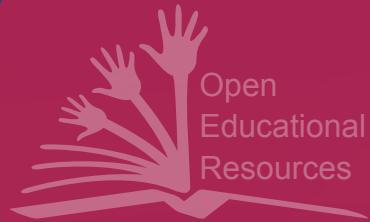




COMMONWEALTH of LEARNING



OPEN EDUCATIONAL
RESOURCES:
**Global Report
2017**



LEARNING FOR SUSTAINABLE DEVELOPMENT

OPEN EDUCATIONAL
RESOURCES:

Global Report 2017



COMMONWEALTH *of* LEARNING

The Commonwealth of Learning (COL) is an intergovernmental organisation created by Commonwealth Heads of Government to promote the development and sharing of open learning and distance education knowledge, resources and technologies.

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NOTE

Three documents have been developed in the framework of the 2nd World OER Congress. The two documents: *Open Educational Resources: From Commitment to Action* and the *Open Educational Resources: Global Report 2017* provide the outcomes of the six regional consultations and global surveys conducted prior to the 2nd World OER Congress. The third document, *Ljubljana OER Action Plan 2017*, will be the outcome document of the 2nd World OER Congress and is based on the outputs of the regional consultations, a global online consultation of the document in the months leading up to the Congress and the deliberations of the 2nd World OER Congress. All three documents are complementary and provide a framework for both understanding the current status of OER worldwide and identifying concrete actions to mainstream OER to achieve SDG4.



FOREWORD

COL is proud to present the Global Report on Open Educational Resources (OER) on the occasion of the 2nd World OER Congress. A similar report was prepared for the first World OER Congress organised jointly by COL and UNESCO in 2012. Much has happened in the intervening five years and this document highlights the state of play of OER today.

Two surveys were sent out by COL and UNESCO, one to governments and the other to various stakeholders around the world. The response was very encouraging: 102 countries responded to the governmental questionnaires and over 600 completed surveys were received from stakeholders. In addition, six regional consultations on OER were held at which 105 countries were represented. This comprehensive report is therefore based on the findings of the surveys, the outcomes of the regional consultations, and communications received from a diverse range of stakeholders.

The report is a rich source of information that will help shape our strategies and approaches to mainstreaming OER in the future. There has been growing interest in OER since the 2012 Paris OER Declaration. Many more countries are now considering the development and adoption of OER policies. An interesting finding of the stakeholder survey is that while there are many more OER repositories today, there is a general lack of awareness about them and, therefore, sub-optimal use. This shows the need for promoting the repositories. The best way to do so is through educating the stakeholders and improving the “discoverability” of these resources.

A common concern that runs through both the government and stakeholder surveys is lack of users’ capacity to use and integrate OER in teaching and learning. This highlights the need for the continuous capacity building of teachers to understand, find and use OER. Both surveys highlight the need for a common understanding of the meaning of OER. Respondents to the two surveys gave examples of content that is not openly licensed. The need for advocacy and awareness generation continues to be as important today as it was five years ago.

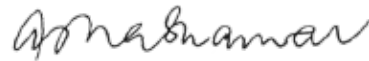
The theme of the 2nd World OER Congress is “OER for Inclusive and Equitable Quality Education: From Commitment to Action.” In order to make this transition from commitment to action, participants at the regional consultations identified nine groups of stakeholders and made concrete recommendations on what each constituency can do to promote the mainstreaming of OER. These recommendations are synthesised in the companion volume to this report entitled *Open Educational Resources: From Commitment to Action*. These two documents capture the voice of the people and will contribute to the discussions that will help shape the *Ljubljana OER Action Plan*.

Both reports suggest ways in which we can contribute to promoting the use of OER for inclusive and equitable quality education, and how we can collectively move from commitment to action. Over 100 years ago, Indian poet and Nobel laureate Rabindranath Tagore, articulated his vision of the future when he wrote of a world “where the mind is without fear and the head is held high, where knowledge is free.” Can OER help us get closer to such a world?

I take this opportunity to thank the William and Flora Hewlett Foundation without whose generous financial support this report would not have been possible. The regional meetings were organised jointly with UNESCO, the Government of Slovenia and the host countries. This report is the collective effort of a number of individuals, and I thank each of them for their valuable contributions. Particular mention must

be made of our consultants Mr. Neil Butcher and Ms. Sarah Hoosen.

This important work is one more step in global efforts to promote OER for inclusive and equitable education and lifelong learning for all by 2030. I am sure you will enjoy reading this report as much as we enjoyed preparing it.



Professor Asha Kanwar
President and CEO
Commonwealth of Learning, Canada

ABBREVIATIONS

AeU	Asia e University
ALECSO	Arab League Educational, Cultural and Scientific Organization
AusGOAL	Australian Government Open Access and Licensing Framework
BOCODOL	Botswana College of Open and Distance Learning
CC	Creative Commons
CC BY	Creative Commons Attribution
CC BY-NC	Creative Commons Attribution-NonCommercial
CC BY-SA	Creative Commons Attribution-ShareAlike
CMCF-TICE	Centre Maroc Coréen de Formation en TICE (Moroccan-Korean ICT Training Centre)
COL	Commonwealth of Learning
DHET	Department of Higher Education and Training
EBA	Eğitim Bilişim Ağı (Educational Information Network, Turkey)
ERAF	Eiropas Reģionālās Attīstības Fonds (European Regional Development Fund)
ESA	Education Services Australia
FFE	free for education
HEC	Higher Education Commission (Pakistan)
ICDE	International Council for Open and Distance Education
ICT	information and communication technology
ISCED	International Standard Classification of Education
LAC	Latin America and the Caribbean
LangoER	Languages in Open Education Resources (Latvia)
LNRN	Laboratoire National des Ressources Numériques (National Laboratory of Digital Resources, Morocco)
MENA	Middle East and North Africa
MOOCs	Massive Open Online Courses
NAMCOL	Namibian College of Open Learning
NCU	National Copyright Unit (Australia)
NGO	non-governmental organisation
NMEICT	National Mission on Education Through ICT
NPTEL	National Programme on Technology Enhanced Learning (India)
OCW	Open Courseware
ODL	open and distance learning
OEL	open education licensing
OER	open educational resources
QA	quality assurance
ROER4D	Research on Open Educational Resources for Development
TAACCCT	Trade Adjustment Assistance Community College and Career Training
TAFE	Technical and Further Education
TESSA	Teacher Education in Sub-Saharan Africa
TVET	Technical Vocational Education and Training
UNESCO	United Nations Educational, Scientific and Cultural Organization
VIAA	Vlaams Instituut voor Archivering (Institute for the Archiving of Audio-Visual Heritage, Finland)



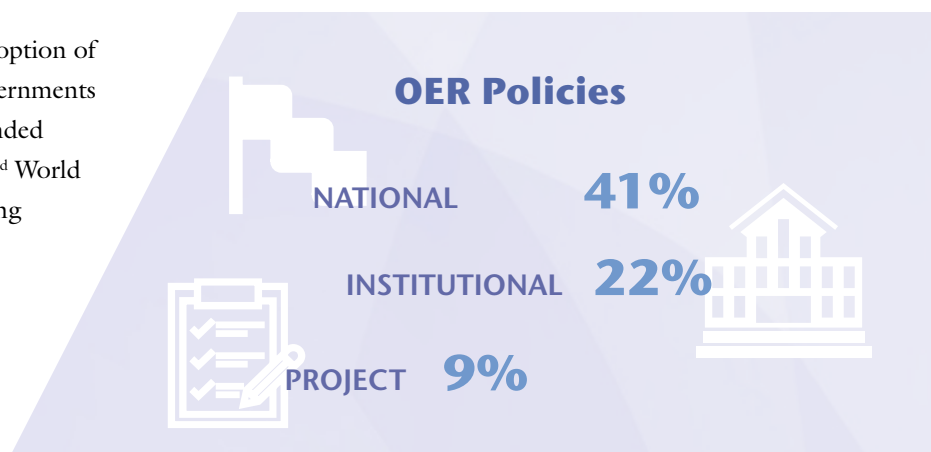
EXECUTIVE SUMMARY

“Open educational resources” (OER) are educational resources that are available to anyone free of cost and under an open licence to allow others to retain, reuse, revise, remix and redistribute them with few or no restrictions.

In 2012, the World OER Congress saw the adoption of the Paris OER Declaration, which calls on governments worldwide to use open licences for publicly funded educational materials. In preparation for the 2nd World OER Congress, the Commonwealth of Learning (COL) organised six regional consultations in collaboration with UNESCO and the Government of Slovenia, with support from the Hewlett Foundation. The objective was to identify the status of OER, discuss challenges to mainstreaming OER, build awareness, and encourage governments to commit to adopting open licensing policies for educational materials developed with public funds.

In addition, two surveys were conducted: one for governments and the other for stakeholders around the world. This report presents the findings of the two surveys, and analyses the discussions in the regional consultations to understand the status of OER within the framework of the 2012 Paris Declaration.

have indicated the existence of policies, many did not provide firm evidence for this. Just over half (59%) of the respondents further indicated that their country was contemplating policy development for OER.



OER ACTIVITIES

Most OER activities appear to be implemented through institutional initiatives and engaged individuals, and through specific programmes or projects with public funding. Activities in general appear to be at the secondary education, post-secondary (non-tertiary) and tertiary education levels. The most popular reason for country engagement with OER is to promote open and flexible learning opportunities and to increase the efficiency and quality of learning resources. The most impact appears to have been in teacher professional development and enhanced sharing of resources by teachers.

CHALLENGES FOR MAINSTREAMING OER

Fewer than half (49%) of the respondents thought that relevant stakeholders have the necessary skills to access, use and share OER. The most commonly reported skill required to improve OER use is information and

Government Survey

OER POLICIES

The findings suggest increased support for OER policies between 2012 and 2017 (55% compared with 45% in 2012). Most of these policies (41%) were reportedly national, followed by institutional (22%) and project (9%). However, while respondents may

communication technology (ICT) skills. Other required skills are understanding open licences and how they work, evaluating the usefulness and determining the value and quality of OER, and sharing OER. The most significant barrier to mainstreaming OER is the lack of users' capacity to access, reuse and share OER. Other significant barriers reported are lack of inclusive, equitable access to content and lack of appropriate policy solutions.

Only 41% of the respondents felt that there are sufficient OER in the main language (or languages) of education in their country. The data suggests that most OER are available in English. Responses also suggest that translation of OER into languages of instruction is not a priority for many countries, and the main challenge in translation is cost.

Major Challenges

Lack of users' capacity to access, reuse and share OER

Insufficient inclusive and equitable access to quality content

Lack of appropriate policy solutions

One-third of respondents indicated that their country had ensured that OER are accessible for persons with disabilities. Their explanations tended not to be specific to OER but general to addressing inclusive education policies and practices. More than half (55%) of respondents felt that their country addressed issues of quality assurance (QA) related to OER. This was usually through institutions, including national quality assurance agencies via guides, and through experts or QA being included in policies. More than half (57%) indicated that their country supported the use of OER in all ICT environments. There is also support for

mobile ICT and many applications and programmes are compatible with mobile technology.

A third of respondents noted that there had been a national discussion on sustainable learning resource production. Discussions around OER, digitisation, resource production and collaboration between public and private stakeholders were reported. However, only 23% of respondents indicated that OER production had generated new business or enterprise. Respondents identified diverse commercial industries as possibly interested in building products and/or services based on OER. These included telecommunications providers, software companies, publishers, finance companies, online entrepreneurs, healthcare providers, and tourism service providers.

The most commonly identified source of funding for OER development, use or deployment was government. Other sources mentioned were donor funding and the private sector. In all, 53% of respondents indicated that their Ministry of Education was involved as a partner in initiatives that were open to all stakeholders (including universities, teachers, learners, families, digital communities, and economic and social partners). With regard to research, responses suggest that little research is being done at the national level, which makes it difficult to ascertain the effectiveness and scope of OER at the country level.

Stakeholder Survey

AWARENESS OF OER

Regarding awareness of OER, 93% of stakeholder survey respondents indicated that they were aware of OER in general and 74% indicated that they were aware of OER in their country. Not all respondents were aware what OER are and that OER do not require permission for reuse. Respondents generally agreed that OER have an influence on

Benefits of OER



OER lower the cost of learning material

80.88%

Open licensing of OER enables continuous quality improvement

74.45%



OER assist developing countries in accessing quality materials

77.75%



teaching and learning in their country, mostly through improved sharing of resources by teachers and improved professional development of teachers.

The most popular benefits of OER reported were the lower cost of learning materials and OER assisting developing countries in accessing quality materials. Most respondents thought that the main reasons that their country should be involved in OER was to: promote open and flexible learning opportunities; improve access to quality resources; increase the efficiency and quality of learning resources; and reduce costs for students.

PARTICIPATION IN OER ACTIVITIES

Most OER activity appears to be at the tertiary education level, followed by secondary education. Almost two-thirds of stakeholder survey respondents (62%) reported being involved in OER-related work. Most indicated that access to teaching and learning materials in their respective countries was either good or varied. Just over half (55%) of respondents had used OER and 40% had adapted or remixed OER.

Of those who responded to the question on licensing, 43% reported not using any licence in the material they release as OER, and 54% reported using a Creative Commons licence. The most highly rated skills for the use of OER were ICT skills, followed by the ability to

find OER. Respondents appeared to be less confident about their ability to perform adaptations and to distribute OER.

BARRIERS TO MAINSTREAMING OER

The most important barriers to personal use and adaptation of OER were the lack of a reward system for staff members devoting time and energy to OER initiatives, and no support from management. Lack of skills and lack of time were also important barriers. Barriers related to lack of institutional policy were identified by 70% of respondents. Another barrier was lack of users' capacity to access, reuse and share OER. Qualitative responses revealed concerns about translation, particularly the skills of translation and the cost of it. Lack of access to reliable bandwidth was also a concern.

Regional Overviews



Data from regional meetings, government surveys and stakeholder surveys suggested variations in key priorities between regions.

In Africa, a key priority to address is the relevance and accessibility to OER. Textbooks are expensive, often outdated, and do not reflect local contexts. This means there is a need to consider ways for translating and contextualising material to address local needs. There is also a need to bridge the digital divide and focus on providing electricity and reliable bandwidth. In terms of OER activity, much focus appears to be on developing teacher capacity and integrating OER into open and distance learning (ODL) practices, with ODL policies making provision for OER adoption. Policy plays an important role, as funding is attached to policy, and therefore coherent policies and strategies for adopting OER are required. Another priority is to focus on

Major Highlights

OER development is uneven among the various regions.

People are still working in isolation although collaboration is promoted.

The movement is still concentrating on resources while little attention is paid to optimisation through practice.

awareness raising and capacity building, focusing on the sustainability of projects after funding dries up and considering the potential role of libraries and librarians in mainstreaming OER.

The Middle East and North Africa (MENA) region is bound by a common language, Arabic, but has an uneven development of OER. Some countries have already reportedly developed national OER policies, yet participants from other countries said they heard about OER for the first time when they attended the MENA regional consultation. Key priorities focus on capacity building in OER, including raising awareness of OER. Whilst several initiatives exist for the translation of existing OER into Arabic, the region faces linguistic challenges because many languages in MENA are endangered. Quality assurance is also a significant area of concern, as is the need for expertise in OER. Participants at the regional consultation also highlighted the need to implement OER policy and to increase institutional support of OER.

In the Pacific region, apart from in Australia, Fiji and New Zealand, discussion on OER policies was minor. There is general lack of awareness among various types of stakeholders about the relevance of OER, which makes mobilisation and awareness campaigns important. Furthermore, awareness about copyright and open licensing is limited. In many Pacific countries, the digital divide is a major challenge, and therefore

so is access to OER, its use, reuse and sharing. As well, mainstreaming of OER depends on an ability to reflect the rich linguistic diversity in the region.

In Asia, many OER efforts are driven by governments, but not necessarily with a national policy on OER. Discussions during the regional consultation in Asia raised concerns about poor Internet connectivity, lack of capacity and the unavailability of OER in local languages. In some countries, nevertheless, governments are investing vast resources in projects to develop quality content for higher education and lifelong learning.

In Europe, most countries are involved in OER, and there has been notable progress in the European Union since 2008 toward opening up education. There have been several funded OER projects, but these initiatives are regarded by some as not necessarily significant in terms of goals and impact. Current OER efforts are driven mainly by universities and institutions, and thus a specific priority for the region is to gain committed government support, with a cohesive OER policy, actions and measures. The challenge to policy-level adoption of OER across the region comes from the practice of public institutions and governments purchasing (or financing the production of) just the units of educational resources and not the rights. Not doing the latter limits public access to the works funded publicly and lowers the effectiveness of the investment made. Diversity of languages and cultures in Europe is also an important consideration in evolving region-wide policies and in developing technologies for repositories and OER access and reuse. Teachers were recognised as key stakeholders and actors in this regard and capacity building of teachers was seen as a critical practice in mainstreaming OER. Representatives at the regional consultation noted that the strong presence of reputable and viable commercial publishers in the region requires development of business models for value addition to OER to increase use and adoption.

In the Latin America and the Caribbean regional consultation, a key aspect noted was that OER are considered a people's movement. Stakeholder respondents identified promotion of flexible learning opportunities as one of the most important factors in favour of country involvement in OER. Access to teaching and learning materials was mostly variable, which offers an opportunity for OER but also poses a problem in that access to OER might be difficult to achieve. Lack of time and incentives were cited as the dominant barriers to OER translation. At the same time, 84% of respondents in the region felt that OER lower the cost of learning materials. Due to the push from the public, policy makers were strongly encouraged to pay serious attention to mainstreaming OER. Representatives voiced their concerns over the English language dominance of OER, and said that a priority for the region was to create OER in Portuguese and Spanish. Countries in the region also face challenges of access to technology and of capacity building in using and reusing OER. Another priority noted is the need to focus on developing OER policy to increase the likelihood for funding.

While there was a diversity of concerns from region to region, a commonality across all regions was the call for more cooperation and collaboration to allow countries to learn from each other and enable those that have made significant progress to share their experiences and expertise with countries just beginning to take OER on board.

to questions on OER policies, it appears there are relatively few national policies that specifically focus on OER. Interestingly, in regions with extensive OER activity, a national policy is often not driving efforts, suggesting the effectiveness of bottom-up initiatives in promoting OER. Just over half (59%) of government respondents indicated that their country was contemplating policy development for OER.

PLATFORMS AND REPOSITORIES

Stakeholder survey respondents appeared more likely to have used or currently use OER repositories that have been created in the global north than the global south. The majority of OER repositories are pitched at the tertiary level, and these are usually university repositories. The use of available OER repositories is significantly low, indicating that promoting OER repositories with stakeholders needs rethinking. Although respondents in the stakeholder survey identified various repositories they had used, many respondents instead listed websites for Massive Open Online Courses (MOOCs) such as Coursera and Khan Academy. Although some MOOCs do contain OER content, not all MOOCs are OER.

These responses indicate either a lack of awareness of what an OER repository is, or at least lack of consensus over a definition of OER.



Global Trends in OER

POLICIES

The presence of country policies that support OER is widely regarded as being significant in serving as a gauge to determine levels of commitment to OER. Based on government responses

Key Trends



59% of government respondents indicated that their country is contemplating policy development for OER.



Awareness and use of available OER repositories are significantly low.



Meaning of "open" is still not clear to many stakeholders, indicating the need for capacity building.

AWARENESS AND ENGAGEMENTS

While overall reported awareness of OER appears to be good, it is disconcerting to note that, five years after the first World OER Congress, many people still conflate OER with digital resources or with free resources.

With the relatively recent advent of MOOCs, it appears that people are further confused by the difference between MOOCs and OER. Examples of several engagements provided by respondents around the world suggest that this misunderstanding is still reasonably widespread. Nevertheless, there is evidence of increased advocacy at both the micro (personal) and macro (policy) levels. It is also clear that the work of various donors and intergovernmental organisations such as COL have had an impact in getting countries to think about OER.

When asked about commercial industries not directly related to education that would be interested in building products and/or services on top of OER, stakeholder survey respondents identified several agencies, most of which were telecommunication companies and Internet service providers.

Most stakeholder respondents thought that it was likely that new business models would emerge, with publishers providing hybrid products that allow for

both OER and traditional copyrighted publications to co-exist, each meeting the needs of different audiences. However, several respondents thought it unlikely that publishers would concentrate on developing new subjects where OER do not yet exist or on assembling OER. Some respondents even felt that publishers would be unwilling to consider any new business models that deal with OER.

Challenges and Gaps



A summary of emerging challenges and current gaps derived from the survey data and regional consultations is presented below, organised according to the 10 recommendations of the OER Paris Declaration.

- **Foster awareness and use of OER:** The survey data indicates that although awareness of OER is increasing, there is still a general lack of awareness among various types of stakeholders about the relevance of OER and understanding of what OER are.
- **Facilitate enabling environments for use of ICT:** Compared with five years ago, significantly more people now have Internet access through their



Publishers

65%

Publishers developing hybrid models with copyrighted publications to co-exist with OER

66%

Publishers providing customised education services

60%

Publishers assembling OER

61%

Publishers developing new subjects where OER do not yet exist

68%

Publishers providing joint products

mobile devices. Despite this, OER have not been adopted at the speed and scale envisaged in 2012. The digital divide remains a major challenge in many regions, particularly in Africa, Latin America and the Caribbean, and the Asia-Pacific region, which impacts on access to OER access, reuse and sharing.

- **Reinforce the development of strategies and policies on OER:** There are few national OER policies but an increasing number of institutional OER policies. The lack of appropriate policy solutions for OER seems to be a predominant limiting factor across all regions. It was evident that OER may not be specified as a government priority in some countries. However, many governments are contemplating policies in support of OER.
- **Promote the understanding and use of open licensing frameworks:** The system of licences developed by the Creative Commons organisations is currently the most popular way to make OER available to the public. The survey data revealed that awareness about copyright and open licensing is limited, as evidenced by the number of examples provided that were not OER. Additionally, of respondents on the question on licensing, 43% reported not using any licence in the material they release as OER, and only 54% reported using a Creative Commons licence. Much work is thus still required around the issue of licensing.
- **Support capacity building for the sustainable development of quality learning materials:** Several government and stakeholder respondents mentioned the significant work COL is doing in their countries with regard to capacity building in OER, particularly among teachers and in ODL institutions. In most countries, this is the primary OER activity. While donor funding has been an essential component of initiating OER practices, governments and educational institutions still need to invest systematically in programme, course and

materials development and acquisition for that all to become sustainable and effectively used.

- **Foster strategic alliances for OER:** The survey results provided several examples of engagements with various stakeholders in the public and private spheres, including Internet service providers, publishers, teachers, experts and government. Respondents identified telecommunications



56%
of research literature in the
OER Knowledge Cloud has
been published after 2012

companies and Internet service providers as industries that might be interested in building products on top of OER. While there are some strategic alliances at national level, bigger regional and international efforts to support OER locally are missing.

- **Encourage the development and adaptation of OER in a variety of languages and cultural contexts:** Most government respondents indicated that no efforts were made to translate resources into local languages. Nevertheless, several respondents did provide examples of initiatives to translate OER. Both economic and social barriers exist in translating OER into local languages. Not only are translations seen as being expensive and time-consuming, but sentiments expressed by respondents indicate that there are linguistic biases involved, particularly a propensity to use English.
- **Encourage research on OER:** Only 25% of government respondents who answered the question about OER research indicated knowing whether their country had conducted research on

contributing to OER use in general. Several OER research efforts are supported by donor agencies, however, resulting in an increase in research on OER over the years. Nevertheless, government support for research on OER is lacking.

- **Facilitate finding, retrieving, and sharing of OER:** Most government survey respondents (84%) indicated that the main barrier to mainstreaming OER is lack of user capacity to access, reuse and share OER. Furthermore, just under half (47%) of government respondents indicated that relevant stakeholders have the necessary skills to access, use and share OER. In the stakeholder survey, the most highly rated skills were ICT skills, followed by the ability to find OER. Respondents appeared to be less confident about their ability to perform adaptations and to distribute OER, indicating a strong need for developing capacity building strategies at national and institutional levels.

countries, such as Antigua and Barbuda, Fiji and Seychelles, have also committed open licensing for publicly funded resources. However, the speed at which such policies are being established and the number put in place to date are not encouraging.

Conclusions and Way Forward



Countries are at various stages of OER adoption: many still need to focus on raising awareness about OER and its potential benefits (including clarifying what OER means); some are tackling digital divide issues; and yet others are grappling with business models and sustainability issues. Policy development appears to be a pressing concern across most countries, and while governments may have expressed commitment to policies in support of OER, this has not necessarily translated into action or funding.

Significant developments in OER have been achieved via partnerships and with funding and support from donors, NGOs and intergovernmental organisations, although the sustainability of such interventions and alliances is not yet clear.

Importantly, the most significant barrier to OER activity mentioned by government and stakeholder respondents was the lack of user capacity to access, reuse and share OER. In order to mainstream OER, based on the data available, we can proffer the following as a way forward to mainstream OER:

- Focus on advocacy, awareness raising and sensitisation about the benefits of OER among governments and key stakeholders.
- Strengthen capacity building for OER to assist key stakeholders in retaining, reusing, revising, remixing and redistributing OER. Focus on teacher integration of OER in teaching and learning. Keeping the learner at the centre is essential.

Main barriers to mainstreaming OER

User's capacity to access, reuse and share OER

84%

(Government survey)

81%

(Stakeholder survey)

Encourage the open licensing of educational materials produced with public funds: There are a few examples of educational materials produced with public funds having open licences. One significant change since the 2012 Paris Declaration is the release by the Government of India's NPTEL of all its material as OER under a Creative Commons ShareAlike (CC BY-SA) licence. Other

- Invest significantly in policy development both at the national and institutional levels. Mainstreaming OER needs to be both bottom-up and top down. While a national policy framework will guide all activities, institutional OER policies will help teachers adopt OER at speed and facilitate OER creation and sharing at scale. National uptake of OER and policy development could be improved through an appropriate normative instrument from UNESCO to guide countries on OER policy development.
- Facilitating creation of national, regional and international networks to share experiences and discuss issues of importance among stakeholders may be a priority for all engaged in OER, as well as the exchange of good practices from one country to another.
- Funding is still required to promote and drive OER efforts. Thus, there is a need to explore sustainability models and business models for OER, and to sensitise governments and identify new funding sources (foundations) to invest sufficiently in OER initiatives to ensure their success.
- A prerequisite of engagement with OER is access to ICT infrastructure. While this is improving in many regions, further work is required to bridge the digital divide.
- In countries that have policies and various activities, it may be worthwhile to look at how activities are implemented and how this implementation is measured. Monitoring the progress of OER in a systematic manner would help countries benchmark and follow good practices.





BACKGROUND

In 2002, the term “open educational resources” (OER) was adopted at a forum organised by the United Nations Educational, Scientific and Cultural Organization (UNESCO) to describe the open sharing of educational resources.

At its core, OER is a simple concept: it describes educational resources that are offered freely, are available to anyone and are under an open licence that allows others to retain, reuse, revise, remix and redistribute them with few or no restrictions. The best known of the open licences are Creative Commons (CC) licences.¹ These provide legal mechanisms to ensure people retain attribution to their work even while that work is shared, and to allow people to choose to restrict commercial activity. OER can include lecture notes, slides, lesson plans, textbooks, handouts for students, videos, online tutorials, podcasts, diagrams, entire courses, and any other material designed for use in teaching and learning.

¹ <https://creativecommons.org/licenses/>

In 2012, the World OER Congress was held in Paris, featuring presentations from key supporters of OER worldwide. The congress, which attracted over 400 participants (governments and educational and OER experts) from 70 countries, emphasised using OER as a means of providing equal access to knowledge. It showcased innovative policies and initiatives that demonstrate the potential of OER to improve communities. The congress also featured various ways in which OER serve as tools for collaboration and the creation of learning resources. Importantly, the congress saw the adoption of the Paris OER Declaration,² which calls on governments worldwide to license publicly funded educational materials openly for public use.

The congress was organised by the Commonwealth of Learning (COL) and UNESCO, with the support of the William and Flora Hewlett Foundation. In preparation for the event, COL and UNESCO had a survey of governments’ OER policies carried out. The

² http://www.unesco.org/new/fileadmin/MULTIMEDIA/HQ/CI/CI/pdf/Events/English_Paris_OER_Declaration.pdf



Creative Commons (CC) is at the centre of an international movement that supports free culture and open knowledge. CC enables and stewards a vibrant global commons of openly licensed content that maximises digital sharing and creativity to build a more equitable, accessible, and innovative world. The CC licenses are everywhere – 1.2+ billion CC licenses in use across 9 million websites.

– Contributed by Dr. Cable Green

For more information, see: <https://stateof.creativecommons.org>

ensuing report provided background to the congress (Hoosen, 2012).

Since 2012, many governments and educational institutions have committed to policies in support of OER, and there is increased awareness about OER in many countries, as well as growing funding for the creation, adaptation and distribution of OER.

This year, 2017, marks the fifth anniversary of the 2012 Paris OER Declaration. To review the progress made since 2012, and to promote international collaboration in the field, COL undertook a comprehensive survey of governments and stakeholders to support discussions at the 2nd World OER Congress in 2017, hosted by the Government of Slovenia and organised by UNESCO.

In preparation for this second congress, six regional consultations were organised by COL in collaboration with UNESCO, the Government of Slovenia, and other partners between December 2016 and May 2017. The purpose was to:

- identify the current status of the recommendations made at the World OER Congress among key stakeholders, namely governments, policy makers, the OER community and the wider education community;
- initiate discussions regarding the identified challenges to mainstreaming OER;
- build awareness among key stakeholders about the objectives of the 2nd World OER Congress and make recommendations for consideration; and
- encourage more governments to commit to adopting open licensing policies for educational materials developed with public funds.

The theme of the regional consultations was “*OER for Inclusive and Equitable Quality Education: From Commitment to Action*”. Six regional forums were held, in Malaysia, Malta, Qatar, Mauritius, Brazil and New Zealand. The 2nd World OER Congress aims to make the transition from commitment to action. The



global community will identify strategies to harness the potential of OER for achieving inclusive and equitable quality education and lifelong learning for all by 2030 (COL, 2016). OER are also regarded as having a central role to play in Sustainable Development Goal 4: Education, which calls for the international community to “ensure inclusive and equitable quality education and promote lifelong learning opportunities for all,” with its key pillars of access, equity and inclusion.

This report presents findings of the two surveys that were disseminated to governments and stakeholders (see Appendix A for the methodology of the study), and discussions in the regional consultations to project the current status of OER within the framework of the 2012 Paris Declaration. Comparisons to data collected in 2012 have been made wherever possible, as the data collected in the 2012 survey differs from this survey. The present report goes beyond the government survey conducted in 2012 and also presents the views of the stakeholders.

The report has been prepared as a background document for discussions during the 2nd World OER Congress. However, its value will go beyond the congress, in standing as a state-of-the-art report on OER in 2017.

It is a milestone in the history of the OER movement and will be of interest to anyone wanting to know more about OER in future. In particular, people involved in Ministries of Education, educational institutions at all levels, and civil society organisations supporting educational development will find the report useful for education planning, policy development and monitoring.





GOVERNMENT SURVEY

Governments play a major role in shaping the educational landscape in their country. It is a primary responsibility of the government to provide policy and strategic directions to education at all levels and ensure access to quality education for their citizens.

With the Sustainable Development Goals adopted by the international community and the governments — where Goal 4 focuses on achieving quality education and lifelong learning for all by 2030 — it is significant to understand governments’ preparedness and strategy to support the OER movement. The international community asserted also the role of OER to improve the quality of, and access to, textbooks and other forms of learning content in the Qingdao Declaration 2015, and committed to develop “sector-wide strategies and capacity building programmes to fully realise

the potential of OERs to expand access to lifelong learning opportunities and achieve quality education” (UNESCO, 2015).

Therefore, the survey was timely and focused on: the presence of policies and strategies that support OER; activities around the creation, use, and sharing of OER; and barriers to mainstream OER as perceived by the government representatives. The survey was sent by COL and UNESCO to ministries responsible for education in all UNESCO and COL Member States. It was also made available to COL Focal Points and to National Delegations in UNESCO.

In total, 102 responses were received from governments from the five regions (Table 1).

Table 1: Government responses by region

REGION	RESPONSES	COUNTRIES
AFRICA	28	Botswana, Burundi, Cabo Verde, Cameroon, Chad, Côte d’Ivoire, Democratic Republic of Congo, Equatorial Guinea, Ghana, Kenya, Lesotho, Madagascar, Malawi, Mali, Mauritius, Mozambique, Namibia, Nigeria, Rwanda, Senegal, Seychelles, Sierra Leone, South Africa, Swaziland, Tanzania, Togo, Uganda, Zambia
MIDDLE EAST AND NORTH AFRICA	12	Algeria, Bahrain, Djibouti, Egypt, Kuwait, Mauritania, Morocco, Palestine, Qatar, Saudi Arabia, Sudan, Syria
ASIA AND PACIFIC	28	Australia, Bangladesh, Brunei, China, Fiji, India, Indonesia, Iran, Kiribati, Kyrgyzstan, Lao PDR, Malaysia, Maldives, Marshall Islands, Nepal, Pakistan, Palau, Papua New Guinea, Philippines, Samoa, Solomon Island, Sri Lanka, Thailand, Timor-Leste, Tonga, Uzbekistan, Vanuatu, Vietnam
EUROPE AND NORTH AMERICA	21	Armenia, Azerbaijan, Belgium, Bulgaria, Cyprus, Estonia, Finland, France, Georgia, Latvia, Lithuania, Malta, Netherlands, Poland, Romania, Russian Federation, Slovakia, Slovenia, Spain, Turkey, United States of America
LATIN AMERICA AND CARIBBEAN	13	Antigua and Barbuda, Bahamas, Barbados, Belize, Chile, Colombia, Costa Rica, Dominica, Ecuador, Grenada, Jamaica, Mexico, Peru, St. Lucia, St. Vincent & The Grenadines, Trinidad and Tobago

Strategy and Policy

The understanding of what constitutes a policy varies. Therefore, for this survey, we defined OER policies as laws, rules and courses of action that facilitate the creation, use or improvement of OER.

Using this definition, the survey asked governments to respond to what kinds of strategy and or policy they have. In all, 56 countries indicated that there is some kind of support for OER policies in their laws, policies or national development plans (Table 2). This includes availability of national (41) institutional (23) and project (9) level policies.

Overall, this represents a marginal increase from the 2012 survey with respect to national level policies. However, this is not reflected in the OER policy registry maintained by CC.³ Forty-one countries indicated support for OER in their national policy (see sidebar). Presence of OER policies in the five regions of

3 See https://wiki.creativecommons.org/wiki/OER_Policy_Registry

the world are given in Table 2. Africa, Asia and the Pacific, and Europe and North America show 15 or more commitments each.

Of those who responded positively about the presence of OER policies, 63% indicated that open licence is specified in the government policies. Of those, 59% noted that CC licences are used. However, many responses did not provide sufficient details to allow the data provided to be verified, or to establish actual use of open licensing. Nevertheless, several respondents provided examples of OER policies. A summary is shown below.

In Africa:

- Botswana has an institutional policy.
- Ghana refers to OER in its ICT [information and communication technology] for Education Policy and OER is mentioned in university documents.
- Lesotho's Open Distance Learning (ODL) Policy supports OER.

Table 2: Presence of OER policies per region

PRESENCE OF POLICIES	AFRICA	MIDDLE EAST AND NORTH AFRICA	ASIA AND PACIFIC	EUROPE AND NORTH AMERICA	LATIN AMERICA AND CARIBBEAN	TOTAL ACROSS ALL REGIONS
YES	15	5	16	15	5	56
NO	12	6	12	5	8	43
DON'T KNOW		1	1	1		3

Policies in Support of OER: Antigua and Barbuda, Australia, Bahrain, Bangladesh, Belgium, Bulgaria, Burundi, Chile, China, Colombia, Egypt, Fiji, Finland, France, Kyrgyzstan, Lao PDR, Lesotho, Lithuania, Madagascar, Malaysia, Morocco, Mozambique, Nepal, Netherlands, Pakistan, Papua New Guinea, Philippines, Poland, Romania, Rwanda, Slovakia, Slovenia, Solomon Islands, South Africa, Spain, Swaziland, Tanzania, Timor-Leste, Turkey, United States of America, Vietnam

- Morocco has an OER policy.
- In Mozambique, OER is reportedly referenced in its Distance Education Strategy 2014–2018.
- Rwanda mentions OER in its ICT in Education Policy.
- In South Africa, the White Paper for Post-School Education and Training by the Department of Higher Education and Training (DHET)/Post-School Education and Training includes reference to OER. The DHET follows an all-inclusive approach and is currently developing a policy framework for open learning that will further build on the national policy. The framework includes a dedicated section on OER. There is also a DHET position paper on online programmes and courses that includes reference to OER.
- Tanzania’s Educational Policy 2014 and its ICT policy mention OER.

In the Middle East, Bahrain has an OER Policy.

Mongolia

In 2014, the Mongolian parliament adopted a National OER Programme to be implemented by the Ministry of Education, Science and Sport and the Open Network for Education (ONE) Foundation of Mongolia. The National OER Programme has several components – including the ONE Academy for supporting open collaborative work, the development of an open university, and the development of policies that allow educators to release their materials openly – to be implemented in the period 2014–2024. As part of initial activities 500 videos of Khan Academy have been localised and Mongolian dictionary wiki created.

– Contributed by Batbold Zagdragchaa

Canada

In 2014, the Advanced Education Ministries in Canada’s British Columbia, Alberta and Saskatchewan signed a Memorandum of Understanding to collaborate on the development of common OER. BCcampus was already leading in implementing open textbooks and Alberta followed up with a major initiative supporting post-secondary OER adoption and development. The collaboration has now spread to Manitoba and Ontario, which have started major OER initiatives. All are now sharing the building of a common OER repository based on the one started in BC. At present there are more than 160 OER textbooks available, resulting in savings of over \$4 million.

– Contributed by Prof. Rory McGreal

In Europe and North America:

- In Estonia, all learning resources developed by public authorities or with public funds are expected to be under an open licence and free to use.
- Lithuania’s Activity Plan for ICT Implementation in General and Vocational Education for 2014–2016 references OER.
- Belgium has made available support for development of open digital content and funding schemes to develop OER.
- In the Netherlands, all beneficiaries of government grants must license produced materials under a Creative Commons BY 4.0 licence, supported by the Cultural Participation Fund.⁴
- Slovenia has a “Strategic guidelines for the further introduction of ICT” (English translation), which includes reference to OER. As well, the Opening Up Slovenia⁵ is a special project of the government supporting OER.

In Latin America and the Caribbean region:

- The nation of Antigua and Barbuda has an ICT in Education Policy that embeds OER policy.

⁴ <http://www.cultuurparticipatie.nl/english/>

⁵ <http://www.ouslovenia.net/>

- Other Latin American and Caribbean governments are now in the process of developing the Antigua and Barbuda model for adopting OER policies and strategies.

In Asia and the Pacific region, many respondents also provided URLs to refer to OER policies, but in most cases these turned out not to be specific to OER policies.

- The Philippines has a draft policy.
- Australia has many examples of national OER policies and the Australian Government Open Access and Licensing Framework⁶ (AusGOAL) has been endorsed by all state and territory Departments of Education. Tasmania, South Australia, New South Wales, Queensland, Western Australia, Victoria and the Australian Government Departments of Education have licensed their websites under Creative Commons BY 4.0 and the other states and territories are in the process of doing the same.

In all:

- 49% of the survey respondents indicated that there is reference to OER in a government or state/ regional educational strategy, plan or similar document;

⁶ Although AusGOAL is no longer in existence, it is acknowledged in this survey for its previous work. Currently there is no government agency responsible for implementing AusGOAL's framework.

- 61 respondents indicated that their country has been contemplating policy development for OER; and
- only 44 respondents indicated awareness of the OER Policy Registry.

OER Activities

The survey defined OER activities as meaning “the creation, use or sharing of OER.” Questions about OER activities were asked in relation to activities by government or educational institutions. Respondents were first asked whether their country is actively engaged in OER and, if their answer was yes, they were then asked to identify the form of engagement from a list of predetermined options.

Results showed that, globally, most OER activities are undertaken through initiatives of institutions and engaged individuals (50%) and through specific programmes or projects that are publicly funded (about 46%) (Figure 1).

There are differences between regions regarding which types of engagement in OER activities are most prevalent, as is illustrated in Table 3. While most OER activities in Africa, Asia, the Pacific, Europe and North America are taking place through initiatives in educational institutions, it is government initiatives

Figure 1: Percentage of countries surveyed engaged in OER activities, by type of engagement.



in the Middle East and North Africa that are most common. In the Latin America and Caribbean region, OER projects with donor funding are significant.

While respondents from all regions provided evidence of OER activities, most of the detail and number of activities were provided by respondents based in Europe and North America.

In several European countries, there are multiple OER activities at several levels. For example, the respondent from Lithuania listed the work of Vytautas Magnus University⁷ and the engagement of the Lithuanian

Distance and eLearning Association in developing, using and sharing OER.

In Armenia, the government respondent mentioned the open education portal⁸ of National Centre of Educational Technologies (a state organisation responsible for ICT activities in the education sector). The portal is designed for free use by schools and includes resources such as school curricula, textbooks, courses, tutorials, teacher manuals, lesson plans and examination tests. However, it is not clear whether these are OER.

⁷ <http://studyonline.lt/en/study-of-innovation/open-educational-resources/>

⁸ <http://lib.armedu.am/>

Table 3: Types of country engagement in OER

Types of engagement	Africa	Middle East and North Africa	Asia and Pacific	Europe and North America	Latin America and Caribbean
Through initiatives by institutions and engaged individuals	46%	17%	48%	85%	38%
Through specific projects or programmes with public funding	36%	25%	48%	85%	23%
Through specific projects or programmes with private funding.	21%	8%	14%	35%	0%
Through specific projects or programmes with donor funding	39%	8%	34%	30%	38%
Through government initiatives, including specific measures and incentives	21%	50%	24%	75%	15%
Other ways	0	0	7%	0	8%
No	18%	25%	24%	5%	8%

The government respondent from Belgium provided information on various OER activities in the country, including KlasCement,⁹ an education portal that supports teachers in sharing and delivering learning objects, and creation of an Institute for the Archiving of the Audio-Visual Heritage¹⁰ (VIAA) in Flanders, which provides open and free content for Flemish teachers.

The government respondent from Latvia provided detailed information on its OER activities:

- Rezekne Academy of Technologies participated in the Languages in Open Education Resources (LangOER) initiative.¹¹
- An OER repository has been developed by the Latvian National Library¹² which is financially supported by *Eiropas Reģionālās Attīstības Fonds* (ERAF)¹³ and national co-financing.

In the Netherlands, the government respondent cited various activities:

- Delft University of Technology¹⁴ and the Open University¹⁵ maintain OER repositories.
- Fontys University of Applied Sciences has appointed a lecturer (professor) to research ways to widen adoption of OER by teachers, institutions and governments (UNESCO Chair).
- Several institutions are member of the Open Education Consortium.
- VO-content¹⁶ provides schools in secondary education with OER-materials.
- *Ministerie van Onderwijs, Cultuur en Wetenschappen*¹⁷ funds Kennisnet,¹⁸ the Dutch public organisation for the use of information

9 <https://www.klascement.net/>

10 <https://viaa.be/nl>

11 http://langoer.eun.org/final_policy_paper

12 <http://periodika.lv/>

13 European Regional Development Fund

14 <https://ocw.tudelft.nl/>

15 <https://www.ou.nl/eCache/DEF/2/19/943.html>

16 <https://www.vo-content.nl/>

17 Ministry of Education, Culture, and Science

18 <https://www.kennisnet.nl/>

technology in education, which is targeted at Primary, Secondary and Vocational Education. Kennisnet develops Wikiwijs Maken (Wikiwijs Creation), a Dutch online tool for creating Web-based lessons under a CC BY-SA licence. This initiative was launched seven years ago and currently has more than 26,500 published lessons.

- In higher education, SURF developed Sharekit,¹⁹ a resource that can be used to develop, reuse and share OER.

In Estonia, some programmes implemented by the Ministry of Education follow OER principles. Similarly, in Turkey, OER is reportedly used in the content development process under the *Eğitim Bilişim Ağ* (EBA) — Educational Information Network. Likewise, in Finland, there are several initiatives working within the OER framework, including some higher education institutions being part of the Open Courseware Consortium. The new national curriculum framework for primary education in Finland (from 2016 onwards) states that programming (or coding) is part of all education. The initiative also provides an open library of content (openly licensed under CC BY 4.0).

In Slovenia, the following initiatives were highlighted by the respondent:

- Institution Jozef Stefan Slovenia (a public research institution),
- Opening Up Slovenia (a “bottom-up initiative”),
- VideoLectures.NET,²⁰
- UNESCO Chair in Open Technologies for OER,²¹
- multimedia and interactive educational materials²² provided under Creative Commons licence, and
- 27 interactive textbooks in science²³ under Creative Commons licence.

19 <https://www.surf.nl/diensten-en-producten/surfsharekit/index.html>

20 <http://videolectures.net/>

21 <http://unesco.ijs.si/>

22 <http://portal.sio.si/gradiva>

23 <https://eucbeniki.sio.si/>

In the United States, although many government grant programmes and contracts do not include an open licensing requirement, several U.S. federal agencies manage grant programmes or contracts that include an open licensing requirement. At the U.S. Department of Education, the #GoOpen²⁴ initiative is an important one that supports schools districts and educators in using openly licensed resources in their schools. Several states have committed to adopting and implementing a state-wide technology strategy that includes:

- using openly licensed resources as a central component;
 - developing and maintaining a state-wide repository solution for openly licensed resources;
 - developing the technical capability to publish OER to the Learning Registry;
 - participating in a community of practice with other so-called #GoOpen states and districts to share learning resources and professional development resources; and
 - creating a webpage to share the commitment to #GoOpen and document the state's progress.

The U.S. Department of Labour has taken the initiative to promote the use of OER in the Community Colleges, and two important activities include:

- promoting OER by requiring use of the CC BY open licence in the Trade Adjustment Assistance Community College and Career Training²⁵ (TAACCCT) grant programme — a \$1.9 billion grant programme to build the capacity of community colleges to deliver training to dislocated workers and other adult learners.
- establishing a repository²⁶ for the OER developed by community colleges under

²⁴ <https://tech.ed.gov/open/districts/>

²⁵ <https://doleta.gov/taaccct/>

²⁶ <https://www.skillscommons.org/>

the TAACCCT programme, which can be found at [SkillsCommons.org](https://www.skillscommons.org).

A few respondents from other regions also provided an overview of OER activities in which they are involved. For example, the respondent from Morocco highlighted the GENIE programme, the National Laboratory of Digital Resources (LNRN); and the *Centre Marocain de Formation en TICE* (CMCF-TICE),²⁷ which promotes the production and use of free educational software and resources. Additionally, the Ministry of National Education has launched several initiatives to promote OER.

The government respondent from Australia noted that the country is actively engaged in OER through open education licensing (OEL) and university Massive Open Online Course (MOOC) projects. The respondent highlighted that various policy actions relate specifically to the licensing of public sector information under Creative Commons licences. Some of the important initiatives and activities:

- AusGOAL provided support and guidance to government and related sectors to facilitate open access to publicly funded information while managing copyright, privacy, security and confidentiality implications. All state and territory Departments of Education have endorsed

²⁷ Moroccan-Korean Training Centre in ICT

Open Educational Licensing Toolkit

The Australian Government Office for Learning and Teaching supported the development of this toolkit to address a critical need for the adoption of open educational resources (OER) in Australia. It provides clear information on open licensing for educational materials and its interaction with Australian copyright law. The Open Education Consortium (OEC) awarded the toolkit an Open Education Award for Excellence in 2017 in the Category of best Open Tool.

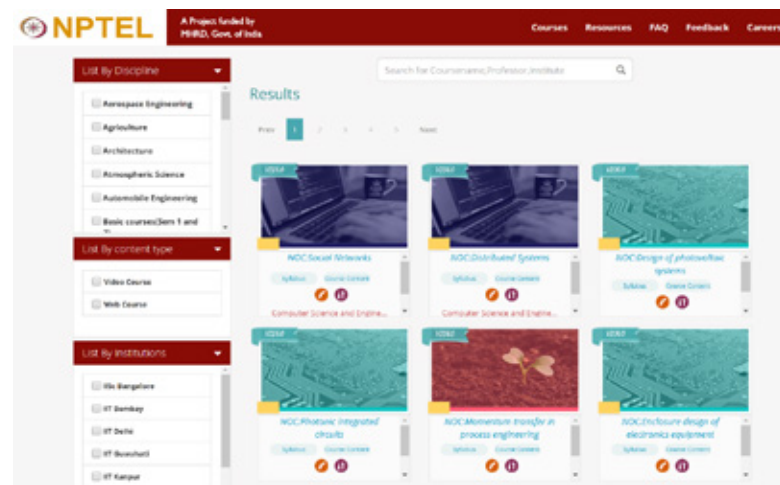
– Contributed by Dr. Carina Bossu

AusGOAL. AusGOAL is no longer in existence, but all Departments of Education are AusGOAL-compliant and will continue to be in the future.

- The Department of Communications and the Arts has updated the Intellectual Property Principles for Commonwealth Entities and the Guidelines²⁸ for releasing public sector information to assist entities with implementation of the government's policy, including a recommendation of CC licencing.
- The National Copyright Unit (NCU) has developed and delivers numerous training sessions and workshops for school and Technical and Further Education (TAFE) educators throughout the country, which actively encourage the implementation of CC and OER in Australia. The NCU also offers an online course, Copyright 4 Educators, that currently has one week dedicated to OER and CC licences, with a further week on OER. This course is offered online, twice a year, with an intake of approximately 60 educators.
- Open education licensing (OEL) is a decision-tree Web application designed to support the use, creation, modifying or sharing of OER in the Australian higher education sector.
- Scootle²⁹ is a nationally funded curriculum content distribution channel that supports the Australian curriculum and is available to all the departments of education in Australia. Scootle is managed by Education Services Australia (ESA). It has over 12,000 digital resources that are free for education (FFE), and it now has 1,600 resources that are licensed under Creative Commons, with more being transitioned from FFE to OER. Scootle pays up-front third-party content licence fees on behalf of Australian education departments to minimise copyright fees paid by schools for the use of material under the statutory licence.

28 <https://www.communications.gov.au/policy/policy-listing/australian-government-intellectual-property-rules>
 29 <http://www.scootle.edu.au/ec/p/home>

The Government of India has adopted open licensing for its flagship project, National Mission Education through ICTs.³⁰ The National Programme on Technology Enhanced Learning³¹ (NPTEL) is one of the largest educational repositories in the world in engineering, basic sciences and selected humanities and social science subjects, with over 20,000 videos and 300 million visits.³² All NPTEL materials are available with a CC BY-SA licence.



In Sri Lanka, most of the activities are at the institutional level at the Open University of Sri Lanka, covering capacity building of teachers, policy development and research.

In the Bahamas, the government respondent noted that the government has always sought to make educational resources readily available to all educators through the Learning Resources Section (LRS) of the Ministry of Education and the Bahamas Learning Channel.

In Peru, the Ministry of Education pedagogical office creates OER and other free virtual content. Poland, Romania, and Chile also provide links to several initiatives. There are many sporadic attempts to train teachers in using OER reported in many countries. The respondent from Grenada reported that two lecturers at the college level and 10 teachers at the secondary level

30 <http://www.sakshat.ac.in/>
 31 <http://nptel.ac.in/>
 32 <https://factordaily.com/nptel-india-edtech-mooc/>

were trained in content development, while Madagascar has a network of 18 secondary school teachers who are responsible for developing OER. The respondent from Namibia reported that the Namibian College of Open Learning (NAMCOL) is involved in developing OER at the grade 10 and 12 level. In Pakistan, the Higher Education Commission (HEC) included OER in the B.Ed (Hons) of Elementary Education curriculum. In Indonesia, the Indonesia Open University (Universitas Terbuka) has been actively developing OER and has made them available on its website. The Botswana College of Open and Distance Learning (BOCODOL) is using OER in certificates, diplomas and Masters level qualifications.

Several respondents noted the significance of partnerships in describing their country engagements in OER. For example, in Kyrgyzstan, the government respondent highlighted that the Open Digital Library of Kyrgyzstan³³ is implemented by the Association of Public Libraries of the Kyrgyz Republic with the support of the Soros Foundation-Kyrgyzstan.

The role of donors and organisations was also highlighted as significant in promoting OER in several countries. For example, according to the respondent from South Africa:

In the DHET we have two specific donor funded programmes: the development of the National Open Learning System with all programmes

33 <http://lib.kg/>

and courses as open education, [and] training TVET college lecturers through open learning. The DHET is publishing all materials developed with public funding as OER.

Several countries of the Commonwealth, such as Antigua and Barbuda, Cameroon, Tanzania, Trinidad and Tobago, St. Lucia and Sri Lanka, reported working with COL to promote OER activities in their country.

OER USE AT DIFFERENT LEVELS OF EDUCATION

OER activities happen at different levels of education. The survey asked respondents to indicate OER activities at the various levels as per the International Standard Classification of Education (ISCED). Table 4 shows that respondents were aware of activities in their country mostly at the secondary level (67.6%), followed by Post-secondary education (59.8%), tertiary education (53%), and primary education (50%).

The results from this survey thus suggest that most activity appears to be at the secondary and post-secondary levels. The 2012 report noted highest levels at the tertiary level (although it should be pointed out the rating scales used for both surveys were slightly different). In some countries, OER activities were limited to some educational institutions (e.g., the University of Malawi and University of Swaziland).

Table 4: OER activity at different levels, by ISCED (International Standard Classification of Education) level

ISCED LEVEL	NONE	TO SOME EXTENT	TO A GREAT EXTENT	DON'T KNOW
Primary education (ISCED 1)	22%	36%	14%	3%
Secondary education (ISCED 2 and 3)	11%	45%	23%	3%
Post-secondary/Not tertiary (ISCED 4)	7%	48%	12%	9%
Tertiary (ISCED 5–8)	5%	32%	21%	12%

WHY USE OER?

Respondents indicated why OER has become a focus in their countries. A main motivation is that using OER is in line with regional priorities. Table 5 illustrates the value seen in OER — primarily, to increase the efficiency and quality of learning and to promote open and flexible learning opportunities. These reasons were also strong in the 2012 government survey. However, the percentage this time is much higher, with about 20% increase in both these reasons given. In Latin America and the Caribbean, access to quality resources is the top reason; in Europe and North America, providing open and flexible learning tops the reasons.

In the regions of Africa, the Middle East and North Africa, and Asia-Pacific, increasing the efficiency and quality of learning is top priority.

The survey also asked if the countries were to start OER activities, what would be the primary reasons. Here the respondents put providing access to best possible resources at the top of the list (74%) followed by creating more flexible materials (68%). Broadly, there is no regional variation in both these reasons. Table 6 shows all the reasons to become active in OER across the regions.

Table 5: Motivation to be active in engaging with OER

RESPONSE	AFRICA	MIDDLE EAST AND NORTH AFRICA	ASIA AND PACIFIC	EUROPE AND NORTH AMERICA	LATIN AMERICA AND CARIBBEAN	TOTAL ACROSS ALL REGIONS
To promote open and flexible learning opportunities	75%	83%	79%	85%	54%	76%
To increase the efficiency and quality of learning resources	79%	83%	86%	70%	62%	77%
To gain from the cost-efficiency of OER	59%	58%	72%	55%	62%	60%
To gain from the innovative potential of OER	57%	50%	59%	65%	38%	56%
For access to quality resources	71%	50%	72%	70%	69%	69%
To showcase quality local initiatives	39%	50%	38%	25%	23%	35%
To make publicly funded resources available to a wide audience	54%	50%	59%	80%	54%	60%

Table 6: Reasons for countries becoming active in developing and/or using OER

REASON	AFRICA	MIDDLE EAST AND NORTH AFRICA	ASIA AND PACIFIC	EUROPE AND NORTH AMERICA	LATIN AMERICA AND CARIBBEAN	TOTAL ACROSS ALL REGIONS
Gaining access to the best possible resources	82%	58%	83%	65%	62%	74%
Promoting scientific research and education as publicly open activities	75%	58%	59%	45%	15%	55%
Bringing down costs for students	79%	33%	79%	35%	38%	60%
Bringing down institutional costs for course development	79%	42%	66%	40%	31%	57%
Reaching disadvantaged communities	71%	25%	62%	35%	31%	51%
Assisting developing countries	32%	33%	45%	20%	8%	30%
Becoming independent of publishers	29%	8%	28%	5%	15%	20%
Creating more flexible materials	82%	58%	69%	55%	62%	68%
Conducting research and development	68%	25%	31%	40%	31%	42%
Building sustainable partnerships	57%	58%	38%	45%	23%	45%
Other	18%	8%	7%	5%	8%	10%

INFLUENCE OF OER

The survey of government asked respondents to rate how OER activities in their country influenced teaching and learning and would further OER activities. About a fifth of the respondents did not answer to this question.

Use of OER was felt to have influenced teacher professional development to a large extent (63%), followed by improvement in quality of teaching and learning (62%). About 61% of the respondents also believed that use of OER improved student success and grades; and 60% believed that OER activities helped improve sharing of resources among teachers. Thus, in the opinion of government officials, OER's main influence was in helping improve teaching and learning

by supporting teachers' professional development (Table 7).

Respondents also indicated countries' plans to further focus on OER. Some of the ways in which OER would be promoted are shown in Table 8.

Twenty written comments or explanations noted that further activity would be highly dependent on allocation of funding or subsidies. Another 22 respondents felt that further activity would grow once relevant policies are in place and as advocacy and capacity building increase. Reluctance of countries to undertake activities related to OER are largely due to lack of resources and capacity.

Table 7: Areas where OER had influence

AREA	STRONGLY AGREE	AGREE	NEUTRAL	DISAGREE	STRONGLY DISAGREE	NO RESPONSE
Improved quality of teaching and learning	25%	37%	18%	2%	0%	18%
Improved teacher professional development	27%	36%	16%	0%	1%	20%
Improved student success and grades	17%	34%	26%	4%	1%	18%
Improved collaboration among learners	20%	32%	24%	4%	1%	20%
Improved sharing of resources by teachers	34%	26%	19%	2%	0%	19%

Table 8: Areas of possible future OER activity

AREA	AFRICA	MIDDLE EAST AND NORTH AFRICA	ASIA AND PACIFIC	EUROPE AND NORTH AMERICA	LATIN AMERICA AND CARIBBEAN	TOTAL ACROSS ALL REGIONS
Stimulate initiatives in this field	29%	50%	59%	25%	38%	40%
Introduce subsidy programmes or project funding	18%	0%	3%	20%	8%	11%
Develop a dedicated governmental action plan	29%	17%	28%	15%	15%	23%
None planned, but OER might become active in the medium term	7%	17%	7%	15%	15%	11%
None planned; OER not expected to be or to become a priority	0%	8%	0%	0%	0%	1%
No response	4%	17%	0%	5%	8%	4%

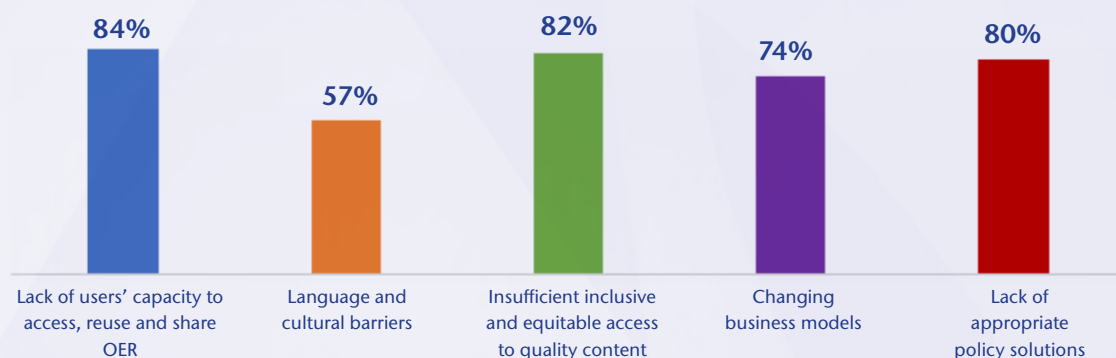


Figure 2: Barriers to mainstreaming of OER.

Challenges for Mainstreaming OER

The regional consultation background paper (COL, 2016) based on the UNESCO (2016) document on OER (a roadmap to meeting outcomes), identified several challenges to mainstream OER. The survey focused on these to seek responses from the government representatives. Figure 2 shows the overall response to the challenges. Users' lack of capacity to access, reuse and share OER (84%) is at the top, followed by inequitable access to quality content (82%). Lack of policy on OER is a third barrier (80%).

USERS' CAPACITY TO ACCESS, REUSE AND SHARE OER

Respondents were asked whether they thought relevant stakeholders have the necessary skills to access, use and share OER. Only 49% responded in the affirmative.

Some respondents felt that necessary skills equated solely with the ability to use the Internet, highlighting some variance in interpretation of the question itself. For example, one respondent noted that "the only needed skill is the ability to use the Internet," while another noted the need for basic computer skills. Several respondents indicated that "ICT skills are basically required" and most of the students have these ICT literacy.

The respondent from the USA indicated that some teachers and students have the required skills to use OER, and described the required skills in the following words:

...[We] have found that ongoing professional learning on topics such as finding and evaluating OER, understanding copyright, fair use, and open licensing, and creating and sharing OER in formats that facilitate adaptation and reuse is necessary for educators and students to adequately participate in accessing, using, and sharing OER.

In many countries, it was noted that there were a few stakeholders with the necessary skills. Table 9 shows the areas of skills the government representatives identified as being required to support mainstreaming of OER.

The most commonly reported skills required to improve OER use are those in ICT, according to most respondents across all regions. Other required skills prioritised were understanding open licences and how they work, evaluating the usefulness and quality of OER, and distributing OER. Taking into consideration the lack of specific skills (finding, evaluating and integrating OER in teaching and learning), respondents were clearly indicating that capacity to use OER is the major barrier to mainstream OER.

Table 9: Skills required to improve OER use

SKILLS REQUIRED	AFRICA	MIDDLE EAST AND NORTH AFRICA	ASIA AND PACIFIC	EUROPE AND NORTH AMERICA	LATIN AMERICA AND CARIBBEAN	TOTAL ACROSS ALL REGIONS
Finding OER and sources	79%	42%	69%	50%	62%	64%
Evaluating the usefulness, value and quality of OER	75%	58%	79%	65%	62%	71%
Performing adaptations, including translation	71%	50%	76%	65%	46%	66%
Understanding licences and how they work	86%	50%	69%	75%	62%	72%
Using ICT skills	82%	67%	79%	75%	77%	77%
Distributing OER and developing mechanisms to provide OER to students	82%	58%	69%	75%	54%	71%
Using pedagogy skills	71%	67%	66%	75%	62%	69%

LANGUAGE AND CULTURE

A challenge to mainstreaming OER is language and culture. This challenge focuses on the need to: promote multilingual capacity in cyberspace; produce OER in local languages to allow for increased diversity; quality and relevance of the content; and address cultural issues around attitudes toward sharing (COL, 2016). The survey included several questions to understand this challenge.

Only 41% of respondents felt that sufficient OER were available in the main language of education in their country. Twenty-five respondents indicated that they had good access to English resources and that their country did, to different extents, use English resources. The data suggests that most OER are available in English. In Lesotho, it was noted that most OER are in English, but that this was limiting and therefore a challenge was to translate OER into the main language, Sesotho, as well as other minority languages. In Namibia, the respondent explained that NAMCOL “is developing OER in other languages such as Afrikaans and Oshindonga.”

While some country respondents indicated that availability of English-language OER was sufficient, others did not feel the same way. But the important challenges come from countries where multiple languages are used — such as Zambia with seven languages). Similarly many non-English-speaking countries highlighted the challenge to translate available resources. Major challenges to access OER were identified in the French, Portuguese and Arabic language. However, many countries (Armenia, Estonia, Bulgaria, Finland, Latvia, Lithuania, Malta, Poland, Slovakia, Netherlands, Slovenia, Lao PDR and Timor-Leste) reported language issues related to OER. Countries such as the USA, Colombia, Chile and Peru noted use of Spanish, and the USA indicated an increasing demand for materials in that language too.

Respondents were asked about mechanisms being used in their countries to translate OER into the languages

of instruction. Several respondents said that either there were no efforts to translate OER or that the question was not applicable (but did not indicate why). This is an indication that the translation of OER into languages of instruction is not a priority for many countries. Also in many countries, the major language of instruction is English, and there is no need to put efforts into translation of resources. Slovenia indicated that while translating OER is not a priority, the Institute Jožef Stefan provides a tool for automatic video sub-titling.

As a strategy, automatic translation was mentioned by some respondents, although the quality of these translations was flagged as questionable due to a lack of human engagement with the content and context. The Respondents from Mauritius, Djibouti and Nepal noted the use of automatic translation (including Google Translate) as a path to adopt.

Consultants and other experts were identified as a mechanism used for translation in Mozambique, Sierra Leone, Syria, Kyrgyzstan and Timor-Leste. Many countries, including Armenia, Bahrain, Indonesia, Lithuania, Romania and Thailand, indicated that OER are being translated through individual efforts. In Vietnam and Zambia, religious groups and volunteers were identified as translators for OER.

Translation bodies were being set up in some countries. Whether these were exclusively for translating OER was not specified, nor was the extent to which these bodies worked with OER. Morocco noted that they were “setting up a translation commission.”

Crowdsourcing/community translation was highlighted as another mechanism. Saudi Arabia said that it was planning on crowdsourcing translations in a community effort.

The government survey revealed several strategies that could be used, or are being used now, for translation. These included automatic translation; use of volunteers, individual expert consultants or institutions to translate resources; and crowdsourcing of translation. Table

10 shows the most suitable solutions identified by the respondents to address translation of OER, which emphasises making translation part of the institutional process of OER development (60%).

Respondents also identified the challenges to translate OER (Table 11). Cost of translation was identified as the major challenge, followed by lack of skills and lack of technology to translate OER.

Some governments indicated that translation is a difficult task, especially in many languages, and therefore they have been focusing on creating OER in local languages. Several governments also identified barriers to translation of OER. These include: low priority for minority-spoken languages in their country, lack of translation expertise, and lack of infrastructure.

Table 10: Solutions for addressing the challenge of translating OER

SOLUTION	VERY IMPORTANT	IMPORTANT	MODERATELY IMPORTANT	SLIGHTLY IMPORTANT	NOT IMPORTANT	NO RESPONSE
Using automated services	28%	17%	14%	11%	9%	22%
Making translation part of institutional processes	35%	25%	12%	4%	3%	21%
Leaving the responsibility to individuals to translate OER as and when they use them	20%	25%	13%	10%	9%	25%

Table 11: Challenges in translating OER

CHALLENGE	VERY IMPORTANT	IMPORTANT	MODERATELY IMPORTANT	SLIGHTLY IMPORTANT	NOT IMPORTANT	NO RESPONSE
Cost	43%	24%	9%	2%	4%	19%
Lack of skills	25%	26%	12%	12%	7%	19%
Lack of technology	25%	15%	22%	11%	11%	17%
Other	3%	8%	0%	0%	6%	83%

Table 12 shows the cultural barriers to the mainstreaming of OER. Use of information from peer groups versus experts is a top barrier, as many countries place high premium on expert knowledge rather than local knowledge (79%). The second barrier is the educational context and how to adapt resources from different cultures and language (77%).

Organisational culture was identified by the government representatives as the third main barrier to OER adoption (72%). However, 31% placed a high stake on the organisational culture of tenure and promotion to foster OER mainstreaming.

Table 12: Cultural barriers to using OER

BARRIER	VERY IMPORTANT	IMPORTANT	MODERATELY IMPORTANT	SLIGHTLY IMPORTANT	NOT IMPORTANT	NO RESPONSE
Sharing information from sources that are from other cultural or linguistic contexts	29%	27%	17%	4%	10%	13%
Sharing of information from peer-group knowledge networks (versus recognised expert networks)	21%	28%	19%	12%	6%	15%
Dealing with the tenure and promotion policies in educational institutions	31%	22%	9%	11%	11%	17%
Other	2%	6%	0%	0%	5%	87%

ENSURING INCLUSIVE AND EQUITABLE ACCESS TO QUALITY OER

Ensuring inclusive and equitable access to quality resources is another challenge to mainstreaming OER. It relates to two concepts: OER accessibility for persons with disabilities, and supporting the use of OER in all ICT environments. Specifically, while OER include open licences, they are not inherently technically accessible to all, so there is a need to ensure that accessibility issues be mainstreamed into all use of OER. There is also an issue of connectivity in accessing OER and concerns about the quality of OER.

To understand these issues, the survey posed three questions to respondents:

- Have you ensured that your OER are accessible for persons with disabilities?
- Do you address issues of quality assurance related to OER?
- Do you support the use of OER in all ICT environments (e.g., are your OER mobile friendly)?

Only one-third of respondents indicated that their country had ensured that OER are accessible for persons with disabilities. Specific measures to ensure accessibility reported include:

- emphasis on inclusive education (Burundi, Botswana, Armenia);
- considerations for persons with disabilities (Australia, Chile, Seychelles, Trinidad and Tobago);
- use of sign language in videos and Braille literature (Madagascar, Malawi, Morocco, Nepal, Poland, Swaziland, Turkey, Morocco); and
- use of Web accessibility guidelines (Netherlands, Spain).

Several countries (Belgium, Colombia, Estonia, Kyrgyzstan, Senegal and Slovenia) indicated that this is an area where a lot more needs to be done, especially to make OER accessible for people with visual impairment. The representative from Slovenia stated:

The Ministry of Education, Science and Sport co-finances projects to support the PRILAGAJANJE [e-materials for persons with disabilities].... However, there are many e-materials which are not ensuring the accessibility for persons with disabilities.

On the issue of quality assurance (QA), more than half (55%) of respondents felt that their country addressed issues of QA related to OER. Examples given of QA mechanisms include:

- institutional focus on QA, including national QA institutions (Australia, Botswana, Lao PDR, Madagascar, Malaysia, and Morocco). The Australian government respondent indicated that the National Copyright Unit “provides a factsheet on ‘Where to find OER materials’ that lists repositories for quality OER materials.” The OER made available on the Scootle platform managed by Education Services Australia have QA and feedback mechanisms. In Madagascar, it was mentioned that there was an intention to create an OER QA committee;
- use of checklists and guides (Bahrain, Cameroon, Colombia, Mexico, South Africa) to be used by teachers and materials developers;
- use of subject experts or specialists to develop OER (Antigua and Barbuda, Egypt, Malawi, Palestine, Papua New Guinea, St. Lucia, Turkey Zambia);
- peer review of OER (Lithuania, Namibia, Slovenia, Vietnam);
- QA policy (Philippines and Seychelles);
- crowdsourcing of QA through the public (Saudi Arabia and Togo); and
- government review of materials (Chile and USA).

More than half (57%) of respondents indicated that their country supported use of OER in all ICT environments. Some respondents referred to Internet and website use, especially platforms to share materials in the digital environment.

There is clearly strong support for mobile ICT, and many applications and programmes are compatible with mobile technology. Use of mobile technology and applications was mentioned by 18 respondents. They noted that mobile applications and mobile phones are increasingly being catered for within the educational environment.

CHANGING BUSINESS MODELS

Globally, the traditional publishing business model has come under growing pressure because of technological development and the digitisation of content. It has been recognised that there is a need to identify innovative solutions to develop new business models so that the interests of the OER community and educational publishers are addressed.

Survey participants were asked four questions to understand this issue:

- Has there been a national discussion on sustainable learning resource production?
- Have OER produced in your country generated new businesses or enterprises?
- Which commercial industries (not directly related to education) do you think would be interested in building products and/or services on top of OER (e.g., telecoms, broadband providers, other governmental agencies)?
- Do you face any challenges from other stakeholders in balancing OER with commercial interests?

A third of respondents noted that there had been a national discussion on sustainable learning resource production. The data indicates that there are discussions surrounding OER, digitisation, resource production and collaboration between public and private stakeholders. Other efforts that respondents identified were engagements around guides, policies and plans, as well as projects that were underway — although the pace of these projects seemed to be slow in some cases.

However, only 23% of respondents indicated that OER production has generated new business or enterprise. Online education appeared to be a burgeoning market with great potential for the advancement of OER, although this might be dependent on how OER is

being defined by respondents. Digitisation is occurring in some countries, such as Chile, where ICT and related development have been slow. Educational institutions and other interest groups seem to be generating new enterprises, while other businesses in the public and private sector are also benefiting. This, coupled with a greater demand for Internet services, suggests there is great potential for new businesses to proliferate.

Online education and use of IT were mentioned by four respondents, although one noted that digital education still needed to grow considerably, while another indicated that there were various IT activities occurring. New business enterprises for educational institutions and similar interest groups were mentioned by three respondents. The growth of the number of business and non-government organisations (NGOs) was identified in eight responses.

Commercial industries identified by respondents as interested in building products and/or services through OER were relevant and diverse. These included telecommunications, software companies, publishers, finance companies, online entrepreneurs, healthcare providers and tourism.

In all, 41 respondents identified telecommunications companies and Internet service providers as industries that might be interested in building products through OER. This was by far the most common suggestion by respondents which indicates market potential for growth of OER in the telecommunications and sector.

Government organisations were mentioned by 13 respondents especially the role of ministries other than education in building a sustainable business model. Twelve respondents identified the media, including private media companies, radio, television and publishers, as potential partners in mainstreaming OER. Eight respondents noted that software companies and other ICT-related companies might be interested in working with OER. Finance companies and banks were mentioned by five respondents as possible partners.

The oil industry, such as oil production companies, and mineral resources sector were highlighted by three respondents, including in Ghana and Papua New Guinea. The agricultural industry was also highlighted as a potential investor. The tourism industry was also referred to by two respondents.

A third of respondents confirmed that they face challenges from other stakeholders in balancing OER with commercial interests. Seven respondents noted that there were issues with the education system and conceptions of intellectual property. These sentiments reflected the need to rethink how intellectual property is conceptualised in the context of education. One respondent indicated that teachers and trainers are more concerned about ownership than sharing. Another respondent observed that:

Universities are increasingly competitive in the research and education marketplace. There is [lack of] ... developed academic culture of sharing learning resources.

Engagement with publishers was noted as presenting various challenges. The main issue noted was that publishers were struggling to find relevance in a sector that was not focused on profit and were not able to adapt to this new mode of thinking. These sentiments were expressed by seven respondents, with one adding:

Yes, our publishing partners have doubts about the future of their industry if we put the material as OER.

Financial challenges in balancing OER with commercial interests were highlighted by four respondents. The respondent from Burundi highlighted challenges with import taxes. Concerns related to the nature of educational enterprises was elaborated by the respondent from Australia:

...Anecdotal evidence suggests that there are significant "freeloading" concerns amongst

teachers and curriculum units working for the state and territory education departments. The schools sector comprises both government schools (public schools) and private schools (Catholic and Independent sector). There has been reluctance for some state and territory government school systems to share their educational materials with other state school systems or the non-government schools sector on the basis that these school systems have not contributed financially or otherwise to the creation of the material ... The VET/ TAFE (public colleges) sector operates commercially, exploiting its products and services internationally. This sector believes licensing of material under open content licences may deprive the sector of these funds.

Some respondents also indicated that the business models in the true sense do not fit the concept of OER. There were issues with the private sector and they were not seen as a possible partner.

While a business model was probably seen by the respondents in the context of profit-making from OER, what is revealed overall is that there is a need to develop business models around OER, whether for a profit or non-for-profit venture. Since, there is resource investment to produce OER, it is important to develop models that justify the investments.

Another result of the survey is that this has yet to get due recognition from the governments. When asked about how to balance OER and commercial interests, the suggestions were all below 20% (Table 13).

Table 13: Responding to challenges balancing of OER and commercial interests

CHALLENGES	TOTAL ACROSS ALL REGIONS
Engage publishers	20%
Support academic journals	15%
Encourage software manufacturers	20%
Other	11%

FUNDING, PARTNERSHIPS AND RESEARCH

The government survey covered three other issues highlighted by the Paris OER Declaration: the issue of funding OER (as historically, much of the funding of OER has been from donors, and the declaration calls for governments to openly license educational resources developed through public funding), partnerships in promoting and developing OER, and the extent of research being done on OER.

Respondents were asked to identify sources of funding for development, use or deployment of OER in their countries. The most commonly identified source was government, which 58 respondents indicated as a source to finance OER development, use or deployment.

Donors were mentioned as a funding source by 22 respondents, including Ghana, Kiribati, Mali, Nigeria, Romania, Sierra Leone and the USA. Institutions were also identified as sources of funding, development or deployment of OER. A total of 36 respondents suggested institutions, either generically or by name.

The private sector was identified as a funding source by respondents from China, Kuwait and Turkey.

Development partners were also mentioned by respondents from Kiribati, Nepal and Rwanda. Banks were mentioned as a source of funding in the response from Egypt.

The survey asked whether the Ministry of Education was involved as a partner in initiatives outside the ministry, open to all stakeholders (including universities, teachers, learners, families, digital communities, and economic and social partners). In all, 54 respondents indicated that their ministry was involved as a partner in initiatives that were open to all stakeholders.

Fourteen respondents answered no to the question, including those from Cameroon, Chad, China, Indonesia, Maldives, Mali, Peru, St. Lucia and Togo.

With regard to research, only 25% of respondents who answered the question indicated knowledge of their

country having conducted research on contributing to OER use in general.

In all, 27 respondents (38% of those who answered the question) indicated that there was no research on OER that had been conducted by their country, suggesting greater research needs in this field. Because OER are no longer a new phenomenon, it is regarded as important to gather meaningful, in-depth country data to track progress in the opening up of knowledge to more people.

Fourteen respondents indicated that OER research was conducted in their country. They provided examples, ranging from university-level and consultant research to national research on OER. Several individual research projects were also identified. Most research noted was in Australia and the USA.



The Research on Open Educational Resources for Development (ROER4D) research network was established in 2013 to better understand the adoption and impact of OER in selected countries in the Global South.

Initial findings suggest that the concepts of OER and open licensing are not well understood by either students or educators, which makes it difficult to ascertain use of OER as distinct from any resource on the internet. Given this caveat, students and educators are making extensive use of materials on the internet to supplement learning and teaching and express a willingness to share original work even if this intention is not accompanied by open licensing.

A key structural obstacle to sharing materials in higher education is that university lecturers do not necessarily hold copyright over created materials, as this is usually assigned to their home institution. Institutional cultures and individual volition seem to play a stronger role than an institutional policy for OER uptake and for promotion of open educational practices. Governments, funders and institutions need to pay particular attention to building awareness of OER, as well as to the cultural enablers and barriers to OER adoption, in addition to policy advocacy.

– Contributed by Dr. Cheryl Hodgkinson-Williams

For more information, see: <http://roer4d.org/>

Overall, responses suggest that little research is being done at the national level, which makes it difficult to ascertain the effectiveness and scope of OER at country level.

The government survey results revealed some evidence of growth in the number of OER policies and an increasing range of OER activities across several countries. Clearly, some countries are more involved in OER activities than others, with support from government and donors. However, analysis of the responses reveals that there is still a lack of understanding of what OER are. This proves to be a continued barrier to OER development, in addition to the other identified challenges to mainstreaming OER, particularly the lack of skills to access, use and share OER, and the lack of available policies.

While language and cultural barriers and changing business models were identified as significant areas of attention for mainstreaming OER, these two areas are the lowest rated barriers compared with skills, policies and access to quality content. Furthermore, the results of the survey reveal that many government survey respondents are yet to pay attention to issues around developing new business models.

The next section focuses on some of these issues, from the perspective of stakeholders.





STAKEHOLDER SURVEY

The objective of the stakeholder survey was to understand levels of awareness and involvement of stakeholders in the use and adaptation of OER. In 2012, the survey was limited to government and no attempt was made to collect data from stakeholders. Therefore, the 2017 surveys were a step towards understanding the involvement of the OER community and the stakeholders in mainstreaming adoption and use of OER. The survey was posted online and publicised through social media and COL networks. In total, 759 responses were received. After a check and

cleaning of the data, 638 valid stakeholder responses were used for the analysis.

As the survey was open to anyone who was keen to participate, the stakeholder sample is highly variable across regions (e.g., some countries have only one respondent; others have up to 72). Thus, data from stakeholder surveys provided only a snapshot of OER activities across the regions from the perspective of the stakeholders, and can be treated as a population survey.

Table 14: Stakeholder responses by region

REGION	RESPONSES	COUNTRIES
Africa	144	Botswana, Equatorial Guinea, Ethiopia, Ghana, Kenya, Lesotho, Malawi, Mauritius, Mozambique, Namibia, Niger, Nigeria, Rwanda, Seychelles, South Africa, Swaziland, Tanzania, Togo, Uganda, Zambia, Zimbabwe
Middle East and North Africa	26	Algeria, Egypt, Jordan, Lebanon, Morocco, Oman, Palestine, Qatar, Saudi Arabia, Sudan, Syria, Tunisia
Asia and Pacific	253	Australia, Bangladesh, Bhutan, Brunei, China, Fiji, India, Indonesia, Iran, Japan, Kazakhstan, Kiribati, Malaysia, Mongolia, Myanmar, Nepal, New Zealand, Pakistan, Palau, Papua New Guinea, Philippines, Samoa, South Korea, Sri Lanka, Thailand, Tonga, Tuvalu, Vietnam
Europe and North America	145	Andorra, Belgium, Bulgaria, Canada, Croatia, Cyprus, Denmark, Finland, France, Georgia, Germany, Greece, Iceland, Israel, Italy, Latvia, Macedonia, Malta, Netherlands, Norway, Poland, Portugal, Romania, Russian Federation, Slovenia, Spain, Sweden, Switzerland, Turkey, United Kingdom, United States of America
Latin America and Caribbean	70	Antigua and Barbuda, Argentina, Barbados, Bolivia, Belize, Brazil, Chile, Costa Rica, Dominica, Ecuador, Grenada, Guatemala, Honduras, Jamaica, Mexico, St Lucia, Suriname, Trinidad and Tobago, Uruguay, Venezuela

Awareness of OER

In general, awareness of OER appears to be good, with 93% of stakeholder survey respondents indicating that they are aware of OER in general, and 74% indicating that they are aware of OER in their country. Respondents provided varied answers to questions of perceptions of OER.

Table 15 shows that not all respondents were aware of what OER are (i.e., that they are free resources with an open licence) and that they do not require permission for reuse. Respondents had concerns about the quality of OER. They also noted that OER saves teachers' time and can help developing countries in acquiring quality materials.

Stakeholder survey respondents were provided a predetermined list of OER repositories and platforms and were asked to indicate their awareness and use of these resources. Their responses are summarised in Figure 3.

Of the 638 people who answered this question in the survey, 39% responded that they had used MIT Open Courseware (the highest response). The second most used, at 33%, was the Directory of Open Access Journals. Data suggests that respondents were more

likely to have used or currently use OER repositories that have been created in the global north than the global south. At the same time, more people were aware of but had not used repositories from the global north, such as MIT Open Courseware and OpenLearn, which 25% and 23% of respondents, respectively, were aware of but had not used. This is compared with repositories in the global south, such as the National Programme on Technology Enhanced Learning (NPTEL) from India, which 10% of respondents were aware of but had not used and 6% had used, and the University of Technology, Malaysia Open Courseware, which 11% were aware of but had not used and 6% had used.

Overall, there is low awareness of the available OER repositories, which is a concern and proves that “if we build it, they will come” is a myth. What is important is to focus on the users of the repositories and do appropriate marketing and awareness building among users.

Stakeholder respondents were also asked to provide additional information on OER repositories. Appendix B contains a list of OER repositories used by stakeholders — including global, regional, national and institutional repositories — along with some suggested by government respondents as well.

Table 15: Stakeholders' perceptions of OER

STATEMENTS	STRONGLY AGREE	AGREE	UNDECIDED	DISAGREE	STRONGLY DISAGREE
OER lower the cost of learning material	44.67%	36.21%	8.78%	1.57%	0.00%
OER are free resources available with an open licence	44.83%	35.27%	8.93%	2.04%	0.63%
OER do not require permission for reuse	30.88%	30.56%	15.36%	10.97%	3.45%
Open licensing of OER enables continuous quality improvement	37.30%	37.15%	15.52%	1.41%	0.16%
Lack of peer review of OER makes them susceptible to poor quality	14.42%	30.88%	25.08%	16.93%	3.61%
OER assist developing countries in accessing quality materials	36.68%	41.07%	10.82%	2.51%	0.31%
Quality of OER is questionable	3.29%	20.85%	30.56%	29.00%	7.99%
OER need localisation	24.61%	35.58%	22.73%	5.49%	1.57%
OER save teachers time	30.09%	39.81%	15.36%	5.96%	0.31%

About one-fifth of stakeholders did not respond to the question about their beliefs related to the influence of OER on teaching and learning in their country. Another group was neutral, indicating that they neither agree nor disagree about the influence of OER in teaching and learning (Table 16).

Most respondents agreed that OER has an influence on teaching and learning in their country, through improved sharing of resources by teachers (61%) and improved teacher professional development (56%).

Stakeholder respondents were asked to indicate why their country should be actively involved in OER. Their responses are shown in Table 17.

OpenLearn

The multi-award-winning OpenLearn platform provides an extension to the OU UK's open mission by reducing barriers to lifelong learning. It aims to (1) support OU UK's social mission by providing meaningful, free higher education learning opportunities for all and (2) support its business mission by ensuring learners are made aware of the opportunity to extend their free, informal (not for credit) learning experience to a formal, qualification based experience by registering with the Open University. OpenLearn has been unique and innovative by: being openly licensed and openly accessible; using open source software and open badges; and using informal partnerships to enhance access. It has reached around 6 million additional visitors every year since its launch in 2006.

– Contributed by Prof. Andy B. Lane

For more information, see: <http://www.open.edu/openlearn/>

Data suggests that respondents were more likely to have used, or currently use, OER repositories that have been created in the global north than in the global south.

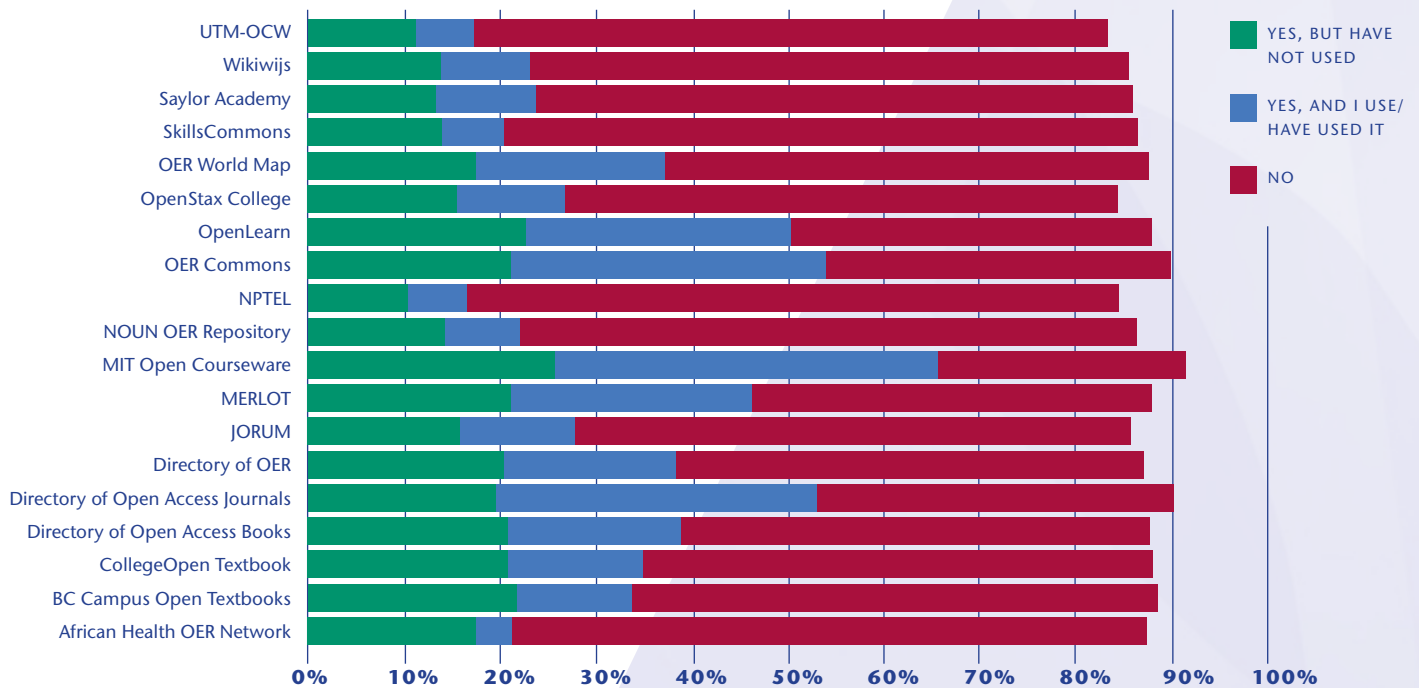


Figure 3: Awareness of OER repositories and platforms.

Table 16: Stakeholders' views on the influence of OER on teaching and learning

INFLUENCE OF OER	STRONGLY AGREE	AGREE	NEUTRAL	DISAGREE	STRONGLY DISAGREE	NOT APPLICABLE/ NO RESPONSE
Improved quality of teaching and learning	17%	31%	29%	4%	0%	19%
Improved teacher professional development	17%	39%	22%	4%	1%	18%
Improved student success and grades	11%	28%	37%	4%	1%	20%
Improved collaboration among learners	12%	37%	26%	5%	1%	19%
Improved sharing of resources by teachers	21%	40%	18%	3%	0%	18%

Table 17: Reasons for country involvement in OER

RESPONSE	AFRICA	MIDDLE EAST AND NORTH AFRICA	ASIA AND PACIFIC	EUROPE AND NORTH AMERICA	LATIN AMERICA AND CARIBBEAN	TOTAL
To promote open and flexible learning opportunities	92%	85%	81%	85%	80%	84%
To increase the efficiency and quality of learning resources	80%	77%	71%	66%	71%	72%
To bring down costs for students	79%	58%	70%	68%	64%	71%
To bring down institutional costs for course development	67%	50%	63%	46%	63%	60%
To improve access to quality resources	79%	77%	68%	76%	74%	73%
To showcase quality local initiatives	51%	54%	45%	39%	54%	47%
To make publicly funded resources available to a wide audience	68%	65%	57%	76%	66%	65%
To assist developing countries	58%	62%	62%	57%	51%	58%
To reach disadvantaged communities	71%	54%	61%	68%	60%	64%

Table 18: OER activity at different levels, by ISCED (International Standard Classification of Education) level

ISCED LEVEL	NONE	TO SOME EXTENT	TO A GREAT EXTENT	DON'T KNOW	NO RESPONSE
Primary education (ISCED 1)	14%	32%	5%	13%	35%
Secondary education (ISCED 2 and 3)	8%	41%	8%	10%	33%
Post-secondary/Not tertiary education (ISCED 4)	6%	38%	14%	10%	32%
Tertiary education (ISCED 5–8)	4%	42%	19%	8%	28%

Most respondents thought that the main reasons their country should be involved in OER was: to promote open and flexible learning opportunities (84%); to improve access to quality resources (73%); to increase the efficiency and quality of learning resources (72%); and to reduce costs for students (71%).

Participation in OER Activities

Stakeholder respondents identified activities taking place in different levels of education in their country (Table 18).

Results suggest that most activity is at the tertiary education level, followed by the secondary education level. This is not surprising, given that most of the respondents (60%) came from tertiary education and are probably more aware of activities taking place in higher education. By contrast, results of the government survey that showed that more activities are taking place in the secondary and post-secondary (non-tertiary) sector.

In terms of engagement with OER, the majority (62%) of stakeholders in the survey indicated that they are involved in OER-related work. Their involvement in OER work was mostly in the course of their job performance and included development of learning materials and course contents for classroom delivery. Some of them had also developed open textbooks and served in OER projects in their institution or in national projects on OER.

Respondents also indicated their involvement in OER research and in advocacy work and policy formulation on OER. About 38% had no involvement in OER activities. This is probably a new group of people who might take up OER work in future.

ACCESS TO TEACHING AND LEARNING MATERIALS

To understand stakeholders' access to teaching and learning materials, the survey asked about the difficulty level of accessing these materials. Table 19 shows that respondents had reasonably good access to the teaching and learning materials they need. About one-third of the respondents also indicated that they sometimes have difficulty in accessing relevant teaching and learning materials.

Regionally, responses did not differ, though respondents in Europe and North America noted having better access than did other regions. Respondents were also mostly from higher education, where access to teaching and learning materials for teachers are relatively better than in other sectors and for students.

BC Open Textbooks

The B.C. Open Textbook Project, the first open textbook initiative in Canada, aims to increase access to higher education by encouraging instructors to adopt, adapt, and create openly licensed textbooks. In addition to lowering the cost of post-secondary education, open textbooks give instructors greater control over their instructional materials. The collection includes over 180 textbooks on topics such as arts, sciences, business, and trades. Many of these textbooks include ancillary resources like PowerPoint slides, videos, assignments, 3-D resources, and test banks. In addition, 80 of these books have been peer-reviewed by faculty who have expertise in the subject. Since the project's launch in 2012, over 40,000 B.C. students have saved \$4.5 million in textbook costs.

– Contributed by Amanda Coolidge

For more information, see: <http://open.bccampus.ca>

Table 19: Access to teaching and learning materials

RESPONSE	PERCENTAGE
VERY POOR: I always have great difficulty getting access to teaching and learning materials that I need.	3%
POOR: I frequently have difficulty getting access to teaching and learning materials that I need.	6%
VARIABLES: I sometimes have difficulty getting access to teaching and learning materials that I need.	32%
GOOD: I have access to most teaching and learning materials that I need.	31%
EXCELLENT: I have access to all teaching and learning materials that I need.	11%
No response/Not applicable	16%

As Table 20 shows, 55% of stakeholders reported that they have used OER, followed by 40% who have adapted OER and 33% who have released original contents as OER. More stakeholders in Europe and North America had used, remixed and released OER than in other regions.

Of those who responded to the question on licensing, 43% reported not using any licence in the material they release as OER, and 54% reported using a CC licence. Corresponding with OER use, 68% of respondents from Europe and North America and 70% from Latin America and the Caribbean reported using a CC licence.

Table 20: Work on OER

OER WORK	AFRICA	MIDDLE EAST AND NORTH AFRICA	ASIA AND PACIFIC	EUROPE AND NORTH AMERICA	LATIN AMERICA AND CARIBBEAN	TOTAL ACROSS ALL REGIONS
I have used OER	52%	50%	47%	70%	64%	55%
I have adapted and/or remixed OER	38%	23%	34%	54%	43%	40%
I have released original content as OER	21%	23%	23%	57%	47%	33%

Stakeholders self-rated their skills related to OER work. Table 21 shows that ICT skills are better than the skills of finding, evaluating and adapting OER. Respondents were less confident about their ability to adapt and

distribute OER. Nearly one-fifth either did not respond to this question, which could be interpreted as lack of skills in the relevant areas.

Table 21: OER-related skills

SKILL	EXCELLENT	VERY GOOD	GOOD	SATISFACTORY	POOR	NOT APPLICABLE/ NO RESPONSE
How to find OER	20%	24%	24%	11%	5%	17%
Evaluating the usefulness and determining the value and quality of OER	19%	24%	24%	11%	4%	18%
Performing adaptations (remix different OER)	13%	19%	20%	17%	10%	21%
Understanding licences and how they work	19%	19%	18%	16%	10%	17%
Understanding copyrights	19%	20%	21%	14%	8%	17%
ICT Skills	26%	25%	20%	9%	2%	18%
Distributing OER, developing mechanisms to provide OER to students	15%	19%	20%	15%	10%	20%

Barriers to OER

Table 22 shows the barriers to using and adopting OER, as identified by stakeholders. The greatest barrier noted is lack of a reward system for staff members devoting time and energy to OER. This is followed by no support coming from management level. Lack of skills and lack of time also appear to be other key barriers.

Given that almost half of government responses noted that relevant stakeholders do not have the necessary skills to access, use and share OER, the data from the stakeholder survey supports these findings, and indicates that there are gaps in skill development in using OER. (Interestingly, about one-fifth of the respondents did not identify one or more of the barriers listed.) Access to computer and Internet connectivity also appears to have become less important to many stakeholders.

Table 22: Barriers to personal use and adaptation of OER

BARRIER	VERY IMPORTANT	IMPORTANT	MODERATELY IMPORTANT	SLIGHTLY IMPORTANT	NOT IMPORTANT	NO RESPONSE
Lack of skills	21%	21%	11%	8%	20%	20%
Lack of time	15%	25%	17%	10%	13%	20%
Lack of hardware	15%	16%	11%	9%	28%	20%
Lack of software	16%	18%	13%	8%	24%	20%
Lack of access to computers	15%	15%	8%	7%	35%	20%
Lack of Internet connectivity	25%	13%	7%	6%	29%	21%
Lack of content of quality and cultural relevance	13%	24%	16%	11%	15%	20%
No reward system for staff members devoting time and energy	26%	25%	13%	6%	8%	20%
No support from management level	24%	27%	12%	7%	9%	21%

The stakeholder survey also asked the respondents to identify barriers to mainstreaming OER in their countries (Table 23). The most significant barrier identified was a lack of appropriate policy solutions, which was noted as important or very important by 70% of respondents. This was followed by lack of users' capacity to access, reuse and share OER, which was considered important or very important by 64% of respondents. The qualitative responses to the question

revealed concerns about translation, particularly with regard to translation skills and the cost of translation. The lack of access to reliable bandwidth was also raised as a concern.

Stakeholders also considered the cost of translation, lack of skills to translate, and lack of suitable technology for translation as being important challenges to mainstream OER (Table 24).

Table 23: Barriers to mainstreaming OER in the country of respondents

BARRIER	VERY IMPORTANT	IMPORTANT	MODERATELY IMPORTANT	SLIGHTLY IMPORTANT	NOT IMPORTANT	NO RESPONSE
Lack of users' capacity to access, reuse and share OER	32%	32%	12%	5%	5%	15%
Language and cultural barriers	21%	25%	18%	11%	9%	15%
Insufficient inclusive and equitable access to quality content	26%	30%	16%	8%	5%	15%
Changing business models	24%	32%	18%	6%	5%	15%
Lack of appropriate policy solutions	40%	30%	9%	3%	3%	15%

Table 24: Challenges to translation of OER into local languages

CHALLENGE	VERY IMPORTANT	IMPORTANT	MODERATELY IMPORTANT	SLIGHTLY IMPORTANT	NOT IMPORTANT	NO RESPONSE
Cost	42%	25%	10%	3%	4%	16%
Lack of skills	31%	30%	11%	6%	6%	16%
Lack of technology	28%	26%	13%	8%	9%	16%

The findings on translation-related issues was consistent across all regions. Specific challenges related to translation include: lack of time to translate content; dearth of human resources and capacity/translation experts; absence of incentives and support; poor translation skills for indigenous and endangered languages; risk of losing the meaning of the content; and cultural differences between creators of OER and users (“lack of intercultural awareness”).

ENGAGEMENT WITH PRIVATE SECTOR AND NEW BUSINESS MODELS

The stakeholder survey asked about engagement with the private sector and how to create new business models around OER. Most respondents (68%) thought that it was very likely that new business models would emerge, with publishers providing joint products (Table 25). Thus, publishers might develop hybrid models that allow for both OER and traditional copyrighted publications to co-exist, each meeting different audience needs (65%). Some respondents indicated that

certain publishers were already moving in the direction of supporting OER.

However, more respondents thought it was unlikely that new business models would emerge through publishers concentrating on new subjects where OER do not yet exist and publishers assembling OER. Several respondents were sceptical of the publishing industry, noting that publishers would be unwilling to consider new business models that deal with OER.

In terms of new business models that might be adopted, many respondents had progressive ideas about how OER could be integrated into various sectors. Some respondents wanted to retain the spirit of communal information inherent in OER. Respondents are also aware of the dependence of the OER movement on a philanthropic model.

Participants suggest working with publishers is welcome as long as the final product is affordable to students. The article processing charge model of open access publishing is an example that could be followed.

Table 25: Emergence of new business models

POSSIBILITY	NOT LIKELY	SOMEWHAT LIKELY	VERY LIKELY	NO RESPONSE
Publishers providing customised education services	8%	35%	31%	26%
Publishers concentrating on new subjects where OER do not yet exist	14%	29%	32%	26%
Publishers providing joint products	7%	31%	37%	27%
Publishers assembling OER	14%	31%	29%	26%
Publishers developing hybrid models that allow for both OER and traditional copyrighted publications to co-exist, each meeting different audience needs	8%	29%	36%	27%

The costs associated with developing and maintaining OER were also highlighted by the stakeholders. Although publishers may look at different models, funding will still need to come from somewhere. When the government pays for a material to be released under CC BY licensing, publishers can use that material to reduce the cost of the publication, increase distribution and gain profit.

However, some people responded that it was important to go beyond the publishing industry and take a multi-stakeholder approach to developing a business model, where technology providers and Internet service providers are also partners. A respondent from Malaysia also indicated that OER could help the publicly funded universities look for new revenue streams through the use of their expertise in developing quality resources at lower cost.

When asked about commercial industries not directly related to education that would be interested in building products and services on top of OER, stakeholder survey respondents identified various industries. The greatest number of respondents (120) identified telecommunication companies and Internet service providers as being interested in commercial opportunities on which to build OER. The second highest number (84) highlighted government agencies as being likely to take advantage of commercial OER opportunities. Other agencies mentioned were universities and educational institutions (21 respondents); and NGOs, non-profit organisations and the health industry (19 respondents for each).

Many stakeholder also felt that there is no need to partner with the private sector or to develop a business

model. This largely stems from the concept of business profit making. The issue of a business model is not seen from the perspective of creating a sustainable practice of using OER without depending on philanthropic or government support perennially.

In terms of balancing OER with commercial interests, of 484 stakeholders who answered the question, 47% indicated that there would be challenges from stakeholders. The other 53% felt that this was not a problem. Some stakeholders mentioned the increasing corporatisation of universities, and that could be a challenge to the OER movement. Commercialisation of universities and the slow pace of change within academic institutions is a prominent challenge. If universities are becoming increasingly corporatised and focused on profit, there is a need to consider how OER can fit into this model.

Given the expenses involved in creating content and the funding that is often necessary to produce OER, many stakeholder are forced to think of how to monetise OER. However, there is also a challenge that comes from the tendency among knowledge producers to want to be compensated for their work or to seek recognition for their academic contribution that comes through publishing with a reputed publisher.

While the idea of a business model and engagement with the private sector to produce and distribute OER

resulted in a diverse set of opinions, one stakeholder from the UK pointed out that emphasis on the idea of education “used as vocational training rather than as a national/global public good (it is both)” is a major challenge. The idea that knowledge might be shared for its own sake and to create a better society appears to be lost in a system where knowledge is only used as a means to an end.

Results from the stakeholder survey thus indicate good awareness of OER and involvement in OER across a wide range of activities. This finding is not surprising given that most respondents to this survey are likely people working in the field. Results point to a wide range of available OER repositories and platforms, with more awareness and use of OER platforms in the global north.

The most significant barrier identified to mainstreaming OER was a lack of appropriate policy solutions, followed by lack of users’ capacity to access, reuse and share OER. Concerns were also raised about the skills and costs associated with translation. The most important barriers to use and adaptation of OER are no reward system for staff members devoting time and energy to the initiative, and no support from the management level. Lack of skills and time also appear to be significant barriers.

The next section provides an overview of OER by region and highlights the specific gaps that exist at the regional level.

The idea that knowledge might exist and be shared for its own sake and to create a better society appears to be lost in a system where knowledge is used only as a means to an end.





REGIONAL OVERVIEWS

Regional overviews provide a brief snapshot of awareness of OER activity overall, of some OER initiatives underway in each region, and of key barriers to mainstreaming OER in each region. These overviews are based primarily on feedback received from stakeholder survey respondents, but have been supplemented with data from government surveys and regional consultation workshops.

Africa

Awareness of OER was reportedly high among stakeholders, with 95% noting that they are aware of OER in general and 70% indicating that they are aware of OER in their country. There was a difference of opinion between stakeholder and government respondents regarding the sub-sector in which most OER activity is taking place: stakeholders pointed to more activity in the tertiary sub-sector; and government respondents indicated greater OER activity in the secondary sub-sector.

Several successful OER initiatives in Africa were highlighted, including OER Africa, Research in OER for Development (ROER4D) at the University of Cape Town, South Africa, the Teacher Education in Sub-Saharan Africa (TESSA) initiative, African Storybook, and Siyavula.³⁴ However, only two countries in Africa have OER policies, South Africa and Seychelles. Draft OER policy and strategies are available in Ghana and

Madagascar. Many OER initiatives in African countries are institutional in nature (e.g., NAMCOL in Namibia, the University of Mauritius's e-learning policy which supports OER, and the College of Distance Education in Malawi).

Nevertheless, there is government interest in OER and plans to include OER in various government initiatives. For example, in Mauritius, the New Strategy paper on Special Education Needs will use OER, while in Zambia, a broadband strategy and an OER portal (eLearning) for the Ministry of General Education are in development.

The most significant barrier identified to mainstreaming OER was a lack of appropriate policy solutions, which was noted as important by 77% of respondents. This was followed by lack of users' capacity to access, reuse and share OER (76% of respondents). Concerns were also raised about translation and its cost, and about the lack of access to reliable bandwidth.

SIYAVULA: Technology-Powered Learning

Siyavula makes education accessible. It provides open textbooks on Mathematics and Science subjects from Grades 4 to 12. These high-quality, curriculum-aligned Open Educational Resources in South Africa are available in device-independent formats using open standards. The objective is not only to increase access through mobile and tablets, but also to reduce costs to serve users from lower socio-economic brackets. It also leverages the affordances of technology and the insights of cognitive science to reduce the inequality in the education system.

For more information, see: <http://www.siyavulaeducation.com/>

³⁴ <http://www.siyavulaeducation.com/>

Middle East and North Africa

In general, most survey respondents (81%) from the Middle East and North Africa (MENA) region were aware of OER in general, but only just over half (54%) were aware of OER in their country. They identified that OER activities are taking place predominantly in the tertiary education sub-sector, followed by the post-secondary sub-sector (not tertiary). Government responses from the same region, however, indicated some OER activity in the secondary sub-sector, followed by the post-secondary sub-sector (not tertiary).

The MENA regional consultation on OER revealed that much work in the region focuses on promoting the effective use of ICT in education, and these are not specific to OER. However, two projects mentioned were the Arab League Educational, Cultural and Scientific Organization (ALECSO) OER Project, which promotes OER at the Pan-Arabic level, and Bibliotheca Alexandria. At the Open University of Sudan, all materials are free, and there have been efforts to translate materials from English and French to Arabic and to publish these as OER under the CC licence. However, it was also noted that, because of lack of awareness (and some resistance), only 2% of CC-licensed works are published in the Arab world.

The regional consultation report also revealed that Bahrain, Morocco and Oman have national OER policies, while Kuwait, Saudi Arabia, and Qatar are in the process of developing national OER policies. Language and cultural barriers, as well as a lack of appropriate policy solutions by ensuring the development of policy environments to support the mainstreaming of OER, were all highlighted as impeding the mainstreaming of OER in the MENA region.

Slightly over half of respondents were aware of OER activity in their country. From the qualitative responses to the stakeholder survey, it was evident that not all respondents understood what OER is. A lack of skills with regard to translation of OER appeared to be a significant problem, particularly because the region has several native languages and dialects.

Asia and Pacific

Most stakeholder respondents (92%) in the Asia and Pacific region were aware of OER in general, and 72% were aware of OER in their country. They identified activities as taking place predominantly in the tertiary education sub-sector, which corresponds with data from the government survey.

Several OER initiatives were identified in the region, including Asia e University (AeU), which is using OER to develop courses, especially teacher training programmes. In India, the National Mission on Education Through ICT (NMEICT) project has an open licensing policy to release all materials developed under a CC BY-SA licence. In Hong Kong, primary and secondary school curricula have introduced OER in language courses. The University of the Philippines Open University has two OER repositories. Usually

Open Educational Resources at Asia e University (AeU)

AeU provides education programmes in various disciplines essentially to working adults in the Asian region. OERs have been appropriately adopted and adapted for both its undergraduate and postgraduate courses offered online. OER have been re-versioned and translated for teacher education programmes to upgrade competencies of teachers in the rural and interior parts Malaysia. Repurposed and re-versioned OER are made available following CC licenses. Use of OER has improved agility of AeU in responding to student demands.

– Contributed by Prof. Dato' Dr. Ansary Ahmed

For more information, see: <http://www.aeu.edu.my/>

they translate OER into their own language and thereby ensure access for all. In Thailand, MOOC courses developed using public funds are licensed as CC BY-NC. There are many repositories in Asia, including China's National Core Courses project (Jingpinke) and the Japan Open Courseware consortium. The Virtual University of Pakistan's 6,000 hours of course material on YouTube, and India's National Programme on Technology Enhanced Learning courses (available on the Web in text and video formats) are other important examples of OER in the region.

The main barriers identified to mainstreaming OER in the Asia and the Pacific region are lack of users' capacity to access, reuse and share OER and a lack of appropriate policy solutions. Although the lack of OER policy was highlighted in this region, promotion of OER and formulation of OER policy was the most frequently mentioned activity, followed by the development of OER. Most stakeholder respondents agreed that teaching and learning had been improved by OER. The region offers a huge amount of OER through different initiatives, but national OER policies are mostly lacking. While some Pacific countries have policies, the Asian countries are beginning to recognise policy initiatives in OER and several countries have recently taken steps in that direction.

Europe and North America

In Europe and North America, almost all (96%) stakeholder respondents noted that they were aware of OER in general, and 84% were aware of OER in their country. They identified most OER activities as taking place in the tertiary sub-sector, followed by the post-secondary sub-sector (non-tertiary). Government responses from the same region, however, indicated that most activity is in the post-secondary sector (non-tertiary), followed by the secondary sector.

The regional consultations report revealed that every country in the region had some level of activity related to OER, open education or open government. Furthermore, almost all activities were anchored in institutions or specific (time-bound) programmes.

The main barriers identified to mainstreaming OER in various countries of the regions were a lack of appropriate policy solutions, and changing business models. Of great concern was the need to improve the culture of education, as was the need to look out for the well-being of students and teaching staff. OER is, to an extent, seen as a vehicle to address those concerns. This region also appears to have the greatest OER involvement, but concerns also centre around: the

Virtual University of Pakistan Open Courseware (OCW)

The OCW website of the Virtual University of Pakistan (VUP) provides free and open access to VUP courses for all knowledge seekers regardless of their institutional affiliations. Many of the courses have become established benchmarks and over 30 national institutions have established mirror sites on their campuses for faster access.

– Contributed by Prof. Naveed A. Malik

For more information, see: <http://ocw.vu.edu.pk>

videolectures.net exchange ideas & share knowledge

VideoLectures.Net is making up-to-date knowledge available to everyone freely through the internet. Videos, enhanced by machine translations and transcriptions, enable the overcoming of the language barrier and are making quality educational content available in many world languages. VideoLectures.Net offers more than 22,000 peer reviewed video lectures, contributed by 14,000 distinguished scholars and scientists. Since its establishment in 2001, it remains a free and open access educational video repository, aimed at promoting science, exchanging ideas and fostering knowledge sharing by providing high quality didactic contents.

– Contributed by Mihajela Crnko

ability to scale OER; the lack of business models; and the lack of policies.

Latin America and the Caribbean

Most stakeholder respondents (93%) were aware of OER in general, and 74% were aware of OER in their country. Stakeholder respondents indicated that most OER activity was taking place in the tertiary sub-sector, followed by the secondary education sub-sector. However, government respondents pointed to most activity being in the secondary sub-sector followed by the primary education sub-sector.

The regional consultations report identified local, national or regional OER policies in Mexico, Brazil and Antigua and Barbuda.

There are several notable OER initiatives in the region, including EduCAPES, a repository of OER and courseware offered by the Open University System of Brazil, through its Directorate of Distance Education. Another initiative is *Ciênciação*, which promotes practical experiments in public schools in Brazil. Since the project's launch in 2015, a group of volunteers has developed, tested, photographed and repeatedly reviewed more than 100 experiments (through a CC

BY-SA licence). These experiments have been translated into Portuguese, Spanish and English.

In Mexico, *Toda la UNAM en Línea*³⁵ is an open access/OER initiative that has been operational since 2012. Several countries, including Antigua and Barbuda, Belize, and St. Vincent & The Grenadines, have been involved in teacher training for developing OER.

The main barrier identified to mainstreaming OER was a lack of appropriate policy solutions, which 73% of respondents noted as important, followed by lack of users' capacity to access, reuse and share OER (66% of respondents).

Key Priorities in Different Regions

Discussions during the regional meetings³⁶ and government surveys (in conjunction with input from the stakeholder survey) suggested some variations in key priorities between regions.

In Africa, a key priority to address is the relevance and accessibility to OER in the African region. Specifically, textbooks are expensive, often out of date, and do not reflect local contexts, and thus there is a need to consider ways and means for translating

and contextualising material to address local needs. There is significant need to bridge the digital divide and focus on providing reliable bandwidth.

Electricity and connectivity are still problems in many parts of Africa, and there is need for governments to focus on increasing basic facilities and broadband connections.

Brazil

The implementation of open licensing policies at the Open University of Brazil is an example of long-term cooperation between government officials, academics, and activists. The on-going process of change included a large-scale stakeholder survey of perceptions and activities, a nationwide open course on OE/OER, and a new open repository. These actions are leading to significant changes in identifying demands and creating new avenues for openness.

– Contributed by Prof. Tel Amiel

35 <http://www.unamenlinea.unam.mx/>

36 Full reports of the regional consultations are at: <http://rcoer.col.org/resources--documents.html>

In terms of OER activity, much focus appears to be on developing teacher capacity and integrating OER into ODL initiatives, with ODL policies making provision for OER adoption.

Increasing the efficiency and effectiveness of public funds spent on education is also a priority. Policy plays an important role, as funding is attached to policy, and so there is a need for coherent policies and strategies for adopting OER. Representatives at the regional meeting wanted more policies at the national and institutional levels, and highlighted the need for governments to provide adequate funds for OER integration in schools.

Another key priority was to focus on awareness raising and capacity building, as stakeholders in governments and teaching institutions may not have

a good understanding of OER. Additional points raised concerned the sustainability of projects after funding phases out, and the potential role of libraries and librarians in mainstreaming OER.

The Middle East and North Africa (MENA) region is bound by a common language, Arabic, but has uneven development of OER. Some countries have already reportedly developed national OER policies, yet participants from other countries heard about OER for the first time when they attended the MENA regional consultation. Key priorities appear to be capacity building in OER, including raising awareness of OER. While several initiatives currently exist for the translation of existing OER into Arabic, the region faces linguistic challenges because many languages in MENA



Global sharing, affordable learning

The OER universitas (OERu) is an international network of innovative higher education institutions inspired by the vision of opening access to a credible, high-quality, and affordable education to learners around the world. OERu partners offer free online courses assembled from OER and provide affordable ways to gain credit towards qualifications from recognised institutions. Established in 2012, the OERu has assembled a full first year of study with pathways to achieve exit qualifications in arts and business studies. The OERu technology infrastructure is open source, thus enabling any institution in the world to replicate, adapt, and host their own versions of these open courses. The OERu network of over thirty institutions from five geographical regions is succeeding in demonstrating the viability of a collaborative business model built on OER and open source technologies.

– Contributed by Dr. Wayne Macintosh

For more information, see: <https://oeru.org>



Vietnam OER

Vietnam OER (VOER) provides high quality and up-to-date learning materials free of charge for educational use. By focusing on reform and modernisation of higher education in Vietnam, VOER collaborates with universities in the world to gain from the content developed elsewhere and to share Vietnamese history, literature and culture with the global community. VOER has become a major portal for students and teachers inside and outside of Vietnam. Every day, more than 80,000 visitors access the VOER website. There are more than 22,000 knowledge modules from more than 10,000 contributing authors.

– Contributed by Dr. Minh Do

For more information, see: <http://voer.edu.vn>

are endangered. Quality assurance was also raised as a significant area of concern, as was the need for expertise in OER (specifically technically trained teams, subject matter experts and language editors) was highlighted.

Participants at the regional consultation workshop further highlighted the need to implement OER policy and to increase institutional support of OER.

In the Pacific region, apart from Australia, Fiji and New Zealand, there is little discourse on OER policies. There is a general lack of awareness among various types of stakeholders about the relevance of OER, and thus mobilisation and awareness campaigns are important. Furthermore, awareness about copyrights and open licensing is limited. In many Pacific countries, the digital divide is a major challenge, and therefore so is accessing, using, reusing and sharing OER. Additionally, mainstreaming of OER depends on an ability to reflect the rich linguistic diversity in the region. Also important to note is that the Pacific region strongly values protecting the rights of the indigenous people and local knowledge. Both are aligned with the concept of sharing as in OER.

In the Asia region, many efforts in OER are driven by governments. Discussions during the regional consultation workshop in Asia raised concerns about poor connectivity, lack of capacity, and unavailability of OER in local languages. In some countries, governments are investing vast resources in projects to develop quality content for higher education and lifelong learning. Asia has seen huge growth in access to mobile telephony and governments have invested heavily in support of educational technology (e.g., in India, China, Malaysia). However, because of the sheer size of the population in Asia, understanding of OER is not uniform in either

government or academic circles. Discussions in the regional consultation identified issues related to lack of awareness of OER and low uptake in higher education institutions among teachers and students.

Initiatives related to OER are underway in Bangladesh, China, India, Indonesia, Korea, Malaysia, Mongolia, Pakistan, Philippines and Vietnam.

In Europe, most countries are involved in OER, and there has been notable progress since 2008 in the European Union toward opening up education, with the Erasmus Plus programme making open licensing mandatory.³⁷ There have been several funded OER projects in Europe. Current OER efforts are mainly driven by universities and institutions, and thus a specific priority for the region is to gain committed government support, with a cohesive OER policy, actions and measures. The challenge to policy change in order to adopt OER in the region comes from the practice of public institutions and governments purchasing (or financing the production of) educational resources but not the rights of the educational resources funded or purchased. This limits access to the works

³⁷ https://ec.europa.eu/programmes/erasmus-plus/programme-guide/part-c/important-contractual-provisions/open-licence-intellectual-property-rights_en

OER World Map

The Hewlett funded OER World Map aims at collecting and visualising data on activities from the field of OER and Open Education. It can be used for a wide range of purposes, including finding qualified lists of OER repositories, connecting OER actors and providing statistics for research and policy making. By being open for contribution from the community as well as from government and research agencies, the project approach combines bottom-up and top-down elements. To date, the constantly growing country champion network has been established in more than 30 countries worldwide. Also a country map interface was integrated into the recently started German information page “OERInfo”. All features developed and tested in Germany can be reused in other countries as well.

– Contributed by Jan Neumann

For more information, see : <https://oerworldmap.org/>

supported by public funds and lowers the effectiveness of the investment made.

MOOCs have shown to be an important change agent in education, and so it is important that governments understand the difference between OER and MOOCs. In the regional consultation workshops discussions in Europe, there was a debate about whether the concept of open education was clear across regions and countries and if this concept was truly distinct from that of digital, online education. The emerging view was that OER must be placed in the larger context of open educational practices and open education. Technology for OER is considerably more advanced in Europe, with notable advances in multilingual searches and the high quality of automated translation.

Diversity of languages and cultures in Europe was regarded as important to consider in evolving region-wide policies and in developing technologies for repositories and OER access and reuse. Teachers were recognised as key stakeholders and actors in this regard, and capacity building of teachers was identified as a critical practice in mainstreaming OER. Representatives at the regional consultation noted that the strong presence of reputed and viable commercial publishers in

the region requires development of business models for value addition to OER to increase use and adoption.

In the Latin America and the Caribbean regional consultation, a key aspect noted was that OER is considered to be a people's movement. Stakeholder respondents noted promotion of flexible learning opportunities as one of the most important factors in favour of country involvement in OER benefiting teachers and students.

Access to teaching and learning materials was mostly variable, which offers an opportunity for OER but also poses a problem in that access might be difficult to achieve due to language limitations and lack of non-English OER. Lack of time and incentives were also identified as dominant barriers to OER translation. Despite this, 84% of respondents in the region recognised that OER lower the cost of learning materials. Due to the push from the public, policy makers were strongly encouraged to pay attention to mainstreaming OER (e.g., in Brazil). Representatives voiced their concerns regarding the English language dominance of OER, and thus a priority for the region is to create OER in Portuguese and Spanish. Countries in the region also face challenges of access to technology and the need for

capacity building in using and reusing OER. Another priority is to focus on developing OER policy, as this will increase likelihood of funding.

While there was a diversity of concerns in each region, common across all regions was the call for more co-operation and collaboration. It was felt that this would allow countries to learn from each other and enable those countries that have made significant progress to share their experiences and expertise with countries beginning with OER.

Chile

In the last two decades, due to a highly concentrated marketplace (two foreign companies), the public textbook programme managed by the government has not resulted in production of quality textbooks, as there is no encouragement or competition for better quality content.

Can openness contribute to fixing the Chile's broken public textbook market and strengthen competitiveness for quality improvement of key learning resources, as well produce a high return on public investment and promote the local/national publishing industry? Should the Ministry of Education consider an OER, no-cost, high quality, award-winning alternative platform (Khan Academy, for example) that would provide access to every student and be adapted and adopted by teachers and supported by parents in Chile? OER and openness can surely contribute to policies to fix problem of expensive textbooks.

– Contributed by Werner Westermann



GLOBAL TRENDS IN OER

Policies

The presence of country policies that support OER is widely regarded as significant in serving as a gauge to determine levels of commitment to OER. It has been argued that lack of policies can limit and delay adoption of OER, or may even discourage institutions from pursuing OER activities. Furthermore, commercial interests, lack of awareness and absence of strong leadership may limit development and implementation of supportive OER policies (COL, 2016).

While there is support from several governments for OER, explicit policies for OER with licensing information is limited. There are relatively few national policies that specifically focus on OER. In Africa, national OER policies have been reportedly developed in South Africa and Seychelles. In the Middle East and North Africa (MENA) region, Bahrain and Oman reportedly have national OER policies, while in the Asia and Pacific region, only Australia, Fiji and New Zealand have such policies. However, policies relating to OER may be incorporated into other policies, such as in ODL policies.

Despite lack of OER policies at the national level, many educational institutions have adopted OER policies. Adoption of institutional OER policies could strengthen the OER movement by focusing on teachers and students as major stakeholders. This will also improve the challenges related to equity and quality of OER.

Interestingly, in regions where there are extensive OER activities, a national policy is often not the driving force. This indicates that bottom-up initiatives in promoting OER have helped OER activities to grow. For example, in many countries in Europe, activities related to OER, open education, or open government are underway.

But the regional consultation in Europe noted lack of clarity in identifying the essential components of an OER policy.

In the field of OER, the pressing need is thus for a two-pronged approach to mainstreaming OER:

- that OER take the form of a bottom-up movement (especially focusing at the institutional level), and
- that national efforts be coordinated through a strategic policy initiative to complement the bottom-up approach.

This would lead to focus on OER policies at the institutional level.

In the government survey, 59% of respondents indicated that their country has been contemplating policy development in OER. This plan needs to be transformed by action to mainstream OER.

Platforms and Repositories

As highlighted in the section on stakeholder surveys, respondents appeared more likely to have used, or currently use, OER repositories that have been created in the global north rather than in the global south.

A review of the OER repositories identified by respondents (see Appendix B) indicate that the majority of repositories are pitched at the tertiary level, usually university repositories. It is important to note that there are many institutional repositories that provide online access to teaching and learning materials, but these repositories are not necessarily available with an open licence to reuse, revise, remix and redistribute. The stakeholder survey also revealed that many of the

OER repositories are not being used by stakeholders, primarily because of the lack of awareness about them and difficulty in discovering them. Thus, in the context of OER, “if you build it, they will come” is a myth.

It is important to situate OER in the context of the needs of the users (i.e., learners), which would make the OER repositories more sustainable. The current trend to offer open textbook platforms that teachers and students can adopt in their learning is a more sustainable option. The trend also shows that development of global repositories may not be useful, and many institutions have started focusing on developing local repositories to focus on providing personalised learning.

Subjects that OER repositories cover are diverse. They include subjects from elementary and secondary school Mathematics to higher medical sciences. The survey also shows that there are many specialised domain-specific repositories or level-specific platforms. Examples of level-specific repositories focusing on

literacy are African Storybook³⁸ and *Wolne Lektury*³⁹ from Poland.

Although stakeholder survey asked respondents to list OER repositories that they were aware of, many respondents listed websites for Massive Open Online Courses (MOOCs) such as Coursera and Khan Academy. Although some MOOCs do contain information from OER, not all MOOCs are OER.⁴⁰ Some respondents also listed websites that were not OER repositories, and others pointed to YouTube and TED as OER repositories.

The fact that several people mentioned MOOCs that are not OER or websites that are not OER indicates either a lack of awareness of what an OER repository is, or at least lack of consensus over a definition of OER.

Awareness and Engagements

As highlighted in the above sections, reported awareness of OER appears to be good. However, it is disconcerting to note that, five years after the first

World OER Congress, many people still conflate OER with digital resources or with free resources. With the relatively recent advent of MOOCs, it appears that people are further confused by the difference between MOOCs and OER. The examples of several engagements



ISKME OER Commons is a dynamic, publicly available digital library of OER and a collaboration platform. Since its launch in 2007, it has served as a curator and connector to open content collections and practitioners at all levels, K–12 and Higher Education.

The ISKME team of educators, developers, researchers and librarians, who develop OER Commons as an easy-to-use environment for finding, organising, evaluating, creating and remixing OER, are driven by a vision for equitable access to high-quality content for all, and for the continuous improvement of teacher practice and curriculum.

– Contributed by Dr. Lisa Petrides

For more information, see: <https://www.oercommons.org/>

38 <http://www.africanstorybook.org/>

39 <https://wolnelektury.pl/>

40 MOOCs are widely considered to increase access to higher education by affording people opportunities to learn through its massive enrolments, particularly for those in developing countries and those who cannot afford the high costs of higher education. They provide an initial level of openness and usefulness—access to material that is simply free to observe, read, listen to, enjoy and, possibly, learn from. However, many MOOCs are not open (some have costs attached to them and the content usually cannot be shared), despite their marketing claims to the contrary.

provided by respondents around the world suggest that this misunderstanding is widespread.

While awareness of OER is greatest among stakeholders, their understanding is not uniform. Therefore, to mainstream OER, it is important to continue focusing on advocacy and awareness building. It is also important to enlarge the circle of OER practitioners, especially among teachers, to mainstream OER in teaching and learning around the education systems at all levels around the world. A concerted effort to build capacities of teachers to use and integrate OER at national level should be a priority.

Though there have been contrasting views of stakeholders and governments on the levels of engagement in OER activities, globally there has been more action in higher education than in secondary or post-secondary (non-tertiary) levels. While it is important to continue strengthening OER adoption in more higher education institutions, focus on secondary education needs to be strengthened to achieve the targets of Sustainable Development Goal 4: Education.

Government survey responses indicate the commitment towards focus on OER at the secondary education level. But much more needs to be done and government policy on OER would help put the commitment into practice. It is through focus on OER at the secondary level that pedagogical transformation is possible.

As the process of engagement in OER in higher education focuses more on open textbooks, there is global neglect for OER for lifelong learning. The recent developments related to MOOCs has the potential to use OER and offer lifelong learning opportunities. Unfortunately, the MOOC phenomenon has tended to largely a free course approach rather than an open model to allow reuse, revision, remix and redistribution. Governments supporting MOOCs will miss an opportunity to make quality lifelong learning possible by not adopting OER while offering MOOCs as a strategy to create educational technology infrastructure.

Challenges and Gaps

It is useful to consider challenges and gaps emerging from the survey data in relation to the OER Paris Declaration. Thus, a summary of emerging challenges and current gaps derived from the survey data is presented below, organised according to the 10 recommendations of the OER Paris Declaration (which are inserted in italics under each heading).

FOSTER AWARENESS AND USE OF OER

Promote and use OER to widen access to education at all levels, both formal and non-formal, in a perspective of lifelong learning, thus contributing to social inclusion, gender equity and special needs education. Improve both cost-efficiency and quality of teaching and learning outcomes through greater use of OER.

Both the government and stakeholder survey data indicated that although awareness of OER is increasing, there is still a general lack of awareness among stakeholders about the relevance of OER and, in some cases, about what OER is. The idea of “openness” is not clear, and there appears to be no proper understanding of the OER concept, in particular the open licensing approach.

This lack of understanding was also particularly evident in questions related to examples of OER or OER repositories, where many respondents provided links that were to digital resources (not open) or referenced MOOCs, which were not openly licensed. Where respondents are aware of OER, this awareness tends to focus on resources in the global north and predominantly in English.

Regional consultation reports also identified lack of awareness as a challenge. For example, in the Middle East and North Africa regional consultations, representatives observed that some participants were introduced to OER for the first time. Additionally,

some of the government and stakeholder respondents noted that they had only heard about OER when completing the survey. Thus, participation in this research and consultation process has provided “food for thought” and created awareness of OER, with some respondents signaling an intention to focus on OER.

However, mobilisation and awareness campaigns are still crucial.

FACILITATE ENABLING ENVIRONMENTS FOR USE OF ICT

Bridge the digital divide by developing adequate infrastructure, in particular, affordable broadband connectivity, widespread mobile technology and reliable electrical power supply. Improve media and information literacy and encourage the development and use of OER in open standard digital formats.

Compared with five years ago, significantly more people now have Internet access through their mobile devices. This enables them to contribute to global knowledge flows. Despite this, OER have not been adopted at the speed and scale envisaged in 2012. The digital divide remains a major challenge in many regions, particularly in Africa, Latin America and the Caribbean, and the Asia-Pacific region.

This situation impacts OER access, reuse and sharing. For example, a stakeholder respondent from Nepal noted that the country first needed Internet and electricity to be able to sustain OER. A respondent from Pakistan noted that the country faces an energy crisis. In Brazil, a stakeholder respondent noted that “the Internet in Brazil is very expensive and slow, affecting its access to the poorest populations.” And a stakeholder respondent from Papua New Guinea noted that most educational institutions do not have a reliable Internet access.

While digitisation is occurring in many places, lack of ICT access and bandwidth in educational institutions creates significant barriers to mainstream OER. In several Pacific countries, print media is still a dominant mode of educational resource. Therefore, offline solutions and appropriate technologies, such as Aptus,⁴¹ need to be used.

Additionally, electricity and connectivity are still problems in many parts of Africa, and there is need for governments to focus on increasing basic facilities and broadband connections. Possible solutions described in the Africa regional consultation report included providing alternative access to digital textbooks through printed hard copies and making OER available on mobile devices, as these are available to many in Africa.

⁴¹ <https://www.col.org/services/knowledge-management/aptus>

Aptus

Aptus is a Single Board Computer (SBC) that functions both as a server and wireless router. Aptus allows digital content and software to be accessed by learners using tablets, laptops, or mobile phones even in resource-poor locations where no Internet is available. With Aptus, learners who are off-grid and off-line can still benefit from digital resources.

COL developed Aptus for distribution and repurposing of available OER and Open Source software to increase access. As a highly affordable technology that enables mobile learning, Aptus reaches the unreached. It can also support transactions and records among users in less connected locations.

Aptus has been field-tested in over 15 countries and actively deployed in five countries, including India, Kiribati, Pakistan, Samoa, Trinidad and Tobago, and Vanuatu.

– Contributed by Dr. V. Balaji

REINFORCE THE DEVELOPMENT OF STRATEGIES AND POLICIES ON OER

Promote the development of specific policies for the production and use of OER within wider strategies for advancing education.

Across regions, a lack of appropriate policy solutions for OER seems to be a predominant limiting factor; and OER do not seem to be specifically a government priority in some countries. As highlighted in the section on policies before, there are few national OER policies but an increasing number of institutional OER policies.

A third of government respondents noted that there had been a national discussion on sustainable learning resource production. Discussions have been underway related to OER, digitisation, resource production and collaboration between public and private stakeholders. Other efforts that respondents identified were engagements or projects such as guides, policies and plans, although the pace of the projects seemed to be slow in some cases.

The dismal number of specific OER policies adopted after the 2012 Paris OER Declaration is a concern. While the declaration emerged as a result of a category 4 meeting of UNESCO, it had no teeth to ensure that governments take the Declaration seriously. There is still a need to foster the creation, adoption and implementation of policies supportive of effective OER practices. Government and institutional policy makers play a crucial role in setting policies that help to shape the direction of education systems, and these policies can accelerate or impede the adoption and creation of OER.

PROMOTE THE UNDERSTANDING AND USE OF OPEN LICENSING FRAMEWORKS

Facilitate the reuse, revision, remixing and redistribution of educational materials across the world through open licensing, which refers to a range of frameworks that allow different kinds of uses, while respecting the rights of any copyright holder.

The system of licences developed by the Creative Commons is currently the most popular way to make OER available to the public, with the number of CC-licensed works estimated at 1.2 billion.⁴²

Government and stakeholder survey data revealed that awareness about copyright and open licensing is limited, as evidenced by the number of examples respondents provided that were not OER. Additionally, of those who responded to the question on licensing, 43% reported not using any licence in the material they release as OER, while only 54% reported using a CC licence.

Both the government and stakeholder survey indicated that the capacity of people to use OER, especially their understanding of copyright and licensing, was low. However, in the stakeholder survey, respondents showed awareness of OER to a large extent.

More sustained efforts are needed to promote understand of OER. Short online courses, such as “Understanding Open Educational Resources” developed by COL,⁴³ needs to be used by more institutions to train their staff, and a wide range of guides and resources on OER need to be made available. Considering the huge population of teachers to be trained, this should be a continuous activity for a long time to come.

SUPPORT CAPACITY BUILDING FOR THE SUSTAINABLE DEVELOPMENT OF QUALITY LEARNING MATERIALS

Support institutions, train and motivate teachers and other personnel to produce and share high-quality, accessible educational resources, taking into account local needs and the full diversity of learners. Promote quality assurance and peer review of OER. Encourage the development of mechanisms for the assessment and certification of learning outcomes achieved through OER.

⁴² <https://stateof.creativecommons.org/>

⁴³ <http://tell.colvee.org/course/view.php?id=3>

Search for Sustainability of OER

A major concern for the OER community today is finding a sustainable model for using and integrating OER in teaching and learning. Many respondents felt that the government should continue to support OER activities as a public good. Others considered a business model to be important to sustain the use and integration of OER and innovation.

Efforts are underway in creating for-profit social enterprises around OER, building on free availability of resources and providing services around OER. But these have not yet proved to be successful, as some are still supported by philanthropic funding. Several open textbook adoption models are, in practice, offering potential savings. These have been quite successful yet far from financial sustainability. Another way to sustainability, and probably a better one, is to build partnerships and collaboration to develop OER that can help reduce costs and create a win-win situation for all the stakeholders.

Considering the challenges to mainstreaming OER, there has also been focus on OER integration and open educational practices (OEP) or OER-based learning. This brings in another important dimension to make OER a sustainable practice as part of the responsibility of teachers and educational institutions to adopt OER through a systemic reform and policy change.

Several government and stakeholder respondents mentioned the significant work COL is doing in their countries with regard to capacity building in OER, particularly among teachers and in ODL institutions. The survey results show that these are mostly the primary OER content development activity in many developing countries. While donor funding has been an essential component of initiating OER practices, governments and educational institutions still need to invest systematically in programme, course and materials development and acquisition for them to become sustainable and effectively used.

Quality assurance of OER also still remains a concern despite availability of many guides and frameworks, including the Quality Assurance Guidelines for OER⁴⁴ developed by COL's regional office, the Commonwealth Educational Media Centre for Asia.

FOSTER STRATEGIC ALLIANCES FOR OER

Take advantage of evolving technology to create opportunities for sharing materials which have been released under an open license in diverse

media and ensure sustainability through new strategic partnerships within and among the education, industry, library, media and telecommunications sectors.

Government data provided several examples of engagements with various stakeholders in the public and private spheres, including Internet service providers, publishers, teachers, experts and government. Several respondents identified telecommunications companies and Internet service providers as industries that might be interested in building products on top of OER. Government respondents also noted that engagement with publishers presented various challenges. The main issue is that publishers appear to be struggling to find relevance in a sector that is not focused on profit.

Meantime, the significant contribution of donor agencies, such as the Hewlett Foundation, in fostering alliances among various stakeholders to promote OER was recognised. And another example of collaboration cited by stakeholders is the OERu, the international network of 34 organisations across the five continents.

44 <http://oasis.col.org/handle/11599/562>



encourage the sharing of OER across languages and cultures, respecting indigenous knowledge and rights.

There have been mixed responses to private participation in the OER among the stakeholders.

Some new business models are emerging around the use of OER, leading to new for-profit entities and start-ups. Many local-level strategic partnerships have also been seen, especially in the context of institutional OER deployment and national-level projects (e.g., BC Campus and NPTEL). However, large global-level alliances are yet to be visible. Currently, the ICDE is undertaking a feasibility study⁴⁵ to create a Global Open Library through international collaborative efforts.

The survey results provide limited evidence of significant, sustained strategic alliances emerging around the world, although some are slowly starting to emerge.

ENCOURAGE THE DEVELOPMENT AND ADAPTATION OF OER IN A VARIETY OF LANGUAGES AND CULTURAL CONTEXTS

Favour the production and use of OER in local languages and diverse cultural contexts to ensure their relevance and accessibility. Intergovernmental organizations should

The surveys and regional consultations focused on the challenge of language and culture, particularly as a barrier to mainstreaming OER. The Pacific region has a strong tradition of rich linguistic diversity, and mainstreaming of OER depends on its ability to integrate language diversity. The regional consultation in Africa highlighted that, as most of the OER are available in English, it is important to build capacities to translate available OER into local languages to make these effective in teaching and learning. The importance of developing local culturally sensitive OER was emphasised as well. Participants highlighted a need for translation of existing OER, development of new OER in local languages, and creation of OER on local heritage and culture. This sentiment was also expressed in the regional consultations in the Middle East and Africa, Latin America and Caribbean, and Europe.

Only 41% of government survey respondents felt that there are sufficient OER in the main languages of education in their country. Most OER are available in English, and translation of OER into languages of instruction is not a priority for many countries. Most government respondents indicated that no efforts were made to translate resources into local languages. Nevertheless, projects such as LangOER⁴⁶ in Europe is an example of focusing on the promotion of learning and teaching of less-used European languages by linking them to the global challenges of open education.

Barriers to translating OER into local languages seem to be both economic and social. Not only are translations seen as being expensive and time-consuming, but respondents indicated that there are linguistic biases, particularly a propensity to use English. Some stakeholder respondents were under the assumption that because English was a language of

45 <https://www.icde.org/gol#sthash.P9LS4Svl.dpbs>

46 <http://langoer.eun.org/>

instruction in a given country, no translation of OER needed to occur. This was, in some cases, misguided because several countries with large English-speaking populations have minorities who speak other languages and are thus not accommodated. Stakeholders also indicated the need for efforts to develop technologies for translation, and many also emphasised creation of OER in native languages.

ENCOURAGE RESEARCH ON OER

Foster research on the development, use, evaluation and re-contextualisation of OER as well as on the opportunities and challenges they present, and their impact on the quality and cost-efficiency of teaching and learning in order to strengthen the evidence base for public investment in OER.

Responses from the government survey indicate that only 25% of respondents who answered the question indicated knowledge of their country having conducted research on contributing to OER use in general. The Asia regional consultation report mentioned the ROER4D project, which is supported by the International Development Research Centre, Canada, and is a large-scale multi-year research project creating a network of researchers on OER in the global south.

Overall, however, it seems that research on OER has picked up since the 2012 Paris OER Declaration. Doctoral research, funded projects and research articles related to OER have all increased. The OER hub⁴⁷ at United Kingdom Open University continues to be a strong research group on OER and has released a guide on open research.⁴⁸ The Open Education Group,⁴⁹ another group of researchers based at the Brigham Young University, has contributed

47 <http://oerhub.net/>

48 http://oerhub.net/wp-content/uploads/2016/12/OpenResearch.FINAL_.pdf

49 <http://openedgroup.org/>

significantly by releasing the OER Research Toolkit⁵⁰ to assist researchers all over the world in undertaking a systematic approach to studying OER. The OER Knowledge Cloud⁵¹ shows over 1,500 items, over 850 of which are research projects realised since 2012.

Despite these important efforts, OER research can still be considered sporadic and, overall, responses suggest that limited research is being done at the national level, which makes it difficult to ascertain the effectiveness and scope of OER at the country level.

FACILITATE FINDING, RETRIEVING AND SHARING OF OER

Encourage the development of user-friendly tools to locate and retrieve OER that are specific and relevant to particular needs. Adopt appropriate open standards to ensure interoperability and to facilitate the use of OER in diverse media.

Most government survey respondents (84%) indicated that the main barrier to mainstreaming OER is lack of users' capacity to access, reuse and share OER. Furthermore, about 47% felt that relevant stakeholders have the necessary skills to access, use and share OER. Interestingly, some felt that necessary skills equated solely with the ability to use the Internet.

Stakeholder survey respondents indicated that access to teaching and learning materials in their respective countries was either good or varied. For stakeholders, the most highly rated skills were ICT skills for OER adoption, followed by the ability to find OER. Respondents were less confident about their ability to perform adaptations and to distribute OER.

These findings suggest that there are still considerable challenges to discover OER,

50 <http://openedgroup.org/toolkit>

51 <https://oerknowledgecloud.org/>

as awareness about the repositories is also low. While several attempts to streamline the searching and sharing of OER are underway, their integration into teaching and learning is largely a problem of capacities of the users. Many repositories are not optimised for “discoverability,” and therefore it is important to focus on strengthening them and platforms to make them more user-friendly.

ENCOURAGE THE OPEN LICENSING OF EDUCATIONAL MATERIALS PRODUCED WITH PUBLIC FUNDS

Governments/competent authorities can create substantial benefits for their citizens by ensuring that educational materials developed with public funds be made available under open licences (with any restrictions they deem necessary) in order to maximize the impact of the investment.

As noted in the section on policies, much work is still required to see governments take steps to encourage open licensing of publicly funded educational materials.

Some countries have taken initiatives. For example, the Antigua and Barbuda ICT in Education policy states that material produced with government funds will be released under a CC licence; government respondents from Slovakia and Spain also noted that publicly funded OER initiatives; and Fiji’s OER policy also commits to releasing publicly funded resources under an open licence.

Generally, however, there has been little uptake of the recommendation to explicitly commit support toward open licensing of publicly funded educational materials. Despite some attempts to push OER policies in many countries, the political will to create an explicit policy is missing in most places. Nevertheless, the survey results reflect a willingness of about 60% of the countries to take up OER policy development, which is a welcome sign to mainstream OER in teaching and learning.





CONCLUSIONS AND WAY FORWARD

The surveys and regional consultations revealed that while much has been done to promote and increase the development and use of OER, more is required for OER to be mainstreamed in teaching and learning at all levels of education. It can likely only be mainstreamed if it becomes a “people’s movement” involving several primary and secondary stakeholders. Equally important are committed governments, with relevant OER policies and funding support.

The findings reveal disparities across regions and across countries at various stages of OER adoption. While awareness raising about OER is common to all countries and regions, developing countries need to focus on removing the barriers to Internet access and on improving bandwidth at educational institutions. Lack of understanding of OER, a tendency to conflate OER with digital resources and MOOCs, and limited awareness about copyright and open licensing suggest that awareness campaigns remain crucial.

Policy development appears to be a pressing need across most countries. Although the number of respondents indicating they have a country OER policy has increased since 2012, the evidence provided by some on the presence of such policies is weak. Additionally, governments may have expressed commitment to policies in support of OER, but that commitment has not necessarily translated into action or funding.

Globally, most OER activities appear to be implemented through initiatives led by institutions and engaged individuals, and through programmes or projects with public funding. The scale of OER initiatives varies across countries, with activities in some countries being focused in specific institutions or in specific projects/initiatives or sub-sectors, while other activities elsewhere are focused at a national level.

Major developments in OER have been achieved via partnerships and with funding and support from various organisations, although the sustainability of such interventions and alliances is not yet clear. Most activities on OER are underway in Europe and North America. However, the Asian countries have contributed significantly to the creation and distribution of OER without major national OER policy interventions.

While many initiatives, projects and repositories of OER exist, their use has been low. A major barrier identified in both the government and stakeholder surveys is users’ capacity to use and integrate OER. Issues related to access to technology and bandwidth also raise concerns of equity, such as what constitutes “open.” Many initiatives purport to share educational material online for anyone to use, yet they are not necessarily available with a suitable open licence that allows those materials to be retained, reused, revised, remixed or redistributed without permission of the copyright holder. Furthermore, most OER still appear to be in English, although there are various translation efforts across the globe.

With an eye to moving forward, the following suggestions are provided for the consideration of the OER community, governments and everyone else interested in promoting education to achieve Sustainable Development Goal 4: Education, to “ensure inclusive and equitable quality education and promote lifelong learning opportunities for all.”

- Greater effort is needed in creating awareness of the meaning, purpose and advantages of OER at the country level. Sustained advocacy and a national-level focus to promote OER in educational institutions at all levels would help improve awareness. Some of these activities could

be done by international NGOs, donors and intergovernmental agencies such as UNESCO and COL. A regional approach to advocacy for OER could also be taken up, especially with governments at the ministerial level.

- Given the various stages countries are at in terms of OER awareness, skills and engagement, capacity building for the use and integration of OER in teaching and learning should form part of teacher professional development at all levels of education.
 - Such activities could form part of national-level efforts, although a focus on institutional adoption of OER and the provision of training at the institutional level would be useful.
 - Considering the huge demand for capacity building for the reusing, remixing and sharing of OER, governments should invest in developing local expertise in OER; and building OER capacity among teachers should be aimed at promoting actual adoption and use of OER by learners.
 - Several OER platforms and resources developed in some countries could help other countries get ahead without starting their OER initiatives from scratch. Thus, there may be merit in holding further regional consultations and discussions and in establishing knowledge-sharing platforms among countries. Encouraging collaboration between regions and different stakeholders could be particularly useful.
- Slow growth in the development of OER policies suggests that greater attention should be focused on promoting policy development at both the national and institutional levels.
 - While many projects and initiatives are running without national policies, this is not the way to mainstream OER. Policies are necessary to garner investment from governments and donor agencies. National uptake of OER and policy development could be improved through, for example, a normative instrument from UNESCO providing guidance to countries on OER policy development.
 - Institutional OER policy is more important to create transformation in teaching and learning practice by adopting OER.
- Although research on OER has increased over the years, communicating research findings to policy makers and stakeholders has been slow. Better communication strategies to convey the results of OER research to relevant stakeholders are needed.
- Funding is still required to promote and drive OER efforts. Sustainability models and business models for OER need to be explored, and governments sensitised to the value of investing sufficiently in OER initiatives to ensure their success.
- A prerequisite of engagement with OER is access to ICT infrastructure, and while this is improving in many regions, further work is required on bridging the digital divide.
- In countries that have policies and various activities, it may be worthwhile to look at how activities are implemented and how this implementation is measured. Monitoring the progress of OER in different countries would help governments better understand the impact of OER and share their good practices with other nations.

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APPENDIX A: OVERVIEW OF METHODOLOGIES AND SAMPLE

Definitions

For the surveys and this report, the following definitions were used:

- **Open educational resources (OER)** are any educational resources that may be freely accessed, copied, reused, adapted and shared and which are available under an open licence or are in the public domain for use without paying licensing fees. OER include lecture notes, slides, lesson plans, textbooks, handouts given to students, videos, online tutorials, podcasts, diagrams, entire courses and any other material designed for use in teaching and learning.
- An **open licence** is a licence that allows copyrighted materials to be used, adapted and redistributed without permission from the copyright holder. The best-known open licences are the Creative Commons licences, which provide legal mechanisms to ensure that people retain copyright over, and acknowledgement for, their work while allowing it to be shared under the terms and conditions of their choice.
- **Public domain** refers to materials for which the copyright has expired or whose author has relinquished the copyright.
- **Stakeholders of OER** include teachers at all levels of education, administrators, policy makers, civil society organisations, and individuals with an interest in promoting access to educational resources.

Research Methodology

This report draws on responses to two surveys prepared by COL, which were administered using the online survey tools:

1. The government survey was sent by COL and UNESCO to ministries responsible for education in all UNESCO and COL Member States and also made available to COL Focal Points and to National Delegations in UNESCO. For this survey, hard copies of the surveys were also distributed during the regional consultation.
2. An OER stakeholder survey was posted online by COL and publicised via social media. COL's network of professional organisations and individuals helped to spread the stakeholder survey in their network.

Responses

In total, 102 responses were received from governments and 759 responses were received from stakeholders. The data was cleaned, as some respondents completed only the biographical data and 52 respondents completed the survey twice. In the case of the latter, the most complete survey was selected and qualitative responses from both the responses were combined. Partial responses (completion of only biographical data) and duplicate responses were deleted. Thus, 638 stakeholder questionnaire responses were used for the analysis (Table A1).

Table A2 shows the responses by country.

Table A1: Total responses by region

REGION	GOVERNMENT SURVEY RESPONSES	STAKEHOLDER SURVEY RESPONSES
Africa	28	144
Middle East and North Africa	12	26
Asia and Pacific	28	253
Europe and North America	21	145
Latin America and Caribbean	13	70
Total	102	638

Country categorisation was done as per UNESCO regions available at <http://www.unesco.org/new/en/social-and-human-sciences/unesco-regions/>

Table A2: Responses by country

REGION	COUNTRIES FOR GOVERNMENT SURVEY	COUNTRIES FOR STAKEHOLDER SURVEY
Africa	Botswana, Burundi, Cabo Verde, Cameroon, Chad, Democratic Republic of Congo, Côte d'Ivoire, Equatorial Guinea, Ghana, Kenya, Lesotho, Madagascar, Malawi, Mali, Mauritius, Mozambique, Namibia, Nigeria, Rwanda, Senegal, Seychelles, Sierra Leone, South Africa, Swaziland, Tanzania, Togo, Uganda, Zambia	Botswana, Equatorial Guinea, Ethiopia, Ghana, Kenya, Lesotho, Malawi, Mauritius, Mozambique, Namibia, Niger, Nigeria, Rwanda, Seychelles, South Africa, Swaziland, Tanzania, Togo, Uganda, Zambia, Zimbabwe
Middle East and North Africa	Algeria, Bahrain, Djibouti, Egypt, Kuwait, Mauritania, Morocco, Palestine, Qatar, Saudi Arabia, Sudan, Syria	Algeria, Egypt, Jordan, Lebanon, Morocco, Oman, Palestine, Qatar, Saudi Arabia, Sudan, Syria, Tunisia
Asia and Pacific	Australia, Bangladesh, Brunei, China, Fiji, India, Indonesia, Iran, Kiribati, Kyrgyzstan, Lao PDR, Malaysia, Maldives, Marshall Islands, Nepal, Pakistan, Palau, Papua New Guinea, Philippines, Samoa, Solomon Islands, Sri Lanka, Thailand, Timor-Leste, Tonga, Uzbekistan, Vanuatu, Vietnam	Australia, Bangladesh, Bhutan, Brunei, China, Fiji, India, Indonesia, Iran, Japan, Kazakhstan, Kiribati, Malaysia, Mongolia, Myanmar, Nepal, New Zealand, Pakistan, Palau, Papua New Guinea, Philippines, Samoa, South Korea, Sri Lanka, Thailand, Tonga, Tuvalu, Vietnam
Europe and North America	Armenia, Azerbaijan, Belgium, Bulgaria, Cyprus, Estonia, Finland, France, Georgia, Latvia, Lithuania, Malta, Netherlands, Poland, Romania, Russian Federation, Slovakia, Slovenia, Spain, Turkey, United States of America	Andorra, Belgium, Bulgaria, Canada, Croatia, Cyprus, Denmark, Finland, France, Georgia, Germany, Greece, Iceland, Israel, Italy, Latvia, Macedonia, Malta, Netherlands, Norway, Poland, Portugal, Romania, Russian Federation, Slovenia, Spain, Sweden, Switzerland, Turkey, United Kingdom, United States of America
Latin America and Caribbean	Antigua and Barbuda, Bahamas, Barbados, Belize, Chile, Colombia, Grenada, Jamaica, Mexico, Peru, St. Lucia, St. Vincent & The Grenadines, Trinidad and Tobago	Antigua and Barbuda, Argentina, Barbados, Bolivia, Belize, Brazil, Chile, Costa Rica, Dominica, Ecuador, Grenada, Guatemala, Honduras, Jamaica, Mexico, St. Lucia, Suriname, Trinidad and Tobago, Uruguay, Venezuela

Overview of Respondents to Stakeholder Survey

The stakeholder surveys had more male than female respondents (57% male and 42% female, with 1% not specifying gender). Respondents classified their main area of experience as teaching (43%), administration and

management (26%), and research (16%). Another 14% indicated “Other” as their main areas of experience, most of which were noted as variations or combinations of the above.

Additional details of the respondents’ demographic profile are presented in Tables A3–A8 below.

Table A3: Highest qualification of stakeholder survey respondents

QUALIFICATION	AFRICA	MIDDLE EAST AND NORTH AFRICA	ASIA AND PACIFIC	EUROPE AND NORTH AMERICA	LATIN AMERICA AND CARIBBEAN	TOTAL ACROSS ALL REGIONS
PhD	25%	38%	42%	38%	42%	37%
Master’s degree	46%	46%	37%	47%	38%	42%
Bachelor’s degree	22%	12%	7%	8%	13%	11%
Diploma	1%	0	2%	3%	0	2%
Other	6%	4%	13%	4%	7%	8%

Table A4: Discipline of stakeholder survey respondents

DISCIPLINE	AFRICA	MIDDLE EAST AND NORTH AFRICA	ASIA AND PACIFIC	EUROPE AND NORTH AMERICA	LATIN AMERICA AND CARIBBEAN	TOTAL ACROSS ALL REGIONS
Humanities	18%	19%	14%	19%	31%	18%
Social Sciences	19%	15%	25%	23%	33%	24%
Life Sciences	3%	4%	6%	3%	3%	4%
Health Sciences	3%	4%	1%	2%	4%	2%
Computer Science	11%	8%	14%	6%	10%	11%
Physical Sciences	3%	0%	3%	2%	0%	2%
Engineering and Technology	10%	19%	4%	2%	4%	6%
Law	2%	0%	1%	2%	3%	2%
Management and Commerce	7%	4%	13%	6%	0%	8%
Library, Archives and Information Studies	4%	0%	2%	10%	4%	5%
Music and Art	0%	0%	0%	1%	1%	0%
Other	21%	27%	14%	24%	17%	19%

Table A5: Age of stakeholder survey respondents

AGE	AFRICA	MIDDLE EAST AND NORTH AFRICA	ASIA AND PACIFIC	EUROPE AND NORTH AMERICA	LATIN AMERICA AND CARIBBEAN	TOTAL ACROSS ALL REGIONS
Under 26	1%	4%	2%	1%	0%	1%
26–35	18%	16%	24%	8%	10%	17%
36–45	26%	20%	31%	24%	30%	27%
46–55	35%	48%	20%	31%	29%	28%
56–65	18%	12%	18%	27%	24%	20%
over 65	2%	0%	4%	11%	7%	6%

Table A6: Stakeholder survey respondents' total years of working experience

WORKING EXPERIENCE (YEARS)	AFRICA	MIDDLE EAST AND NORTH AFRICA	ASIA AND PACIFIC	EUROPE AND NORTH AMERICA	LATIN AMERICA AND CARIBBEAN	TOTAL ACROSS ALL REGIONS
No work experience	0%	0%	2%	1%	0%	1%
1–5	4%	12%	13%	2%	1%	7%
6–10	19%	4%	17%	4%	7%	13%
11–15	14%	12%	18%	14%	11%	15%
16–20	15%	27%	13%	16%	16%	15%
Over 20	48%	46%	38%	63%	64%	49%

Table A7: Stakeholder survey respondents by organisational type

ORGANISATIONAL TYPE	AFRICA	MIDDLE EAST AND NORTH AFRICA	ASIA AND PACIFIC	EUROPE AND NORTH AMERICA	LATIN AMERICA AND CARIBBEAN	TOTAL ACROSS ALL REGIONS
Secondary school	3%	0%	2%	2%	6%	3%
Vocational and technical training institution	18%	4%	2%	2%	3%	6%
College or university	53%	31%	73%	54%	49%	60%
Industrial or commercial organisation (including publishers)	1%	0%	0%	1%	1%	1%
Government department or ministry	10%	15%	9%	4%	19%	10%
Hospital or medical school	1%	0%	0%	0%	0%	0%
Research institute	0%	4%	2%	6%	3%	3%
Non-governmental organisation	6%	42%	6%	13%	10%	9%
Independent consultant	2%	0%	2%	7%	3%	3%
Other	5%	4%	4%	10%	6%	6%

Table A8: Stakeholder survey respondents' career levels

CAREER LEVEL	AFRICA	MIDDLE EAST AND NORTH AFRICA	ASIA AND PACIFIC	EUROPE AND NORTH AMERICA	LATIN AMERICA AND CARIBBEAN	TOTAL ACROSS ALL REGIONS
Entry level	5%	4%	14%	3%	1%	8%
Mid-level	47%	31%	44%	41%	41%	43%
Senior management (directors or similar)	1%	0%	2%	2%	16%	3%
Chief executive or president	37%	58%	30%	37%	21%	33%
Self-employed	4%	0%	2%	6%	7%	4%
Other	6%	8%	9%	10%	13%	9%
No response	5%	4%	14%	3%	1%	8%

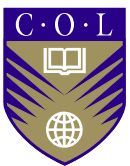
APPENDIX B: OER REPOSITORIES

Respondents provided 237 links to websites and repositories as examples of OER that they use. The following is a list of OER repositories or initiatives that follow open licensing. This list is not comprehensive, but it provides a useful resource.

NAME OF REPOSITORY	URL
AFRICA	
1. African Storybook	http://www.africanstorybook.org/
2. African Virtual University	http://oer.avu.org/
3. Kwame Nkrumah University of Science and Technology OER	http://websys.knust.edu.gh/oer/pages/
4. MaliMath (M ²)	http://www.malimath.net
5. OER Africa	www.oerafrica.org
6. Siyavula	http://www.siyavula.com/work-oer.html
7. Teacher Education in Sub-Saharan Africa (TESSA)	http://www.tessafrica.net/
8. Thutong	http://www.thutong.doe.gov.za/
9. Young African Research Arena	http://www.yararena.org/
ASIA AND THE PACIFIC	
1. Davalgaa	http://www.davalgaa.mn/
2. First Steps	www.det.wa.edu.au/stepsresources/detcms/portal/
3. Fossee	http://fossee.in/
4. Information and Library Network (INFLIBNET) e-PG Pathshala	http://www.inflibnet.ac.in/epgp/
5. Karnataka Open Educational Resources	http://karnatakaeducation.org.in/KOER/en/index.php/Main_Page
6. Lib.kg	http://lib.kg/
7. National Repository of Open Educational Resources	http://nroer.gov.in/welcome
8. Netaji Subhas Open University Repository	http://nsouoer.krc.net.in
9. NPTEL	http://nptel.ac.in/
10. Odisha State Open University	http://osou.ac.in/e-resources.html
11. Open Educational Resource Library	http://oer.learn.in.th
12. Open Textbooks for Hong Kong	http://www.opentextbooks.org.hk/
13. Scootle	http://www.scootle.edu.au/ec/p/creativeCommons
14. Spoken Tutorial	http://spoken-tutorial.org/
15. Storyweaver	https://storyweaver.org.in
16. Telangana Open Educational Resources	http://troer.telangana.gov.in/OER/
17. Tess India	http://www.tess-india.edu.in/
18. Thailand Massive Open Online Course (ThaiMOOC)	http://www.thaimooc.org
19. The Open University of Sri Lanka	http://oer.ou.ac.lk/
20. UNESCO-UNIRWIN Handong Global University	http://uuooi.org/english/portal.php

NAME OF REPOSITORY	URL
21. University of the South Pacific	http://openedu.usp.ac.fj/
22. Universitas Terbuka OERs	http://www.ut.ac.id/OER/index.html
23. Vietnam Open Educational Resources	http://voer.edu.vn
24. Virtual Labs	http://vlab.co.in
25. Virtual University Open Courseware	http://ocw.vu.edu.pk/
26. Wawasan OER Repository	http://weko.wou.edu.my/
EUROPE AND NORTH AMERICA	
1. Alberta OER	http://albertaoer.com/
2. Athabasca OCW	http://ocw.lms.athabascau.ca/
3. BC Campus OpenEd	https://open.bccampus.ca
4. Biology Courses	http://www.biologycourses.co.uk/
5. Centre for Open Educational Resources and Language Learning	http://www.coerll.utexas.edu/coerll/
6. Curriki	http://www.curriki.org/
7. Del Rett	http://delrett.no/
8. Ecampus Ontario	https://openlibrary.ecampusontario.ca/
9. Edutags	http://www.edutags.de
10. Learning Objects for Healthcare – University of Nottingham	http://sonet.nottingham.ac.uk/rlos/rloist.php
11. Lumen Learning	http://lumenlearning.com/
12. Merlot (Multimedia Educational Resource for Learning and Online Teaching) (II)	https://www.merlot.org/merlot/index.htm
13. MIT Open Courseware	http://ocw.mit.edu
14. National Science Digital Library	https://nsdl.oercommons.org/
15. NDLA Open educational resources for secondary schools	http://ndla.no/
16. OER Commons	http://oercommons.org/
17. OER Sverige	http://oersverige.se/
18. Open Access Oxford	http://openaccess.ox.ac.uk/
19. Open Archives	http://www.openarchives.gr/
20. Open Education Europe	https://www.openeducationeuropa.eu/
21. Open Educational Practices	http://www.oeps.ac.uk/
22. Open Professionals Education Network	https://open4us.org/find-oer/
23. Open Textbook Library	http://open.umn.edu/opentextbooks/
24. Openstax CNX	http://cnx.org/
25. Projekt eL4	http://el4.elan-ev.de/plugins.php/mooc/courses/overview
26. Raspberry Pi	https://www.raspberrypi.org/resources/
27. Saylor Academy	https://www.saylor.org/tag/oer/
28. Sickle Cell Open	http://www.sicklecellanaemia.org/
29. Siemens Stiftung	https://medienportal.siemens-stiftung.org/
30. Skills Commons	https://www.skillscommons.org/
31. Slovenian e-textbooks for primary and secondary schools	https://eucbeniki.sio.si/
32. SOL*R BC Campus	http://solr.bccampus.ca/wp/

NAME OF REPOSITORY	URL
33. The Coalition for Open Education	http://koed.org.pl/en/
34. The Orange Grove	http://florida.theorangegrove.org/
35. University of Edinburgh Open Education Resources (OpenEd)	http://open.ed.ac.uk
36. VideoLectures.NET	http://videolectures.net/
37. Wolnelektury	https://wolnelektury.pl/
LATIN AMERICA AND THE CARIBBEAN	
1. Agregá	http://www.agrega2.es/web/
2. Arca	http://arca.fiocruz.br/
3. Campus Virtual de Saúde Pública	http://brasil.campusvirtuaisp.org/repositorio
4. Ciênciação	http://ciensacao.org
5. Curriculum en linea Recursos para el aprendizaje	http://www.curriculumlineamineduc.cl
6. Design Thinking	http://www.dtparaeducadores.org.br/
7. Educacao Aberta	http://educacaoaberta.org/
8. eduCapes	https://educapes.capes.gov.br
9. Fiocruz	https://portal.fiocruz.br/pt-br
10. Iniciativa Educação Aberta	http://aberta.org.br/
11. La Referencia	http://www.lareferencia.info/joomla/en/
12. Open campus	http://opencampus.utpl.edu.ec/
13. Open Education	www.educadigital.org.br
14. Open Michigan	http://open.umich.edu/
15. Open Osmosis	https://open.osmosis.org/
16. Pioneiro	http://www.pioneiro.com.br/pioneirodigital/
17. Portal del Repositorio Institucional de la Universidad de Los Andes	http://www.saber.uLa.ve
18. ProEva	http://proeva.edu.uy/recursos-abiertos/nucleo-interdisciplinario-sobre-recursos-educativos-digitales-abiertos-y-accesibles/
19. REA Dante	https://www2.colegiodante.com.br/rea/
20. Recursos Educacionais Abertos no Brasil	http://www.rea.net.br/site/comunidade-rea-brasil/
21. Temoa	http://www.temoa.info/es
MIDDLE EAST AND NORTH AFRICA	
1. Saudi OER Network	https://shms.sa
GLOBAL	
1. Commonwealth of Learning's Open Access Repository	http://oasis.col.org
2. Directory of OER Repositories	http://doer.col.org/
3. Directory of Open Access Journals	https://doaj.org/
4. Global Digital Library	http://digitallibrary.io/
5. Global Text Project	http://globaltext.terry.uga.edu/
6. OER Knowledge Cloud	http://oerknowledgecloud.org
7. OERu	https://oeru.org/



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