Understanding the Impact of OER:

Achievements and Challenges

United Nations
Educational, Scientific and
Cultural Organization

UNESCO Institute
for Information Technologies
in Education

Svetlana Knyazeva, UNESCO Institute for Information Technologies in Education
ICDE OER Advocacy Committee Webinar on the UNESCO OER recommendations
7 June 2019

OER and SDG4

To assess how the educational potential of OER is being realized the UNESCO Institute for Information Technology in Education and OER Africa surveyed the situation with the mainstreaming of OER

Australia	Brazil	Canada	Nigeria	Tunisia
China	Chile	Germany	South Africa	
Mongolia	Mexico	Slovenia	Tanzania	
New Zealand		United Kingdom		

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Australia

- Early OER projects were often championed by individual academics, librarians, or institutions interested in the possibilities offered by OER for innovative online pedagogy. Funding for individual OER research or development initiatives was usually provided through government research project grants or developed with the support of individual institutions. However, there was no centralised organization around the ideas underlying OER or planning for ongoing sustainability.
- In 2012, Australian universities began to deliver MOOCs although many of these did not provide openly licensed content.
- Australia does not have any central government requirement for educational resources produced with public funding to be openly licensed. However, the Government and educational authorities have recognized the importance of OER and CC licensing and understand that OER policies can assist in a range of copyright compliance and education policy issues. In recent years OER, initiatives have emerged at an increasing rate at both government and institutional levels, along with increasing formalization of the initiatives and practices.
- Some institutions are actively investigating the viability of providing commercial services associated with OER such as micro-credentials, badging or assessment services.

Brazil

- Since the open content initiatives offered by the federal government during the late 1990s and early 2000s, OER has gained traction among educators both in the public and private sectors. This is largely due to the support of the OER-Brazil Community and the advocacy work of OER.br, resulting in Brazil becoming a globally recognized leader in the OER movement. OER.br is coordinated by the Educadigital Institute with funding from the Open Society Foundation
- Ordinance of the Ministry of Education (415/2018)
- Municipal Decree of São Paulo (52,681/2011)
- Law of the Federal District (5.592/2015)
- Resolution National Council of Education (Conselho Nacional de Educação / CES) no.1 of March 11, 2016
- National Textbook Plan (Plano Nacional do Livro Didático) (2019 and 2020)

Canada

- The Paris Declaration on OER led the Council of Ministers of Education Canada (CMEC) to support OER to enhance learning and accessibility. The ministers were also influenced by the US government's support for opening access to publicly funded publications. The Commonwealth of Learning (COL) based in Vancouver, BC also played an important role in supporting OER
- Alberta, British Columbia and Saskatchewan signed the MoU on OER to declare a wish to collaborate on the development of common OER within their respective advanced education sectors; they also recognized the benefits of sharing existing OER.
- On April 17 at the 2019 Cascadia Open Education Summit, the provincial government announced $3.26 million in funding for open educational resources (OERs), including the development of no-cost, open-access textbooks. The funding will go towards The Open Textbook project, managed by BCcampus, to support the development and use of OERs in BC post-secondary institutions.

Chile

- The concept of OER or openness has not penetrated the stakeholder or decision-making sphere at the institutional level, let alone leading to some type of a policy. By extension, neither faculty nor middle managers have embraced the concept.
- In 2015, the National Commission of Scientific and Technological Research (CONICYT) launched an open data portal that publishes databases related to the results of the projects of its grants aimed at higher education institutions. Their user guide for open data explains that to open scientific information, it is ‘recommended to use CC-BY license for scientific publications.
- Institutions conceive their educational and research resources as competitive assets, therefore unwilling to share them openly, or co-develop their results. Within the context of competitiveness and exclusivity of rights, institutions do not have fertile ground for openness, or a culture of participatory learning emphasizing creation, sharing and collaboration between institutions and actors.

China

- In 2000, the Ministry of Education (MoE) of China initiated ‘the development project of online course in the new century’, with the aim of promoting distance higher education in China. This initiative is regarded as the origin of OER in China. Its purpose was to build 200 online courses, and to promote sharing of quality learning resources amongst universities. The concept of OER is becoming more accepted as initiatives increased.
- Whilst most works in China follow Copyright Law (all rights reserved), in general, educational resources authorized by the government could be used freely with no cost. Some learning resources provided by companies (for example, NetEase) adopt a Creative Commons (CC) licence.

Germany

- Germany was involved in the Open Courseware Initiative in the early 2000s, and in the following ten years, several organizations were involved in European Open Education projects. However, there has been no common effort to harmonize and synergize Open Education activities within the country.
- National-level activities started in Germany in 2012 with the German Federal Ministry of Education and Research (BMBF) consulting with German experts in OER. This was accompanied by various publications in different communities, for example OER for schools (updated 2014), OER from a pedagogical perspective, and OER in the business information systems community. The BMBF has one specific 18-month programme (OERInfo) supporting a national coordination hub and 24 other model projects.
- Projects in higher education depend on internal institutional funding. There is limited experience with commercial business models and the sustainability of the existing initiatives is not clear.
- In schools, there is a lot of informal exchange, but these do not use specific open licenses. The willingness of teachers to participate in the schooling sector is higher than in other educational sectors, but there is a low level of OER expertise. There is thus an enormous potential for adopting OER in schools, but a broad approach is needed to educate on OER, particularly open licensing.

Mexico

- The decree on the Open Access Law was announced in 2014 and conceptualized as the Open Science Law in 2017.
- 58 institutional repositories are interoperating and sharing over 26,000 information resources (980,230 queries since their implementation).
- However, there is no balance between the production of new materials and the reuse and adaptation of existing OER. There is a lack of training in legal and educational areas regarding appropriate reuse.
- Although the policy of Open Science in Mexico establishes guidelines to sustain various long-term initiatives, it is necessary to strengthen local and institutional guidelines to preserve and give access to knowledge to all citizens via Internet through interoperable networks based on open standards and practices.
- OER initiatives are not sustainable with the mechanisms of the current funding sources for these initiatives. Once funding is given to implement new OER initiatives, a strategy should be created to ensure their long-term operation so that they are periodically evaluated and updated.

Mongolia

- OER pilot projects in 2011-2013
- CC Mongolia affiliate established and operated in 2013-2018
- National OER Programme 2014-2024: Open Network for Education (ONE) Academy to support open collaborative work, the development of an open university, the development of policies that allow educators to release their materials openly, to create an online dictionary of the Mongolian language, and an open repository of dissertations and research works.
- The Open Network for Education (ONE) is the main coordinating organization for the National OER programme. In 2014, Khan Academy and ONE signed an agreement, whereby video lessons in math, science, information technology, and arts are localised to the Mongolian context. Teachers, who localize and use these video lessons, collaborate and share their experiences on an online community platform (http://k12.mn/). The materials from this initiative were released under a CC-BY-NC-SA. Funding was from the state budget, but the initiative is currently not sustainable since the funding stopped.

New Zealand

- In 2010, the Parliament approved the New Zealand Government Open Access Licensing Framework (NZGOAL) which recommends government departments to apply the Creative Commons Attribution license to Crown copyright works.
- In 2011, the OER Foundation convened an international meeting to establish the OERu (OER universitas), which is offering pathways to learning along with credible accreditation from participating 30 universities, colleges and polytechnics. OERu assembles open online courses based on OER and provide pathways for learners to achieve formal academic credit. In 2018, the OERu has commenced offering a first year of study leading to two university-level exit qualifications.
- Five New Zealand universities have published guidelines (and one policy) on open access.

Nigeria

- The National Teachers' Institute (NTI), Kaduna participated in the Teacher Education in Sub-Saharan Africa (TESSA) project by authoring and versioning teacher education modules and user-testing the TESSA website. The modules produced in collaboration with the Nigerian Commission of Colleges for Teacher Education, were aligned with the Nigerian school curriculum.
- Regional Institute for Training in ODL (Retridol), a COL-sponsored institute located at National Open University of Nigeria (NOUN). When the concept was initially introduced, NOUN encouraged academic staff to develop their materials into accessible OER resources for students, but there was very little uptake of this idea. However, capacity-building and awareness-raising activities, made the benefits of OER clearer for many NOUN academics, which resulted in the increased number of resources shared at the NOUN OER Repository.
- In September 2017, the National Universities Commission of Nigeria in collaboration with COL drafted an OER policy for higher education. In August 2018 it was approved by the Minister of Education, Nigeria.

Slovenia

- In 2006, the Ministry of Education and Sport issued its first public tender to develop educational interactive e-materials under CC licenses.
- In 2015, the Government issued the ‘National strategy of open access to scientific publications and research data in Slovenia 2015–2020’ .
- By August 2017, the Government had delivered a range of actions to push the open education agenda nationally, regionally and internationally. Sixty projects were undertaken.
- The Slovenian government has translated its practice in implementing OER into a Roadmap.
- The country’s biggest initiative in open education, OpeningUpSlovenia was conceptualized in 2013 and officially launched in 2015. It focuses on a digital transformation of society. In this broad sense it encompasses various open practices (OER, open pedagogies, open technologies, collaboration, etc.).
- The Ministry of Education has also published a series of open textbooks and courses for teacher training as OER.
- The policy commitments are accompanied by adequate funding. The Government seldom directly funds the creation of OER, but requires each recipient of national public funding (between 2015 and 2020) to publish the works with open licenses

South Africa

- Open Learning Policy Framework for Post-School Education and Training (2017)
- There is no national or institutional policy which mandates that educational materials produced with public funds should be openly licensed. Some policies might encourage academics and/or senior students to publish their work as OER, but there is not the same expectation to publish learning and teaching materials as there is to publish research – which is an income generating activity for the universities and often for the academics themselves.
- UCT OER have been supported through the Vice-Chancellor's special project fund and seed-funding provided for the development of MOOCs through a UCT-funded project. The Centre for Innovation in Learning and Teaching (CILT) at University of Cape Town attracted external and institutional funding for OER-type initiatives since 2007:
  - Opening Scholarship project (2007-2009) funded by the Shuttleworth Foundation
  - OER UCT project (2009-2010)
  - UCT Vice-chancellor's OER Adaption Project (2012-2014)
  - Canadian International Development Research Centre (IDRC)-funded Research on OER for Development (ROER4D) project (2013-2017)
  - The Digital Online Textbooks for Development (DOT4D) project (2018-2020)
  - Development of 12 MOOCs, several of the materials in these courses are released under CC licences.

Tanzania

- Open University of Tanzania (OUT) OER policy was approved in 2016
- Since a decision taken by OUT in 2016 to offer most undergraduate and postgraduate courses in online mode, nearly 300 courses are available as OERs by the academic year 2017/18 and the rest are only subject to the authors editing to acknowledge original sources and ensuring they are released under the CC-BY license.
- OUT participated in two African-wide OER initiatives:
  - working with Francophones and Lusophones as well as other Anglophone universities to produce the first set of AVU OERs under coordination of AVU to produce university level OERs in Science, Mathematics, ICT and Education courses that were available on both the AVU and OUT websites since 2006
  - OUT became a founder member of the TESSA, an International Research and Development Initiative for Teachers in Sub-Saharan Africa that led to production of OERs for primary schools in 4 languages and later on for secondary schools.

Tunisia

- The concept of OER is not widespread in Tunisia. The main reason for this situation is the specific Tunisian university context:
  - The Virtual University of Tunisia whose platform hosts OER and other digital resources has limited interactions with the other public universities which have the larger mass of students and faculties.
  - Public and private universities not only have a limited use of ICT in teaching, but also have no incentive and no obligation to use ICT and/or interact with VUT. This implies that awareness about OER and easy location of resources are a major obstacle to be addressed. The result is that OER repositories are to a large extent unused and unknown.
- The few people who have heard of OER believe that it is difficult to implement it in the Tunisian context.
- There has been no deliberate national investment dedicated to producing OER, with OER production completely dependent on international projects. Little has been done in terms of awareness, dissemination, and incentives to encourage faculties to use, re-use, and re-mix the existing materials.

UK

- Higher Education – Joint Information System Committee (JISC)
- Higher Education Funding Council for England (HEFCE)
- UKOER programme
- UK Open University – OpenLearn, OpenLearn Create, FutureLab
- JISC JORUM – UK OER repository
- Discontinuation of nearly all projects once funding ceased – indicates that sustainability is an issue
- Language – predominantly in English, but some are in Welsh and Gaelic
- A national policy on OER is needed, like that on open access publishing
- A shift in finance from purchasing copyrighted materials to creating openly licensed materials
- Recognition and reward for producing and using OER

Resistance to OER and typical barriers

- Lack of awareness on OER.
- Lack of strategic/policy support: Very few organizations have adopted OER as part of their institutional strategy. Even though this support is a clear requirement for successful adoption, organizations are yet to change their policies. Educational institutions have not yet found way (or developed strategies) to incorporate OER on a broad base (e.g. incentives for OER creation/usage), and so for example, in higher education, there is no rewarding system for professors and lecturers sharing their learning materials.
- Lack of awareness and insecurities on copyright/IPR, quality Issues: the issues of IPR and copyright have been discussed intensively in different educational sectors. The discussion for example in Higher Education show that expertise on IPR and licensing is rather low amongst educators. There is also resistance from publishers, focusing on the “lack of quality mechanisms” when using OER.

Language issues

- Official languages in New Zealand are English, Te Reo Māori and New Zealand Sign Language – OER are predominantly produced in English.
- There are eleven official languages in South Africa. The most common languages spoken as a first language are Zulu (23%), Xhosa (16%), Afrikaans (14%) and English (9.6%). The language of instruction at most South African universities is English, most OER are in English.
- The main language for OER is German. Some universities have developed OER in English. Some OER were developed for specific purposes and target groups - in Turkish and Arabic for refugee schools. However, there are no broad initiatives focusing on multi-language support.
- Tanzania uses English and Kiswahili languages. So far most OERs are predominantly in English language.
- The main language in Mexico is Spanish and most OER are in Spanish. There is a lack of initiatives focusing on ensuring that investment in OER contributes to a greater diversity of educational materials and the inclusion of marginalized voices in the resulting content. For example, OER for the 68 indigenous languages in Mexico and their 364 linguistic variants; OER for the inclusion of differently-abled people, and general accessibility measures for OER.
- Officially, Tunisia is an Arab country and Arabic is formally the official language; yet French is widely used. Legislative texts are published in both languages (Arabic and French). The spoken language is the Tunisian Dialect which is a mixture of Arabic, French and Italian. The overwhelming majority of courses are taught in French. A very small proportion of courses are delivered in Arabic.

Measures to be taken

- Raising OER awareness and capacity building of educators and content developers in OER and open licensing and its potential to deliver innovative online education in the digital environment.
- Dissemination of research into the potential educational and business benefits of OER for education.
- Developing effective business models including the use of OER / Implementing mechanisms to ensure the maintenance and ongoing quality and sustainability of OER / A shift in finance from purchasing copyrighted material to creating openly licensed material.
- Government commitment: Adopting/enforcement of policy on OER requiring the open licensing of government funded education materials and establishment and enforcement of national OER policy to cover all levels of education.

Measures to be taken

- Policy support: OER policies are needed on a nationwide and state level. Policies for “open” approaches should not be independent but should be handled in a holistic way leading to a common approach for open education, open access, open data and open source.
- Develop new technologies to search and extract data and develop data mining models.
- Accommodate disaggregated service provision, for example applying government grant for an assessment-only service rather than bulk funding for a full-service model.
- Development of a wider culture of sharing learning resources in the education sector.

Research questions worth to be explored

OER use and adoption

- How are OER used, modified, and changed (within and between countries)?
- How do educators use OER? What factors hinder educators in creating and using OER?
- Why is OER under-utilized in basic education?
- How do students use OER and open textbooks?

Improving awareness of OER

- How can public awareness of OER, and OER adoption, be promoted?
- How should educators and students be made aware of and encouraged to use OER?
- What strategies can instill and promote a culture of collaboration among educators?
- What are the perceptions of the value proposition of OER to institutions?
- What are the perceptions of educators regarding OER adoption and use?

Educational effectiveness

- Does OER use improve student recruitment and/or retention?
- What is the impact of OER on students in different universities?
- What examples illustrate innovative pedagogical and educational outcomes resulting from the use of OER?

Research questions worth to be explored

Funding and sustainability

- How will new and existing OER policies be funded?
- What are the funding mechanisms to support OER development?
- How can OER be effectively maintained by a wider sharing community?
- What mechanisms need to be in place to ensure the maintenance and ongoing quality and sustainability of OER?

Understanding costs and developing viable OER business models

- What are the costs of developing content from scratch and adapting existing OER?
- Which OER business models are promising and sustainable?
- What role can OER play in the commercial delivery of online education?

Quality of OER

- What actions or mechanisms should be in place, if any, to ensure the quality of locally produced OER?
- How can quality assessments and procedures be designed to assure the quality of rapidly changing resources?

Policy development and implementation

- What pre-conditions and factors are needed in order for OER policy to be adopted at institutional level?
- How should policy be practically implemented?

Research questions worth to be explored

Intellectual property rights

- How effective is training on intellectual property rights for researchers and educators?

Improving diversity of OER

- Should OER research focus on interactive/mobile technologies rather than textual content?
- What are the language barriers in adopting OER?

Micro-credentialing/credentialing and recognition!

Case studies authors

Australia - Robin Wright, Manager, Acquisitions, Records and Copyright, Swinburne University of Technology

Brazil - Viviane Vladimirschi, Director, E-Connection

Canada - Rory McGreal, UNESCO/COL/ICDE Chair in OER, Athabasca University

Chile - Werner Westermann Juárez, Civic Education Programme, Lead; Library of National Congress of Chile

China - Ronghuai Huang, Dean of Smart Learning Institute, Beijing Normal University

Germany - Jan Pawlowski, Professor, Hochschule Ruhr West (University of Applied Sciences)

Mexico - Maria-Soledad Ramirez-Montoya, UNESCO Chair Movimiento Educativo Abierto para América Latina, Tecnologico de Monterrey

Mongolia - Batbold Zagdragchaa, Director, New Policy Institute

New Zealand - Wayne Mackintosh, UNESCO/ICDE Chair; Director, OER Foundation

Nigeria Jane-Frances Obiageli Agbu, Faculty at National Open University of Nigeria; ICDE Chair in OER; Board Member, Open Education Consortium

Slovenia - Mitja Jermol, UNESCO Chair in Open Technologies for OER and Open Learning, Head of Centre for Knowledge Transfer, Jožef Stefan Institute

South Africa - Cheryl Hodgkinson-Williams, Associate Professor, Centre for Innovation in Learning and Teaching (CILT), University of Cape Town

Tanzania - Tolly S.A. Mbwette, Professor and Member of ICDE Executive Committee, College of Engineering & Technology University of Dar es Salaam

Tunisia - Sana El Harbi, Professor, University of Sousse

United Kingdom - Martin Weller, Director of OER Hub, Open University UK

Thank you for your attention!

All data included in this presentation were provided by the national experts commissioned to complete the survey within the joint UNESCO IITE – OER Africa project and are published in the joint UNESCO IITE – OER Africa monograph Understanding the Impact of OER: Achievements and Challenges authored by Sarah Hoosen and Neil Butcher

s.knyazeva@unesco.org

http://iite.unesco.org/