Action Area 3: Encouraging effective, inclusive and equitable access to quality OER[1]

1 Introduction

The Universal Declaration of Human Rights (UDHR) states that all people have inalienable rights and fundamental freedoms, which include the right to receive and impart information and ideas through any media, regardless of frontiers (Article 19) and the right to education (Article 26).[2] UNESCO has a constitutional commitment to 'the free exchange of ideas and knowledge' and supports sharing of knowledge using technologies. Digital skills and competencies are increasingly important to enable citizens to participate actively in digital transformation that supports sustainable development, to benefit from lifelong learning and employability opportunities, and to respond to global challenges. It is also important for the global community to anticipate future crises that may impact teaching and learning. This is necessary to lay the foundation for the systematic and sustainable integration of good practices for knowledge sharing and learning support in the post-COVID-19 era. It is thus essential that the global community acts to enable universal access to information and knowledge.

In this global context, Open Educational Resources (OER) can be a vehicle for realizing Articles 19 and 26 of the UDHR and for catalysing quality education in a digitized world. OER are defined as 'learning, teaching and research materials in any format and medium that reside in the public domain or are under copyright that have been released under an open licence, that permit no-cost access, re-use, re-purpose, adaptation and redistribution by others.' An open licence is one that respects the intellectual

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[2] Universal Declaration of Human Rights. https://www.ohchr.org/en/human-rights/universal-declaration/translations/english

property rights of the copyright owner, while granting the public the rights to access, re-use, re-purpose, adapt, and redistribute educational materials.[3]

OER development provides opportunities to enhance the experience of learners and educators, as well as benefit educational communities and broader society by providing access to educational resources and teaching methodologies that can be adapted according to the needs of each context, either cultural or situational. However, operationalizing OER creation, adaptation and use poses a range of challenges to educational decision-makers and stakeholders. UNESCO developed the 2019 Recommendation on Open Educational Resources (referred to as 'the OER Recommendation' for brevity in some parts of this document) to respond to the need to drive OER adoption. The Recommendation was adopted by consensus of all 193 Members States at the 40th Session of the UNESCO General Conference, following a two-year consultative process. It is the first UNESCO normative instrument for technologies and education and requires Member States to monitor and report on its implementation every four years.

1.1 The aim of the OER Recommendation

The OER Recommendation aims to assist Member States at the national level by supporting the development and sharing of openly licensed learning and teaching materials, benefiting students, teachers and researchers worldwide. It supports the creation, use and adaptation of inclusive and quality OER, and facilitates international cooperation in this field through five Action Areas, namely (i) building the capacity of stakeholders to create, access, re-use, adapt and redistribute OER; (ii) developing supportive policy; (iii) encouraging inclusive and equitable quality OER; (iv) nurturing the creation of sustainability models for OER, and (v) facilitating international cooperation. In addition, it contributes to the building of open and inclusive knowledge societies, and to the achievement of the 2030 Agenda for Sustainable Development, namely SDG 4 (Quality education), SDG 5 (Gender equality), SDG 9 (Industry, innovation, and infrastructure), SDG 10 (Reduced inequalities within and among countries), SDG 16 (Peace, justice and strong institutions) and SDG 17 (Partnerships for the goals). Operationalizing the Recommendation remains a challenge for governments and institutions, as it requires a range of policies, capacity-building, and strategies to fully realize its potential in facilitating the achievement of these SDGs.

1.2 Objective of these Guidelines

In essence, governments and institutions are concerned with key skill areas for OER implementation: (1) project management skills for OER content acquisition (that is, finding, adapting and creating materials, with clear and rigorous policies and strategies for procurement); (2) applying quality management criteria to be confident that the quality of OER is high, relevant and suitable to context; and (3) ensuring that users (such as teachers/educators, learners and community development initiatives) have the capacity to find and use resources that are located online. These key issues can be tackled when policy and decision makers unpack the Recommendation and put into process concrete actions. The overall objective of these Guidelines is to support governments and institutions in their implementation of the Recommendation, by providing concrete recommended actions that will enable governments and institutions to overcome these three key challenges.

The targeted stakeholders for these Guidelines are those responsible for learning, which includes ministries responsible for education (K–12 and tertiary), information and communication technology (ICT), human resources development, and youth. Institutions include those that provide education in

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[3] Recommendation on Open Educational Resources (OER). UNESCO. https://www.unesco.org/en/legal-affairs/recommendation-open-educational-resources-oer.

the formal and informal sectors, in urban and rural contexts. Specific stakeholders *impacted* by strategies to implement the Recommendation include teachers, educators, learners, governmental bodies, parents, educational providers and (ICT) infrastructure providers, researchers, research institutions, civil society organizations (including institutions, education support personnel, teacher trainers, educational policy makers, cultural institutions [such as libraries, archives and museums] and their users, ICT professional and student associations), publishers, the public and private sectors, intergovernmental organizations, copyright holders and authors, media and broadcasting groups and funding bodies. The range is extensive; thus, it is critical to identify practical ways in which they can act to promote and use OER.

These Guidelines cover Action Area 3 of the Recommendation: *encouraging inclusive and equitable quality OER*. They provide: a description/overview of the recommendations; an introduction to the specificities addressed in the implementation of Action Area 3; a matrix of actions recommended for governments and institutions to implement each point of Action Area 3; a discussion on the specificities related to Action Area 3; and examples of good practice (from different regions and contexts) in implementation of Action Area 3.

The Guidelines offer advice on how to operationalize Action Area 3 of the Recommendation. They are not prescriptive, but aim to offer suggestions for activities, as well as background on the specificities for the Action Area. Users are encouraged to contextualize the elements of these Guidelines as appropriate for their specific national and institutional contexts.

2   Description of Action Area 3

Action Area 3 of the OER Recommendation focuses on encouraging effective, inclusive, and equitable access to OER:
- Ensuring access to OER that **meets the material needs of target learners** and the educational objectives for which the OER is used, including **ensuring offline access to OER where appropriate**.
- Supporting the **development of gender-sensitive, culturally and linguistically relevant OER**, and the creation of OER in **local and indigenous languages**.
- Ensuring that the principle of **gender equality, non-discrimination, accessibility, and inclusiveness is reflected in OER** strategies and programmes.
- Supporting **increased access to OER**, particularly for low-income communities, through **public investments and incentivizing private investments in ICT infrastructure** and broadband as well as other mechanisms.
- Incentivizing the development of **research in OER**.
- **Developing and adapting existing evidence-based standards, benchmarks** and related criteria for OER which emphasize reviewing educational resources (both openly and not openly licensed) for **quality assurance**.

OER's potential in increasing access to resources and driving equity and inclusiveness in education is the key issue covered in this Action Area. But OER itself must be implemented using strategies that seek to remove barriers and assure quality. Aspects that affect equitable access to quality learning and OER are often interrelated. Inclusiveness is inherently enhanced in OER, as open licensing allows for educational materials to be more effectively shared, re-purposed and adapted to meet learners' needs. Barriers identified to creating and using OER include the lack of OER in local and indigenous languages; issues related to lack of devices and poor Internet infrastructure; lack of awareness about OER and its important role for inclusive education and sustainable development; lack of policies to mobilize resources for OER-related activities; poor digital skills to develop, access, use, create and share OER; and lack of knowledge about open licences.

3 Implementing Action Area 3

The needs of all learners and users, irrespective of age, gender, physical ability, and socioeconomic or vulnerability status must be understood and addressed. Governments and institutions need to consider the broad range of stakeholders that can be impacted positively by OER and implement an equally wide range of actions to support their access to and use of OER. As a starting point, policy makers and institutions need to understand the nature of their contexts very clearly, including linguistic diversity, cultural and gender needs of their learners, and other unique contextual factors. There needs to be an emphasis on rigorous research to inform the needs of the learning community regarding OER. They then need to mobilize funding and resources to be able to implement action strategies to address these needs. Table 1 defines actions for governments and institutions in ensuing that the principles of equity and inclusion are addressed in OER provision.

Table 1   Suggested Action Area 3 activities for governments and institutions

Governments	Institutions
Action: (a) building awareness among relevant stakeholder communities on how OER can increase access to educational and research resources, improve learning outcomes, maximize the impact of public funding, and empower educators and learners to become co-creators of knowledge.	
• Prepare national roadmap, to include policy development and strategies for investments in OER development, adaptation, and translation that targets providing comprehensive coverage of openly licensed materials to meet educational needs of students at different levels of education, and organizing investment priorities in line with key policy priorities of government and educational demands of students • Establish regular budget lines focused on investment in development, adaptation, and translation of OER, including potential migration of funds used to purchase proprietary resources into these budget lines over time, as high quality OER become reliably available to educators and students in ways that can support successful attainment of required learning outcomes; this would include the delineation of budgets for ensuring the development and use of OER that are inclusive and accessible for vulnerable groups • Work with international networks and local institutions, establish OER repositories that provide access to high quality OER relevant to national educational programmes, including targeted platforms to support inclusive equitable access to learning • Develop policy and financial incentives and mechanisms to encourage institutions to invest in contextually relevant OER development, adaptation, and translation for targeted vulnerable populations	• Prepare institutional roadmap to include policy development and strategies for investments in OER development, adaptation, and translation that targets providing comprehensive coverage of openly licensed materials to meet educational needs of students and organizing investment priorities in line with key policy priorities of government (where applicable) and the institution, as well as educational demands of students • Establish regular budget lines focused on investment in development, adaptation, and translation of OER, including potential migration of funds used to purchase proprietary resources into these budget lines over time, as high quality OER become reliably available to educators and students in ways that can support successful attainment of required learning outcomes; this would include the delineation of budgets for ensuring the development and use of OER that are inclusive and accessible for vulnerable groups • Work with other institutions, consortia, and government (where feasible), establish and/or contribute to OER repositories that provide access to high quality OER, including targeted platforms to support inclusive equitable access to learning • Develop policy and financial incentives and mechanisms to encourage educational staff and departments to develop, adapt, and translate contextually relevant OER for targeted vulnerable populations

Governments	Institutions
Action: (b) supporting OER stakeholders to develop gender-sensitive, culturally and linguistically relevant OER, and to create local language OER, particularly in indigenous languages which are less used, under-resourced and endangered.	
• Ensure that government programmes focused on OER development, adaptation, and translation include specific requirements to ensure availability of gender-sensitive, culturally, and linguistically relevant OER • Incorporate specific references and criteria to support creation of gender-sensitive, culturally, and linguistically relevant OER in all government programmes investing in OER • Establish dedicated streams of funding to facilitate development and/or translation of OER in multiple languages, with particular emphasis on indigenous languages • Ensure that all government policies referencing OER include specific references to and targets for gender-sensitive, culturally, and linguistically relevant OER and ensure accessibility for vulnerable groups	• Ensure that institutional initiatives focused on OER development, adaptation, and translation include specific requirements to ensure availability of gender-sensitive, culturally, and linguistically relevant OER • Incorporate specific references and criteria to support creation of gender-sensitive, culturally, and linguistically relevant OER in all institutional programmes investing in OER • Where appropriate, establish dedicated streams of funding to facilitate development and/or translation of OER in multiple languages, with particular emphasis on indigenous languages • Ensure that all institutional policies referencing OER include specific references to and targets for gender-sensitive, culturally, and linguistically relevant OER and ensure accessibility for vulnerable groups
Action: (c) ensuring that the principle of gender equality, non-discrimination, accessibility and inclusiveness is reflected in strategies and programmes for creating, accessing, re-using, adapting, and redistributing OER.	
• Ensure that all government policies, regulations, strategies, programme plans, and capacity-building activities related to OER incorporate principles of gender equality, non-discrimination, accessibility, and inclusiveness • Establish metrics for monitoring effectiveness of implementation of principles of gender equality, non-discrimination, accessibility, and inclusiveness as part of government monitoring and evaluation processes for OER • Develop mechanisms to support and incentivize all stakeholders to publish source files and accessible OER using standard open file formats in public repositories[4] • Raise awareness and capacity about the importance of WCAG and UDL in and ensuring accessible OER[5]	• Ensure that all institutional policies, strategies, programme plans, and capacity-building activities related to OER incorporate principles of gender equality, non-discrimination, accessibility, and inclusiveness • Establish metrics for monitoring effectiveness of implementation of principles of gender equality, non-discrimination, accessibility, and inclusiveness as part of institutional monitoring and evaluation processes for OER • Develop mechanisms to support and incentivize all stakeholders to publish source files and accessible OER using standard open file formats in public repositories • Raise awareness and capacity about the importance of WCAG and UDL in and ensuring accessible OER.
Action: (d) ensuring public investments and incentivizing private investments in ICT infrastructure and broadband, as well as other mechanisms, to provide increased access to OER, particularly for low-income, rural and urban communities.	
• Negotiate with cellular providers to zero-rate data costs for key educational websites, including OER repositories • Identify additional needs for ICT infrastructure to enable/support identified innovative educational practices	• Negotiate with cellular providers to zero-rate data costs for institutional websites, learning management systems, and OER repositories • Identify additional needs for ICT infrastructure to enable/support identified innovative educational practices
Action: (e) incentivizing the development and research of OER.	

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[4] Javiera, p.3

[5] A. Tlili

Governments	Institutions
• Through suitable consultative processes, define clear national metrics for tracking OER use and effectiveness, with particular emphasis on measuring the extent to which take-up and use of OER and open licensing leads to positive, transformative educational improvements for students	• Through suitable consultative processes, define clear institutional metrics for tracking OER use and effectiveness, with particular emphasis on measuring the extent to which take-up and use of OER and open licensing leads to positive, transformative educational improvements for students
• Establish targets for education providers to transform existing curricula and teaching practices into OER and open pedagogy	• Establish targets for educators and educational departments to transform existing curricula and teaching practices into OER and open pedagogy
• Ensure that metrics for tracking OER use and effectiveness include clear disaggregation to track extent of impact with respect to diversity and inclusion across the education system	• For tertiary institutions' schools of education, encourage postgraduate students to experiment with integrating OER into their teaching and instructional design practices.
• Commission research and evaluation projects to investigate the extent to which OER practices have a positive transformation impact on educational experiences and learning outcomes for students, which clear disaggregated focus on diversity and inclusion	• Ensure that metrics for tracking OER use and effectiveness include clear disaggregation to track extent of impact with respect to diversity and inclusion across the institution
• Issue calls for and/or commission OER initiatives that tackle global or local challenges as stipulated in the UN SDGs and consider implementing special OER Awards in this category	• Run institutional research and evaluation projects to investigate the extent to which OER practices have a positive transformation impact on educational experiences and learning outcomes for students, with clear disaggregated focus on diversity and inclusion, as well as to explore possible unintended negative impacts.
• Assess existing barriers to national education goals and research how broad adoption of OER and open education practices might remove (some of) those barriers.	• Assess existing barriers to institutional education goals and research how broad adoption of OER and open education practices might remove (some of) those barriers
• Establish and, where feasible, fund specific research programmes on different aspects of OER practices	• Establish and, where feasible, fund specific research projects on different aspects of OER practices
• Collaborate with universities to encourage postgraduate and postdoctoral research activities focused on OER practices	• For tertiary education institutions, encourage postgraduate and postdoctoral research activities focused on OER practices
• Identify key government research questions related to OER and support evidence-based decision-making that answers those questions either using existing research or by commissioning new research	• Identify key institutional research questions related to OER and support evidence-based decision-making that answers those questions either using existing research or by commissioning new research
Action: (f) developing and adapting existing evidence-based standards, benchmarks and related criteria for the quality assurance of OER, as appropriate, which emphasize reviewing educational resources (both openly licensed and not openly licensed) under regular quality assurance mechanisms.	
• Identify and share relevant national and/or international documents/resources and accompanying research reports that present suitable standards, benchmarks, and criteria for educational resource development and which include coverage of issues associated with development, adaptation, and sharing of openly licensed resources	• Identify and share relevant institutional, national and/or international documents/resources and accompanying research reports that present suitable standards, benchmarks, and criteria for educational resource development and which include coverage of issues associated with development, adaptation, and sharing of openly licensed resources
• Convene discussions with relevant educational quality assurance agencies at national and institutional levels to review existing standards, benchmarks, and criteria for quality assurance	• Convene discussions with educational and quality assurance staff to review existing standards, benchmarks, and criteria for quality

Governments	Institutions
of educational resources to review their appropriateness for development, adaptation, and sharing of openly licensed resources • Support national quality assurance agencies to adapt existing quality assurance mechanisms for educational resources, based on results of discussions, to include suitable coverage for OER (or develop new quality assurance mechanisms should these not already exist) • Develop and integrate quality assurance mechanisms for OER into the existing quality assurance strategies for teaching and learning materials, including instruments that promote OER, considering elements such as cultural and pedagogical relevance and quality so communities can benefit from the development, production and adaptation of OER by learners and educators to enhance their educational experience.	assurance of educational resources to review their appropriateness for development, adaptation, and sharing of openly licensed resources within the institution • Support institutional quality assurance unit to adapt existing quality assurance mechanisms for educational resources, based on results of discussions, to include suitable coverage for OER (or develop new quality assurance mechanisms should these not already exist) • Develop and integrate quality assurance mechanisms for OER into the existing quality assurance strategies for teaching and learning materials, including instruments that promote OER, considering elements such as cultural and pedagogical relevance and quality so communities can benefit from the development, production and adaptation of OER by learners and educators in order to enhance their educational experience.[6]

3.1 Accessibility, inclusiveness, multilingualism, and quality

Accessibility

Accessibility means that resources can be accessed by users despite challenges and barriers they may experience. OER provision and use needs to address a broad range of possible barriers to accessing materials. 'Accessibility' in the implementation of the 2019 Recommendation on OER is linked to Member States' overall policy on access to knowledge and the implementation of international intellectual property agreements, as well as the openness of public information and with OER, as outlined in the UNESCO ROAM principles[7] of Human Rights, Openness, Accessibility, Multi-stakeholder participation. Universal Design for Learning (UDL)[8] addresses accessibility and should be promoted and adopted in OER policies.

UDL refers to a process in which a curriculum (goals, methods, materials, and assessments) is intentionally designed to offer flexible and inclusive approaches that can be customized and adjusted for individual needs. The key components of UDL are to ensure flexibility and accessibility in the ways information is presented, the way learners respond to or demonstrate knowledge and skills, and the way they are engaged in the learning process (e.g. with the course content, and interactions with peers and instructors); and in addition to reduce the barriers in instruction by providing appropriate accommodations, supports and challenges while maintaining high achievement expectations for all learners.

While technology may provide more information to learners in a greater variety of ways, it does not necessarily allow all users to access learning environments and information equitably. In fact,

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[6] Javiera, p.2

[7] https://www.unesco.org/en/internet-universality-indicators/roam-x

[8] The UDL guidelines in English, Arabic, simplified Chinese, Catalan, French, German, Spanish, Irish, Italian, Japanese, Portuguese, Swedish, Turkish, and Unified English Braille (contracted) will be found at https://udlguidelines.cast.org/more/downloads

technology itself may even create barriers to access. The Web Content Accessibility Guidelines[9], released by the World Wide Web Consortium[10] not only target web content and tool developers to design appropriate websites and web-based resources for a diverse range of users but are also a key tool for ensuring UDL principles in access to web-based resources for persons with disabilities. Students with disabilities must have access to all components of the learning process (including registration, administrative matters, course work and other components) that would be available to students without a disability, and teachers should have positive attitudes and use appropriate pedagogy.

Content creators (which may include teachers and other practitioners) need to be skilled in using technologies for authoring, editing, adapting and publishing OER in suitable repositories. They also need to know which open licences to apply and how to apply them to materials. Accessibility considerations thus extend to creators as well as users. It would be important to involve vulnerable communities that would be beneficiaries of the materials in their conceptualization and development. Appendix 2 presents two examples of lists of elements that content creators should consider when developing accessible OER.

Inclusiveness

Inclusion should address a wide range of conditions and contexts for learners. One example is the gender digital divide. UNICEF reports that '*there is a gender digital divide: girls are disadvantaged when it comes to digital adoption, have lower levels of access to and use of digital technology than boys, and often they are not benefitting from digital technology in the same way as boys'.*[11] Access to digital technologies that enable the use of OER must be a priority in areas where there is a gender digital divide.

OERs can be provided online and offline. In fact, offline resources are often favourable in contexts where there is poor digital capacity or internet access. But they require financial resources and infrastructure to print and distribute. The StoryWeaver platform[12] (also mentioned in the examples at the end of this section) is a repository for reading materials that can be accessed online or downloaded in sufficiently high-resolution files for printing. Where OER materials are to be accessed online, learners and other users need devices and internet access, as well as the digital skills to navigate repositories and platforms to access OER. As discussed in the section on capacity-building, this is a challenge in terms of both infrastructure as well as skills.

Some users (for example, those who are sight or hearing-impaired) may require assistive technologies[13] to aid them in accessing OER. Considerations for inclusion would include the most suitable technologies, as well as their cost, so that they can be funded. Appendix 1 provides a table of suggested ways of addressing inclusion in OER access.

Multilingualism

The scarcity of OER content in languages other than English is a widely recognized issue in OER inclusion. Many learners around the world are forced to learn or use resources in languages different from their mother tongue. One way in which this is addressed is by translating materials published in English or other dominant languages into local and lesser used languages. Translation addresses

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[9] https://www.w3.org/WAI/standards-guidelines/wcag/

[10] https://www.w3.org/

[11] https://www.unicef.org/eap/innovation-and-technology-gender-equality

[12] https://storyweaver.org.in/

[13] 'Any item, piece of equipment, or product system, whether acquired commercially, modified, or customized, that is used to increase, maintain, or improve functional capabilities of individuals with disabilities.' https://uis.unesco.org/en/glossary-term/assistive-technologies

inclusion to some extent, but it is not ideal in every situation, because the contexts of stories, local culture and indigenous knowledge are not represented in these materials. Therefore, OER creation should focus on re-purposing as well as creating new materials, and repackaging existing materials that are contextually relevant to learners.

In the education sector, many governments have policies in place that require textbooks and ancillary content in mother-tongue languages be used for learners in the early grades of their education. But the materials in the required languages are not always available. Nor are there always teachers who have sufficient knowledge of local languages to teach their learners. They may also lack appropriate teaching materials and appropriate pedagogical skills in those languages. The problems of refugee or internally displaced children further exacerbate the problem of inadequate learning resources in languages learners know. In a 2022 report, UNESCO reported that although improvements have been made, 'globally, 40% of the population does not have access to an education in a language they speak or understand.'[14] Inclusion in this regard requires policy makers, content creators, teachers, lexicographers, and other stakeholders to understand the multilingual environments in which children live; be skilled in translating and writing content in contextually valid environments; understand which kinds of instructional materials are required; and know how to formulate and enforce appropriate policies for mother-tongue instruction and learning. A further consideration is the ethical use of OER that incorporates Indigenous knowledge, or information about Indigenous Peoples, in different languages. The direct perspective of indigenous communities should be included in the creation of content that is written about them, to respect their cultural property. Their consent and acknowledgement should be sought for publishing content about their traditions and knowledge, even in cases where such knowledge may be regarded as being in the public domain. Building partnerships with indigenous communities to collaborate on content creation is the ethical way to proceed.[15]

A further consideration would be following principles of Universal Acceptance (UA)[16] to ensure that very top-level domain for links to OER would functions within all applications regardless of script, number of characters or how new it is.

Quality

Many OERs are published online every day, and one of the major questions is how to ensure their quality. There is also a growing number of online OER websites and repositories, which highlights the need for effective resource discovery mechanisms to optimally exploit the benefits of their openness. OER platforms and repositories do not consistently apply their own quality assurance protocols for materials uploaded. Quality of OER is viewed as the single most important factor determining the uptake of OER in institutions and training contexts.[17] Therefore, quality assurance of OER and OER repositories is very important to ensure quality and inclusive learning. It would be important that national quality assurance mechanism incorporate quality assurance criteria to evaluate OER and non-openly licensed educational content on the same basis. This would imply that new quality assurance criteria for OER would also be used to evaluate the criteria of non- openly licensed content.

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[14] https://www.unesco.org/en/articles/new-right-education-report-reveals-measures-taken-countries-expand-linguistic-diversity-education

[15] Younging, G. 2018. Elements of Indigenous Style A Guide for Writing By and About Indigenous peoples. https://www.brusheducation.ca/books/elements-of-indigenous-style. Cited in Henville, L. April 13 2023. Ethical considerations for the integration of Indigenous knowledge into open education resources. University Affairs. https://www.universityaffairs.ca/career-advice/ask-dr-editor/ethical-considerations-for-the-integration-of-indigenous-knowledge-into-open-education-resources/

[16] https://en.wikipedia.org/wiki/Universal_Acceptance

[17] ENCORE+ Quality Position Paper No.1. https://encoreproject.eu/wp-content/uploads/2021/11/ENCORE-Quality-Position-paper-No.1.pdf

To ensure quality OER, several quality guidelines should be established related to OER and OER repositories to ensure that content can easily be found, accessed and (re)used by everyone. Policies should encourage national and international institutional collaborations to develop quality OER frameworks, taking into consideration individual differences of users, such as gender, culture, language, and background. They could be supported by conducting ongoing training related to developing quality and inclusive OER. There are several quality indicators of OER repositories that should be considered to ensure the discovery and reuse of quality OER.[18] These indicators are presented in Appendix 2. They include aspects such as featured resources, user evaluation tools, peer review, inclusion of metadata, authorship of resources, multilingual support, and specification of the types of Creative Commons (CC) licences per resource.

4   Examples of good practice

Accessibility and inclusion

Women of Uganda Network (WOUGNET):[19] This organization partners with many different international organizations, including UN Women, and has a mission of promoting the use of ICTs by women and girls for gender equality and sustainable development.

Malaysian National inclusive Open Educational Resources (iOER) policy:[20] The long-term vision of this policy is to ensure the adoption of inclusive Open Educational Resources (iOER) by Malaysian Higher Learning Institutions (HLIs) to provide quality education access to all learners, in particular persons with disabilities. The policy envisions that iOER will be used effectively in education to enable all learners to learn according to their individual learning preferences as well as learning styles, and to promote the long-term inclusion into wider society of learners with disabilities, particularly through enhancing their social inclusion and employment opportunities.

Mada ICT-AID Competency Framework OER Hub (Qatar)[21] and **Qatar National E-accessibility Policy:[22]** Qatar's National E-accessibility Policy addresses digital accessibility for people with disabilities, and the elderly, across many sectors of society, including accessing learning materials. In addition, as part of the government's endeavors to enable equal opportunity for all to access education, and to foster lifelong learning by harnessing the power of ICT and the potential of OER, the government Mada Center launched the Mada ICT-AID Competency Framework OER Hub. It is a portal hosted by OER Commons where accessible open resources (in Arabic and English) are aggregated, curated and managed. It also includes OER development tools, and practices that are aligned with the ICT-AID Competency Framework. The Hub also supports the activities of expert groups.

Multilingualism

StoryWeaver[23] and African Storybook[24]: These platforms are repositories for early childhood education resources in many languages across the world. Both platforms also offer guides on how to translate stories from one language to another.

[18] Atenas, J. & Havemann, L. https://psycnet.apa.org/record/2014-37387-001

[19] https://wougnet.org/

[20] https://cade.upm.edu.my/upload/dokumen/20220411092159NATIONAL_iOER_POLICY_08122020.pdf

[21] https://www.oercommons.org/hubs/mada

[22] 22 https://www.oercommons.org/hubs/mada

[23] https://storyweaver.org.in/translation_tools_and_tips

[24] https://www.africanstorybook.org/documents/home/Translation.pdf

Room to Read:[25] This United States NGO has a commitment to publishing stories in minority languages, many of which are in danger of extinction.[26] The organization has also published a guide called *What Makes a Great Translation?*[27] to help people think through how to translate and 'version' stories to meet the needs of their audience.

OER quality standards

The ENCORE Quality Initiative: towards a community-oriented quality framework:[28] This unique ENCORE+ initiative (2021–2024) focuses on developing, testing, and mainstreaming 'community-oriented quality approaches' where each repository is a focal point for a user community and serves its user community as a stream of providing OER. Based on ongoing research, the perspective is that territories, and spaces of communities using OER exist within higher education institutions and businesses. These communities of practice develop their own environments, using their own tools, deciding on their own regulations, and build and agree on their community specific values.[29]

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https://static1.squarespace.com/static/5cb1f6beaadd34703fcc968c/t/5d4db04f41126400018b8a76/1565372497798/REACH_VersioningRecs_FINAL.pdf
26 https://www.roomtoread.org/the-latest/room-to-read-s-minority-language-book-publishing/
27
https://static1.squarespace.com/static/5cb1f6beaadd34703fcc968c/t/5d4db04f41126400018b8a76/1565372497798/REACH_VersioningRecs_FINAL.pdf
28 ENCORE+ Quality Position Paper No. 1. https://encoreproject.eu/wp-content/uploads/2021/11/ENCORE-Quality-Position-paper-No.1.pdf
29 Further resources for quality in OER are published on the ENCORE+ website: https://encoreproject.eu/resources/

Appendix 1: Examples of initiatives that address specific inclusivity issues

Inclusivity issue	Examples of how to provide access
Accessibility for visually impaired learners	Platforms for the visually impaired can host OER. For example, Bookshare makes reading easier for people with dyslexia, blindness, cerebral palsy, and other reading barriers. A United States publishing copyright exemption enables the platform to make large numbers of mainly scientific and mathematical books available to people (within and outside the US) with print disabilities. Bookshare is not an OER repository; it hosts OER resources, such as textbooks produced by OpenStax[30]. Governments and others who produce open textbooks can use the platform.
Accessibility for girls and women	Girls and women are not always given access to the same educational opportunities as boys and men. StoryWeaver, the world's largest digital platform for children's books, has produced numerous stories to counteract gender-based stereotypes.
Accessibility for rural people and their languages	Rural people and their languages are another significant concern in terms of accessibility. Indigenous Storybooks[31], a Canadian initiative, is a resource designed specifically for children, families, community members, and educators. This project aims to make the text, images, and audio of stories available in indigenous languages, as well as English, French, and the most widely spoken immigrant and refugee languages of Canada. The stories are openly licensed.
Representing characters from communities with accessibility challenges	Ensuring that characters in children's stories represent disabled communities is also important. The early childhood development TV educational show and print books, *Akili and Me*, has an albino Tanzanian girl named Amani as one of its main characters. In Tanzania and elsewhere in Africa, people with albinism are victims of superstitious beliefs and are shunned.

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[30] https://www.bookshare.org/search?keyword=OpenStax
[31] https://indigenousstorybooks.ca/

Appendix 2: Elements to consider for accessible OER

Elements	What to consider
OER authoring tool	• Compatible with assistive technology • Does not disable features (i.e., zoom, text-to-speech) of the computer's operating system
Non-text items/images	• Include text descriptions for all images/non-text items
Use of color	• Use alternative means (i.e., pattern) rather than colour to differentiate content where needed
Text	• Ensure accurate optical character recognition (OCR) for all text, so that it can be accessed by screen readers, PDF.
Format	• Ensure content can be read by a range of assistive technology, such as DAISY or refreshable Braille
Multimedia/video/audio	• Use closed captions and/or transcripts to relay content
Language	• Language level is appropriate for a wide variety of ability levels • OER content can be translated easily (or is already available) in a variety of languages/levels
Structure	• The structure of the OER content should be easily understandable and able to be navigated
Documents (Word, PDF, PowerPoint)	• Documents embedded in the digital content must be accessible
Links	• Links are distinguished by means other than colour (i.e., box, text label)
Contrast	• Must have sufficient contrast between text and background
Form Fields	• Form fields have appropriate text labels
Dynamic Web Interfaces (i.e., Menus)	• Dynamic web interfaces should include Accessible Rich Internet Applications (ARIA) to communicate the role of these elements to the user
Adaptability	• The OER should be able to be adapted for use in a non-online context where required (i.e., printed, CD, USB)
Fonts	• Font size and colour should be able to be adjusted

OER type	Ways of adjustments	Target
Video	Attach to the video either equivalent text or subtitles. The goal is that the subtitles are not just transcribed words spoken in the video, but also a brief description of what is happening.	For everyone, and especially for blind, visually impaired, deaf and hard of hearing people
Picture	Add alternative text to the pictures - a description that conveys the same message as the visual material, state what is shown in the picture and avoid descriptions that start with "Picture ..." in the alternative text	For everyone
Audio	Provide different alternatives for media resources (video, movies, slides, audio recordings ...); for example, a video shows how to assemble an object; the animation has no sound, but includes a series of numbers that represent each step in the process, as well as arrows with details that illustrate how the object is assembled. In this case, an alternative text	For visually impaired and blind people, and deaf people.

OER type	Ways of adjustments	Target
	describing the content of the video is provided instead on relying on audio.	
Text	Use clear fonts and text size. Try to also avoid text boxes as screen readers cannot read them	For everyone