

# OPEN EDUCATIONAL RESOURCES AND PEDAGOGICAL PRACTICES IN AFRICAN HIGHER EDUCATION: A PERSPECTIVE FROM THE ROER4D PROJECT

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# Open Educational Resources and Pedagogical Practices in African Higher Education: A perspective from the ROER4D Project

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Keynote Address

## *Abstract*

In the current economically constrained environment Open Educational Resources (OER) have been heralded as a way of providing access to relevant and affordable educational resources to learners and educators in both formal and informal learning contexts, including higher education. OER are being created and shared through a range of OER initiatives, repositories and portals (e.g. MIT Open Courseware, OpenLearn, MERLOT, Khan Academy, OER Africa, OER@AVU). Although site statistics provided by these various portals indicate some access to these resources from countries in Africa, the number of 'hits' do not explain how these materials are being used, by whom and to what effect to provide empirical evidence for the "widely shared belief that [OER are] going to be a fundamentally important phenomenon for the future of learning and education" (Tuomi 2013:59) and on pedagogical practices in particular.

This keynote address will explain how the Research on Open Educational Resources for Development (ROER4D) project is using desktop regional reviews, cross-regional surveys, cross regional and country case studies, action research studies and focused impact studies to establish in what ways, and under what circumstances the adoption of OER can impact upon a range of educational aspects. It will focus specifically on conceptual and methodological strategies adopted to tease out the relationship between OER and pedagogical practices in selected countries in Sub-Saharan Africa.

## Challenges facing education in the Global South

In the current economically constrained environment Open Educational Resources (OER) have been heralded as a way of providing access to relevant and affordable educational resources to learners and educators in both formal and informal learning contexts. 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 Commons<sup>1</sup>, evolving metadata standards (JISC CELTIS 2010) and interaction data practices (Massart & Shulman 2013) as well as the growing "open" movement (OECD 2007), the emergence of OER has been hailed as a potentially fruitful response to some of the key challenges faced by education in the Global South (Albright 2006; Muegge, Mora, Hassin & Pullin 2008).

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<sup>1</sup> <http://creativecommons.org/>

# OER as a response to some educational challenges in the Global South

According to an article by e-Learning Africa News:

There has been a huge amount of debate about the relevance of these kinds of resources in the developing world, particularly in Africa, a continent which is currently seeing rapid economic growth and technological innovation. Using open source materials in developing countries could potentially lead to a greater knowledge gap between the developed world and the developing world, with Africans becoming consumers of knowledge rather than producers. Because of the high cost involved in the creation of OERs, African countries with fewer resources may not have the means to create and distribute their own materials and resources. As the quality and quantity of OERs from the developed world continues to grow, African nations are more in danger of falling behind<sup>2</sup>.

## OER definition

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”<sup>3</sup>.

## OER: Degrees of Openness

The most frequently used intellectual property rights mechanisms used to indicate the permissions for the creation and reuse of OER are Creative Commons licenses<sup>4</sup>. 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 initiatives globally and in Africa

OER have been made available through a range of OER global initiatives, repositories and portals (e.g. MIT's Open Courseware<sup>5</sup>, Open University's OpenLearn<sup>6</sup>, Stanford's iTunes U<sup>7</sup>, Oxford University's OpenSpires<sup>8</sup>, Washington State's Open Course Library<sup>9</sup>, OERCommons<sup>10</sup>). In Africa there are a growing number of OER initiatives, repositories and/or portals (e.g. Africa Virtual University<sup>11</sup>, OER Africa<sup>12</sup>, OpenUCT<sup>13</sup>, UNISA Open<sup>14</sup>, African Veterinary Information Portal (AfriVIP)<sup>15</sup>).

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<sup>2</sup> [http://www.elearning-africa.com/eLA\\_Newsportal/finding-the-sweet-spot-open-educational-resources-in-the-developing-world/](http://www.elearning-africa.com/eLA_Newsportal/finding-the-sweet-spot-open-educational-resources-in-the-developing-world/)

<sup>3</sup> Adapted from: <http://www.hewlett.org/programs/education-program/open-educational-resources>

<sup>4</sup> <http://creativecommons.org/>

<sup>5</sup> <http://ocw.mit.edu/index.htm>

<sup>6</sup> <http://www.open.edu/openlearn/>

<sup>7</sup> <https://itunes.stanford.edu/>

<sup>8</sup> <http://openspires.oucs.ox.ac.uk/>

<sup>9</sup> <http://opencourselibrary.org/>

<sup>10</sup> <https://www.oercommons.org/>

<sup>11</sup> <http://www.avu.org/>

<sup>12</sup> <http://www.erafrica.org/>

<sup>13</sup> <http://open.uct.ac.za/>

<sup>14</sup> <http://www.unisa.ac.za/default.asp?Cmd=ViewContent&ContentID=27721>

<sup>15</sup> <http://www.afrivip.org/>

## OER policy in Africa

A couple of countries in Africa have specific national OER policies in place (e.g. Kenya National OER Policy<sup>16</sup> or embedded OER government support within related national policies (e.g. the South African White Paper for Post-School Education and Training<sup>17</sup>) cf. Hoosen 2012). On a regional level “as part of a broader process of stimulating collaboration amongst distance education providers taking place under the auspices of the African Council on Distance Education’s Technical Committee on Collaboration, OER Africa and the Kwame Nkrumah University of Science and Technology (KNUST) signed a Memorandum of Understanding that has established a framework for a joint programme of action”<sup>18</sup>. At an institutional level a few more OER policies have been put in place (e.g. University of Ibadan’s College of Medicine, Nigeria<sup>19</sup>, Kwame Nkrumah University of Science and Technology (KNUST), Ghana<sup>20</sup>, as well as at the University of Cape Town<sup>21</sup>, the University of the Witwatersrand<sup>22</sup>, the University of South Africa (UNISA)<sup>23</sup>, the University of Western Cape (UWC) Faculty of Dentistry<sup>24</sup> - all from South Africa).

## Slow uptake of OER in Africa

However, when an analysis is made of the current adoption of OER in Africa, there is surprisingly little uptake of OER from some major OER portals (e.g. MIT reports on 2% OER uptake in Sub-Saharan Africa<sup>25</sup>). While there are certainly some very successful OER initiatives, for example the TESSA Project, Wolfenden, Buckler and Keraro report that with respect to OER adaption 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.

## Most OER research taking place in the Global North

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)<sup>26</sup> project (Wolfenden, Buckler & Keraro 2012), the African Health OER Network<sup>27</sup> (Harley 2011) and the OER project at the University of Cape Town (UCT) (Hodgkinson-Williams, Paskevicius, Cox, Shaikh, Czerniewicz & Lee-Pan 2013; Czerniewicz, Cox, Hodgkinson-Williams & Willmers in press, 2015). Other studies focus on specific themes, for example academic adoption of OER at specific institutions such as UCT (Percy & Van Belle 2012; Cox 2013; Durban University of Technology (van der Merwe 2013), UNISA (De Hart & Oosthuizen 2012) or South African institutions in general (Lesko 2013). These studies have

<sup>16</sup> <http://oermap.org/policy/kenya-national-oer-policy/>

<sup>17</sup> <http://oermap.org/policy/south-african-white-paper-for-post-school-education-and-training/>

<sup>18</sup> <http://oermap.org/policy/supporting-collaboration-and-harnessing-of-oer-within-the-policy-framework-of-knust/>

<sup>19</sup> <http://oermap.org/policy/the-ibadan-swansea-partnership/>

<sup>20</sup> <http://oermap.org/policy/policy-for-development-and-use-of-open-educational-resources-oer-knust/>

<sup>21</sup> <https://www.uct.ac.za/downloads/uct.ac.za/about/policies/UCTOpenAccessPolicy.pdf>

<sup>22</sup> [http://libguides.wits.ac.za/l.php?content\\_id=5267236](http://libguides.wits.ac.za/l.php?content_id=5267236)

<sup>23</sup> [http://www.unisa.ac.za/happening/docs/unisawise\\_summer2012.pdf](http://www.unisa.ac.za/happening/docs/unisawise_summer2012.pdf)

<sup>24</sup> <http://oermap.org/policy/guidelines-for-developing-oer-at-uwc-faculty-of-dentistry/>

<sup>25</sup> <http://ocw.mit.edu/about/site-statistics/>

<sup>26</sup> <http://www.tessafrica.net/>

<sup>27</sup> <http://www.oerafrica.org/healthoer>

yielded some insights into the adoption of OER. For example, Wolfenden, Buckler and Keraro suggest that several factors “may have worked to limit the number of changes: lecturers’ lack of prior knowledge of the materials and familiarity with OERs, their ICT skills and access to ICT tools, the highly structured nature of the template and the forms or modes of working” (Wolfenden, Buckler and Keraro 2012:10). However, we still understand too little about OER creation and various types of reuse to fully explain OER adoption and possible impact of its use in Africa.

## 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. It covers three regions: South America; Sub-Saharan Africa; and Central, South and South-East Asia.

### ROER4D Project Funding

The three year project (27 Aug 2013 - 27 Aug 2016 with an extension to Feb 2017) is supported by two grants from the International Development Research Centre (IDRC), of CAD 2 million for the OER adoption studies and CAD 500 000 for the OER impact studies. These include grants from the Open Society Foundations (OSF) which contributed funds for one OER adoption study and the United Kingdom’s Department for International Development (DFID) which contributed most of the funds for the OER impact studies. In total there are 18 research projects in 7 clusters, 86 researchers & associates located across 16 time zones researching OER adoption and impact in 26 countries.

### ROER4D Research questions

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?

### ROER4D 7 research clusters

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.

## ROER4D 7 Project Clusters

In an attempt to capture all the details our ROER4D team has produced a map and an infographic which are downloadable from the ROER4D website<sup>28</sup>.

## ROER4D 18 projects - 7 in 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 14 different languages. The project is hosted at the University of Cape Town (UCT) and Wawasan Open University (WOU). There are 7 studies in Africa that include empirical research in 14 countries, namely Ethiopia, Ghana, Kenya, Madagascar, Mauritius, Mozambique, Rwanda, Senegal, Somalia, South Africa, Tanzania, Uganda, Zambia, Zimbabwe.

## Methodological choices - sites and participants in Africa

Of the 7 studies in Africa, the first is a desktop overview of OER of what we already know about OER adoption in Sub-Saharan Africa, the second is a cross-regional survey of 36 higher education institutions of which 12 are located in Ghana, Kenya and South Africa, the third is a case study of OER adoption by academics at 3 institutions in South Africa, the fourth is an impact study of educators' practices in the TESSA project, the fifth is an impact study of the AVU in 9 countries (Ethiopia, Kenya, Madagascar, Mozambique, Senegal, Somalia, Tanzania, Zambia and Zimbabwe), the sixth is a study of MOOC development on academics' pedagogic practice at one institution in South Africa and the seventh is a baseline study of government spending on educational resources in South Africa and Kenya.

## Understanding OER terms

While people who are already in the OER community might think that OER is an easy to concept to understand, this might not necessarily be the case as the concept has been described under many different labels. Although the term OER was deliberately coined during a UNESCO meeting in 2002 (D'Antoni 2008), the concept is similar to other terms that preceded and even succeeded UNESCO's attempt to standardise the term to optimise information sharing about this emerging phenomenon. 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"<sup>29</sup>, "open source digital content"<sup>30</sup>, "open-source curriculum"<sup>31</sup>, "open eLearning content" (Geser et al. 2007), "digital learning resources" (Margaryan & Littlejohn 2008) and "reusable digital learning resources" (Leacock & Nesbit 2007). As many other languages are spoken in Africa, researchers have had to take cognisance of how the concept of OER is described in other languages, for example "ressources éducatives libres" (Commission Européenne 2013) in French and "recursos educacionais abertos" (REA) in

<sup>28</sup> <http://open.uct.ac.za/bitstream/handle/11427/7555/ROER4DInfographic2015.pdf>

<sup>29</sup> [http://en.wikipedia.org/wiki/California\\_Open\\_Source\\_Textbook\\_Project](http://en.wikipedia.org/wiki/California_Open_Source_Textbook_Project)

<sup>30</sup> <http://paper.li/launchnest/1346123490>

<sup>31</sup> [http://en.wikipedia.org/wiki/Open-source\\_curriculum](http://en.wikipedia.org/wiki/Open-source_curriculum)

Portuguese (Amiel, Orey & West 2011). Students and educators might be familiar with the concept of sharing learning and teaching materials, but not necessarily by that name, so we had to find ways of identifying a practice by asking about their pedagogical practices in finding, creating, reusing, revising, remixing and redistributing educational materials.

## Conceptual clarification strategies

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 was much more difficult for the ROER4D research team. The ROER4D researchers adopted a few strategies to assist with making the concepts as clear as possible. A key 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 the various research instruments.

## Identifying pedagogical practices in adopting OER

With respect to pedagogical practices, the key challenges have been to try to establish whether or not teachers/ educators/ tutors/ lecturers / academics are:

- 1) Aware of OER as a concept as well as being able to find locate OER
- 2) Deliberately creating OER to share with others
- 3) Merely reusing OER as is (i.e. copying)
- 4) Revising OER (e.g. customising by translating, adding examples, resequencing materials)
- 5) Remixing OER (i.e. combining materials from more than one source)
- 6) Retaining OER (i.e. keeping legal copies of materials)
- 7) Redistributing OER (i.e. sharing with others openly)

## Uncovering why OER adoption is slower than anticipated

As mentioned earlier, OER adoption has been slower than anticipated. The ROER4D study is endeavouring to uncover why this might be so for teachers/ educators/ tutors/ lecturers / academics amongst others. Key areas of enquiry include establishing which factors may play a role in hindering awareness and location of OER as well in inhibiting the various OER adoption practices (i.e. creating, reusing, revising, remixing, retaining and redistributing). Some of the key contextual factors being explored include, but are not limited to:

- Relevance of OER for various contexts
- Policy influence - national, institutional and departmental
- Infrastructural issues - hardware, software, connectivity
- Institutional support - incentives, recognition, rewards, technical support
- Facility provisioning - uninterrupted power supply
- Familiarity with intellectual property mechanisms including Creative Commons
- Quality assurance issues
- Socio-cultural norms - creation of own materials, unwillingness to use others' materials

There is a growing corpus of literature on the barriers to OER uptake in Africa (cf. Mtebe & Raisamo 2014).

## Establishing who is adopting OER or not

In trying to explain in what ways (if at all) teachers/ educators/ tutors/ lecturers / academics are adopting OER (i.e. creating, reusing, revising, remixing, retaining and redistributing) under what contextual circumstances (e.g. policy environment, infrastructure, institutional support), we are also

exploring which of their personal attributes might play a role. These personal attributes include, but are not limited to:

- Age
- Gender
- Qualifications
- Experience
- Type of educational environment - campus-based university, distance university
- Personal knowledge and skills
- Personal motivation - time, priorities

## Teasing out the relationships between who is adopting OER (or not) and in what ways and under what circumstances

Both qualitative and quantitative data collection methods are being used to gather evidence to enable the ROER4D researchers to establish some relationship between who is adopting OER (or not) and in what ways and under what circumstances.

<b>Who ... is adopting (or not)</b>	<b>In what ways ...</b>	<b>Under what circumstances ...</b>
<p>teachers/ educators/ tutors/ lecturers / academics</p> <ul style="list-style-type: none"> <li>• Age</li> <li>• Gender</li> <li>• Qualifications</li> <li>• Experience</li> <li>• Type of educational environment</li> <li>• Personal knowledge and skills</li> <li>• Personal motivation - time, priorities</li> <li>• etc.</li> </ul>	<p>adopting by:</p> <ol style="list-style-type: none"> <li>1. Locating</li> <li>2. Creating</li> <li>3. Reusing</li> <li>4. Revising</li> <li>5. Remixing</li> <li>6. Retaining</li> <li>7. Redistributing</li> </ol>	<ul style="list-style-type: none"> <li>• Relevance</li> <li>• Policy influence</li> <li>• Infrastructural issues</li> <li>• Institutional support</li> <li>• Facility provisioning</li> <li>• Legal issues</li> <li>• Quality assurance issues</li> <li>• Socio-cultural norms</li> <li>• etc.</li> </ul>

## Follow our emerging ROER4D research

The ROER4D team are sharing freely and openly as much information about our research while it is still in progress. From the original proposal<sup>32</sup>, the initial literature reviews<sup>33</sup> and the developing conceptual framework<sup>34</sup>.

## Keep track on our ROER4D website

We invite you to keep track of our emerging research via our ROER4D website (<http://roer4d.org/>) and take advantage of our open ROER4D Bibliography on OER and MOOCs as well as our draft

<sup>32</sup> <http://open.uct.ac.za/bitstream/handle/11427/6050/ROER4D%20Proposal%20-%20May%202013.pdf>

<sup>33</sup> <http://roer4d.org/desktop-review/sp-1-desktop-review>

<sup>34</sup> <http://bit.ly/1FAB32d>

literature reviews. As project reports become available they will be added to the list of Project Resources.

## Follow us on Twitter, Facebook, Slideshare and Scoopit

We invite you to follow us on Twitter (<https://twitter.com/ROER4D>), Facebook (<https://www.facebook.com/ResearchOERforDevelopment>), Slideshare (<http://www.slideshare.net/ROER4D>) and Scoopit (<http://www.scoop.it/u/roer4d>). The presentation that accompanies these note is also available on our Slideshare account.

## Share our ROER4D Open Magna Carta

Our ROER4D Open Magna Carta endeavours to:

- Make open ...
- ... if it adds value
- ... if it is ethical
- ... if it is legal
- ... by default

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