across different cultures and through various languages

The term ‘harmonizing’ was deliberately used as a metaphor to underpin the idea that we were not expecting the ROER4D researchers to produce ‘cookie cutter research’, but rather engage in the production of research that would deliberately attempt to ‘strike a chord’ with other research, but takes researchers’ various contexts into account while optimising comparability of the data. While the metaphor seemed to resonate with the ROER4D researchers as we engaged in a series of webinars on developing research instruments, aptly named ‘Research Harmonization’, the reality was sometimes a little less melodious than we had hoped. While we all shared a similar set of values which underpin the OER movement in general, we sometimes struggled to understand and agree upon key concepts that informed the research instrument questions for surveys and interviews.

Conceptual clarification across different languages

The clarification of concepts, at the best of times, can be a tricky enterprise for an individual researcher. However, when the concept clarification is being undertaken collaboratively and through various languages, the task is that much more difficult. Even the concept of OER is difficult to define as the term OER was deliberately coined during a UNESCO meeting in 2002 (D’Antoni 2008), but is conceptually similar to other terms that preceded and even succeeded UNESCO’s attempt to standardise the term. These terms include “open content” (Wiley 1998), “learning objects” (Hodgins 2004), “reusable learning content” (Duval et al. 2001), “open courseware” (Malloy, Jensen, Regan & Reddick, 2002), “open-sourced content”³², “open source digital content”³³, “open-source curriculum”³⁴, “open eLearning content” (Geser et al. 2012), “digital learning resources” (Margaryan & Littlejohn 2008) and “reusable digital learning resources” (Leacock & Nesbit 2007). As these terms often have equivalents in other languages, e.g. “recursos educativos abiertos” (REA) in Spanish (Braun et al. 2010) and “recursos educacionais abertos” (REA) in Portuguese (Amiel, Orey & West 2011) research in the Global South needs to take into account these terms as well.

Some terms are difficult to translate from the English into other languages. For example, during one of the webinar sessions we once had a 20-minute debate on the meaning of the word ‘repurpose’ and how it might be translated into Portuguese and Spanish and anticipating how this concept would be understood in Bahasa Melayu.

³² http://en.wikipedia.org/wiki/California_Open_Source_Textbook_Project

³³ <http://paper.li/launchnest/1346123490>

³⁴ http://en.wikipedia.org/wiki/Open-source_curriculum

The ROER4D researchers adopted a few strategies to assist with making the concepts as clear as possible. The first strategy was to create a shared collaborative space (we used Google Drive) where we could put forward various suggestions of how informing concepts could be understood within ROER4D research. This ‘living’ document is constantly under scrutiny as researchers wrestle with concepts in order to operationalize them within their various research instruments. The second was to have mother-tongue speakers translate the final versions of the research instruments. In the cross regional survey being conducted by Prof Jose Dutra in Brazil, has been translated into Indonesian, Portuguese and Spanish. The third strategy is to have one of the mentors work with the researcher to clarify particular phrasing.

Documenting the research process

As we are committed to making our entire research process open, some of the challenges that we face are following the internal processes of documenting what we are doing in ways in which we can all follow and understand.

It would not be feasible for researchers to constantly translate each of their “notes to self” on how they did something. For example one of our South American researchers is keep meticulous notes on methodological choices, internal processes and communication with a local research assistant, but has translated headings only into English to make it easier for others to read to at least identify the key information. For example:

“How SP2 selects random sample - Se as classes forem pequenas faça o seguinte:
 1- Use o george de 30 (select30) para selecionar as 30 classes. O LC terá que escolher 15 classes e não 10. Tem que mudar o escrito para não confundir.
 2 - Use o george para turmas pequenas para selecionar 20 alunos e não 30 de cada classe)” (Basecamp notes 28 March 2015).

However all the “notes to researchers” are written in English to optimise collaboration across the nine countries in three regions.

Creation of research outputs

The challenge is of course not limited to the key concepts, but the entire narrative describing the research. In some of the countries the original research report has first been written in the language most comfortable for the researcher and then translated into English. While this has been relatively successful, translation takes extra time and money and can delay the publication of reports. In some cases either a mentor or editor has reworked original reports in association with the researcher. What the ROER4D team hopes to achieve is to have all reports written in English and key reports written in the languages of the countries where the research is most pertinent. While the latter may not be completed by the end of the funded research project, it is hoped that others will take up the opportunity of translating these reports, which is possible under the Creative Commons licence under which all ROER4D reports will be released.

Curation of research outputs

One of the challenges that the ROER4D researchers are beginning to grapple with is keeping versions of various research documents in an organised and easily retrievable manner. While this is a challenge for all those, like ROER4D, who are endeavouring to follow an ‘open research’ approach, it is complicated by versions of documents in different languages. ROER4D researchers are attempting to keep the documents carefully labeled, but there have been instances where interim versions have not been kept, and the comments provided on these versions now no longer have the correct reference point.

One of the strategies that some of the ROER4D researchers are following is to use the project site hosted on the UCT Learning Management System, Vula, which is a localisation of the Sakai open source platform. Another researcher is using, quite successfully, a proprietary platform for both the curation of project documents and for communication with his team.

Communication of research activities, events and documents

While the main medium for communication among the ROER4D researchers is English, the Communications Advisor is finding creative ways to better incorporate other languages into the 'Communication Mix'. For example newsletter items from South America have been written in Spanish and English. Some of the ROER4D projects have websites for their specific research project which are mostly written in their local language. The ROER4D website links to all these websites. The area where we have had some success in bridging the language divide is through Twitter where some ROER4D researchers are actively tweeting and re-tweeting tweets written in languages other than English. As the Google Translate functions become more accurate, so quickly checking the content of a tweet is becoming easier and easier.

Networking of OER scholars

While Twitter and Facebook have been quite useful platforms for developing networks, the most successful networking strategies have been face-to-face workshops or conferences and online webinars or online meetings.

The value of the face-to-face encounter is that a whole range of communication strategies can be adopted to overcome language barriers, including but not limited to drawing diagrams, demonstrating and quite frankly, intuiting! The ROER4D project has been able to arrange two face-to-face workshops so far, one each for the adoption and impact study teams with a third for the entire group about to happen in April 2015, two days before the Open Education Global Conference in Banff, Canada. Where possible the ROER4D Workshops have been or will be held back-to-back with a OER-related conference to optimise the networking opportunities between other OER researchers from various countries.

Online webinars have helped to develop and maintain 'real-time' relationships between researchers although the constraints of time zones and intermittent connectivity at times exacerbate existing challenges of language difference and cultural norms. Strategies such as recording webinars for later review, providing textual supports and allowing for chat as well as voice communications has helped to mitigate some of these challenges.

As some of the ROER4D webinars have been opened up to associated OER projects (e.g. the GO-GN PhD research group), the ROER4D researchers have been invited to engage with other OER researchers from a range of other countries, primarily from Europe and the Middle East.

Project managing research

While engaging with other OER researchers across countries calls for sensitivity to other languages and cultures, liaising with research administrators in a range of countries has proved to be as taxing. Contracting researchers in countries across the Global South has had its challenges and obstacles to overcome. A key example here is where one institution insisted on having the research contract translated before they were prepared to sign it. This led to a number of delays and a huge amount of effort on behalf of the ROER4D Project Manager and the UCT lawyer allocated to this contract.

Leadership of ‘open research’

Perhaps one of the greatest challenges in leading research that sets out to be ‘open’ is to ‘walk the open talk’ by being open to other ideas as well as opening up research documents and processes. This also means being sensitive to the various contexts in which the researchers work and acknowledge and respond to the various cultural norms. While we encourage researchers to share their research processes, documents and even data, we are mindful that this is quite a shift for many researchers and may make them feel quite vulnerable. We therefore attempt to model open research practices, but don’t expect other ROER4D researchers to be as open as we (in the central team) try to be.

Conclusion

This paper has explored ways of ‘harmonizing’ research across different cultures and through various languages by providing examples of challenges in the ROER4D project and strategies devised to enhance conceptual clarification across different languages; the creation of research outputs into languages other than English; the curation of research outputs in easily accessible spaces for easy translation; the communication of research activities, events and documents across a range of media; the networking of OER researchers within ROER4D and beyond; project management and leadership of ‘open research’ that goes beyond opening up documents but embraces new ideas and is sensitive to the various contexts in which the researchers work and acknowledges and responds to the various cultural norms.

References

- Abeywardena, I.S., Dhanarajan G. & Lim, C-K. (2013). Open Educational Resources in Malaysia. In G. Dhanarajan & D. Porter (Eds.). *Open Educational Resources: An Asian Perspective*. Commonwealth of Learning. Available online: <http://www.col.org/resources/publications/Pages/detail.aspx?PID=446> [15 May 2013].
- Allen, I.E. & Seaman, J. (2012). *Growing the Curriculum: Open Educational Resources in U.S. Higher Education*. Babson Survey Research Group and Quahog Research Group, LLC. online: <http://www.onlinelearningsurvey.com/reports/growingthecurriculum.pdf> Accessed 15 March 2013.
- Alves, P., Miranda, L. & Morais, C. (2014). Open educational resources: higher education students’ knowledge and use. In R. Ørngreen & K. Tweddell Levinsen (Eds.). *Proceedings of the 13th European Conference on e- Learning ECEL- 2014 Aalborg University, Copenhagen, Denmark, 30- 31 October 2014*. http://repositorium.sdum.uminho.pt/bitstream/1822/33478/1/PA_2014ECEL%20CopenhagenDinamarca%28Scopus%29.pdf Accessed 18 February 2015.
- Amiel, T. (2013). Identifying barriers to the remix of translated open educational resources. *The International Review of Research in Open and Distributed Learning (IRRODL)*. 14(1). <http://www.irrodl.org/index.php/irrodl/article/view/1351> Accessed 5 March 2015.
- Arinto, P.B. & Cantada, R. (2013). OER in Philippine Higher Education: A Preliminary Study. In G. Dhanarajan & D. Porter (Eds.). *Open Educational Resources: An Asian Perspective*. Commonwealth of Learning. <http://www.col.org/resources/publications/Pages/detail.aspx?PID=446> Accessed 15 May 2013.

- Carson, S., Kanchanaraksa S., Gooding I., Mulder F., & Schuwer R. (2012). Impact of OpenCourseWare publication on higher education participation and student recruitment. *IRRODL: The International Review of Research in Open and Distance Learning*. 13(4), Accessed <http://hdl.handle.net/10515/sy57m04g0> Accessed 22 April 2013.
- Czerniewicz, L., Cox, G., Hodgkinson-Williams, C.A. & Willmers, M. (in press, 2015) .Open Education and the Open Scholarship Agenda, a University of Cape Town Perspective. In C. Bonk, Lee, M., Reeves, T. & Reynolds T. (Eds.), *MOOCs and Open Education around the World*, Routledge. Post-print: <http://open.uct.ac.za/handle/11427/7497>
- Daryono & Belawati, T. (2013). Prospects and challenges for introducing open educational resources in Indonesia. In G. Dhanarajan & D. Porter (Eds.). *Open Educational Resources: An Asian Perspective*. Commonwealth of Learning. <http://www.col.org/resources/publications/Pages/detail.aspx?PID=446> Accessed 15 May 2013.
- de los Arcos, B., Farrow, R., Perryman, L.-A., Pitt, R. & Weller, M. (2014). OER Evidence Report 2013-2014. OER Research Hub. Available from <http://oerresearchhub.org/about-2/reports/> Accessed 26 March 2015.
- Dhanarajan, G. (2014). ROER4D: Malaysia OER Overview. Retrieved from: <https://open.uct.ac.za/handle/11427/9787> [6 April 2015].
- Geith, C & Vignare, K. (2008). Access to education with online learning and open educational resources: Can they close the gap? *Journal of Asynchronous Learning Networks*, 12 (1), 1-22.
- Harley, K. (2011). Insights from the Health OER Inter-Institutional Project. *Distance Education*, 32 (2), 213-227.
- Hodgkinson-Williams, C.A., Paskevicius, M., Cox, G., Shaikh, S. Czerniewicz, L. & Lee-Pan, S. (2013). 365 Days of Openness: The Emergence of OER at the University of Cape Town. In R. McGreal, W. Kinuthia, S. Marshall & T.McNamara (Eds.). *Perspectives on Open and Distance Learning: Open Educational Resources: Innovation, Research and Practice*. Commonwealth of Learning. <http://www.col.org/resources/publications/Pages/detail.aspx?PID=446> Accessed 15 May 2013.
- JISC CETIS. (2010). The Future of Interoperability and Standards in Education. http://wiki.cetis.ac.uk/images/c/cc/The_Future_of_Interoperability_and_Standards.pdf Accessed 26 March 2015.
- Malik, N.A. (2013). The genesis of OER at the virtual University of Pakistan. In G. Dhanarajan & D. Porter (Eds.). *Open Educational Resources: An Asian Perspective*. Commonwealth of Learning. <http://www.col.org/resources/publications/Pages/detail.aspx?PID=446> Accessed 15 May 2013.
- Massart, D. & Shulman, E. (2013). Unlocking Open Educational Resources (OERs) Interaction Data. *D-Lib Magazine*, 19(5 / 6). doi:10.1045/may2013-massart
- Muegge, S., Mora, M. Hassin, K. & Pullin, A. (2008). A Flat Network for the Unflat World: Open Educational Resources in Developing Countries. *Technology Innovation Management Review*. <http://timreview.ca/article/174> Accessed 26 March 2015.

OECD. (2007). Giving Knowledge for Free: The emergence of Open Educational Resources. <http://www.oecd.org/edu/ceeri/38654317.pdf> Accessed 26 March 2015.

Torres, N.P.M. (2013). Embracing openness: The challenges of OER in Latin American education. *Open Praxis*, 5(1), 81–89.

Wolfenden, F., Buckler, A. & Keraro, F. (2012). OER Adaptation and Reuse across cultural contexts in Sub Saharan Africa: Lessons from TESSA (Teacher Education in Sub Saharan Africa). *JIME*, Volume 3. <http://jime.open.ac.uk/2012/03> Accessed 22 June 2012.