



Embracing diversity in ASIA through the adoption of Inclusive Open Practices

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**D2.1a– Best Practices for the Development of Accessible OERs to Support
Inclusion in Bangladesh**

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Best practices for the development of accessible OERs to support inclusion in Bangladesh

Introduction

In Bangladesh, the educational landscape is evolving, with efforts being made to enhance access to education widely. Despite these efforts, challenges in quality, inclusivity, and accessibility persist, particularly highlighted by the digital divide affecting rural and disadvantaged communities' access to digital resources and technologies. This gap undermines the potential benefits of digital learning platforms and Open Educational Resources (OERs), crucial for modern education. The push for inclusive education is aimed at ensuring all learners, regardless of socio-economic status, location, or abilities, have equal learning opportunities. Open Educational Resources, which include a vast array of freely accessible and adaptable educational materials, play a vital role in enhancing educational equity by offering cost-effective access to quality resources. The development of accessible OERs in Bangladesh aims to address the challenges posed by the digital divide and socio-economic disparities, enhancing educational experiences for all, including those with disabilities. By focusing on accessible OERs, Bangladesh aspires to foster a more inclusive, equitable, and sustainable educational environment. Global frameworks like the UNESCO (2019) Guidelines [1] for OER in Higher Education and discussions on OER-enabled pedagogy, such as those by Wiley & Hilton [2], provide valuable insights into leveraging OERs for inclusivity, relevant to Bangladesh's context.

Understanding Accessibility in OERs

Accessibility in the context of Open Educational Resources (OERs) refers to the design and distribution of educational materials in such a way that they are usable by all people, including those with disabilities. This means ensuring that OERs can be accessed, understood, and interacted with by individuals with a wide range of hearing, movement, sight, and cognitive abilities. The importance of accessibility in educational resources cannot be overstated, as it is crucial for ensuring equal educational opportunities for all learners. Accessible OERs help in breaking down barriers to learning, enabling individuals with disabilities to participate fully in their educational pursuits. It aligns with the broader objectives of inclusive education by accommodating diverse learning needs and preferences, thus fostering an environment where everyone can learn and succeed.

The push for accessible educational materials is supported by both international and national legal frameworks and ethical considerations. Key among these is the Marrakesh Treaty [3], which aims to facilitate access to published works for persons who are blind, visually impaired, or otherwise



print disabled. The treaty represents a global commitment to removing barriers to access for disabled individuals.

Another cornerstone is the UN Convention on the Rights of Persons with Disabilities (UNCRPD) [4], which emphasizes the right to education and the need for accessible information and communication technologies. The UNCRPD has been instrumental in advocating for the rights of disabled individuals to access education and information on an equal basis with others.

In Bangladesh, the Rights and Protection of Persons with Disabilities Act, 2013 [5] reflects the country's commitment to ensuring the rights of persons with disabilities, including their right to education. This act is a step towards aligning national legislation with international standards like those set by the UNCRPD, underlining the ethical and legal obligation to make educational resources, including OERs, accessible to all learners.

Research indicates a growing awareness and exploration into the use of OERs and Open Educational Practices (OEP) for enhancing learning accessibility, particularly for disabled students. Since the early studies in 2009, there has been an evident increase in interest and research on this topic, especially after the launch of the UN 2030 Agenda for Sustainable Development in 2015, which likely provided a significant impetus for research in the areas of accessibility and inclusion [6].

Best Practices for Developing Accessible OERs Inclusive Design Principles

Developing accessible Open Educational Resources (OERs) necessitates a comprehensive approach that integrates inclusive design principles, considers content creation and format, leverages technological advancements, and embraces cultural and linguistic diversity, alongside fostering collaboration and co-creation. The Universal Design for Learning (UDL) framework serves as a foundational principle, advocating for educational materials to be designed in a way that meets the diverse needs of all learners from the outset. This includes adhering to the POUR principles to ensure content is perceivable, operable, understandable, and robust, thereby accommodating various learning preferences and abilities [7].

In terms of content creation, adopting simple language, structured headings, and alternative text for images can significantly enhance textual content accessibility. Meanwhile, multimedia resources should include captioning, audio descriptions, and transcripts to ensure that they are inclusive of individuals with hearing or visual impairments. Interactive elements such as quizzes and assignments should be designed with keyboard navigation and focus indicators in mind, making them accessible to users who cannot use a mouse or have visual disabilities.

Technologically, ensuring compatibility with assistive technologies, such as screen readers and magnification software, is crucial. Given the high mobile usage in Bangladesh, a mobile-friendly design is also imperative to ensure that OERs are accessible on the devices most commonly used by learners.



Cultural and linguistic inclusivity is another critical aspect, requiring content that reflects and respects the diverse cultural backgrounds of Bangladesh. This involves creating multilingual resources to cater to the country's various linguistic groups, thus ensuring that education is accessible and relevant to all learners.

Finally, collaboration and co-creation are vital components of developing accessible OERs. Engaging with communities, including individuals with disabilities, in the creation process ensures that the resources meet the actual needs of all learners. Partnerships with local and international organizations can facilitate the sharing of resources, expertise, and best practices, further enriching the OER ecosystem.

Role of Government and Policy Recommendations

The role of government and policy recommendations in enhancing the development and dissemination of accessible Open Educational Resources (OERs) is crucial for fostering an inclusive educational environment. Governments can play a pivotal role by establishing a robust policy framework that explicitly supports the creation, adaptation, and distribution of accessible OERs, as highlighted in the literature review "Open Educational Resources: Policy, Costs, and Transformation" published in UNESCO's e-library [8], which emphasizes the need for policy integration to promote OER adoption and adaptation at a national level. Infrastructure development is another critical area, where enhancing digital infrastructure can facilitate widespread access to OERs. Studies such as Bridging digital divide in Bangladesh: Study on Community Information Centres [9] suggest that improving broadband access and digital literacy can significantly impact educational inclusivity.

Capacity building is integral to ensuring educators and developers are equipped with the necessary skills to create accessible content. It illustrates the positive outcomes of training programs on educators' ability to produce and utilize digital content effectively. Funding and resources allocation is equally important, as it ensures sustainable development and maintenance of OERs. The "Global Report on Adult Learning and Education" by UNESCO [10] underlines the significance of investing in educational resources and infrastructure to enhance lifelong learning opportunities for all, including the marginalized and those with disabilities.

By adopting these strategic recommendations, governments can not only improve the educational landscape for a diverse learner demographic but also align with global educational standards and commitments to inclusivity and accessibility. These actions require a collaborative approach, involving multiple stakeholders, to ensure that the benefits of OERs are fully realized and accessible to everyone, irrespective of their socio-economic or physical status.

Case Studies and Examples

Case studies from Bangladesh and other countries offer insightful examples of successful Open Educational Resources (OER) projects, shedding light on the lessons learned and best practices that can be adopted globally. For instance, the "Teachers' Portal" initiative by the Government of Bangladesh [11] [serves as a pioneering example of a national platform designed to share educational resources among teachers, aiming to enhance the quality of teaching and learning across the country. This project underscores the importance of government support and digital platforms in facilitating access to educational resources. Similarly, the TESS-India project, funded by UK Aid [12], provides another compelling case study. It has developed a vast array of OERs tailored to the Indian educational context, emphasizing the role of culturally and linguistically adapted resources in improving teaching practices and student outcomes. The project highlights the critical need for OERs to be adaptable and relevant to local contexts to be truly effective.

From these initiatives, several key lessons emerge. Firstly, the success of OER projects often hinges on strong institutional support and adequate funding, which are crucial for sustainability and impact. Secondly, the involvement of local communities and educators in the development process is vital for ensuring that resources are relevant and user-friendly. Thirdly, the projects demonstrate the importance of technological infrastructure in disseminating OERs, suggesting that investments in digital literacy and access are fundamental to the broader adoption of OERs. Lastly, these case studies reaffirm the value of open licensing in promoting resource sharing and collaboration across borders, enhancing the global educational ecosystem.

Future Directives

The future directions for Open Educational Resources (OER) are profoundly influenced by innovations in technology and the need for sustainability and scalability of initiatives. Emerging technologies such as Artificial Intelligence (AI), Virtual Reality (VR), and Augmented Reality (AR) are at the forefront of transforming educational content into more immersive and accessible learning experiences. One of the recent key research highlights [13] how AI can personalize learning by adapting resources to meet individual learner needs, thereby enhancing the effectiveness of OERs. Similarly, "Augmented Reality (AR) and Virtual Reality (VR) Technology in Education: Media of Teaching and Learning: A Review" [14] discusses the potential of VR and AR to create engaging and interactive learning environments that transcend traditional educational boundaries, making complex subjects more comprehensible and captivating.

Furthermore, leveraging partnerships with technology companies and educational institutions can drive innovation while ensuring that OERs remain relevant and high-quality. The integration of analytics and feedback mechanisms, as discussed in the "The current landscape of learning analytics in higher education" [15] study, can provide insights into usage patterns and learning outcomes, informing continuous improvement and the development of best practices for OER creation and distribution. Collectively, these directions underscore the dynamic nature of OER development, highlighting the importance of embracing technological advancements and



strategic planning to realize the full potential of open educational resources in fostering inclusive and effective learning environments worldwide.

Conclusion

The journey towards developing accessible Open Educational Resources (OERs) in Bangladesh reflects the endeavour to level-up education and create a fully inclusive learning environment. This effort, grounded in the principles of Universal Design for Learning (UDL) and supported by international and national legal frameworks such as the Marrakesh Treaty and the UN Convention on the Rights of Persons with Disabilities, signifies a commitment to ensuring education is accessible to all learners, including those with disabilities. The initiatives and case studies from Bangladesh and beyond, including the Teachers' Portal and TESS-India project, illustrate the potential of OERs to enhance educational quality and equity when backed by strong institutional support, technological infrastructure, and a culture of collaboration and innovation across Asia and the world.

As we look to the future, the integration of emerging technologies like AI, VR, and AR, alongside strategies for sustainability and scalability, highlight the evolving landscape of OER development. These advancements promise to make learning experiences more immersive and accessible, while the emphasis on open licenses and collaborative partnerships ensures that OER initiatives can adapt and grow to meet the changing needs of learners around the world.

In conclusion, the development of accessible OERs in Bangladesh is more than a project, it is a movement towards creating a more inclusive, equitable, and sustainable educational future. It calls for continued commitment and collaboration among all stakeholders, including educators, policymakers, technologists, and communities, to harness the power of open education. By embracing innovation, addressing challenges, and prioritizing the needs of all learners, Bangladesh can continue in the global effort to ensure education for all. This collective journey underlines the transformative potential of accessible OERs to bridge gaps, empower learners, and redefine the educational landscape for generations to come.

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