

Role of Open Educational Resources in Ensuring Inclusive Education in Bangladesh

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Abstract

Open Educational Resources (OER) have the potentiality to create a new avenue of learning by removing the barriers of copyright issue. In OER, copyright have been released under an open license, which permit no-cost access, re-use, re-purpose, adaptation and redistribution by others resulting in inclusive education. The aim of this study is to find out the role of OER in widening participation and promoting social inclusion within Bangladesh's higher education, as well as the benefits that OER could bring to that context. This study employed a mixed methods research design to perform its investigation. Survey questionnaire has been used for quantitative purpose while focus group discussion has been used for qualitative purpose. In survey questionnaire 110 university going students have been participated according to simple random sampling while 6 students have been selected for focus group discussion according to purposive sampling. The findings of the study reveal that most of the learners agreed that OER has performance, openness, access, retention, reflection and economic role which enables inclusive education in Bangladesh. According to the survey questionnaire and focus group discussion it is found that with the help of OER students get financial, accessibility, autonomy, collaborative learning, customization benefits which ultimately ensures inclusive education. Although there exists some misconception and lack of awareness about OER among the stakeholders of education, proper use of OER should be monitored to ensure inclusive education in Bangladesh.

Keywords: OER, Copyright, Inclusive Education, Bangladesh.

Introduction

Background of the Study

Integrating the ideas of inclusive education in higher education can be arduous. Inclusive education was initially conceived for younger pupils before being implemented in higher education. As an increasing number of students with disabilities successfully finish their early education, the necessity for inclusive approaches in higher education has intensified (Moriña, 2019). The existence of students with diverse educational demands at university is an indisputable fact. Universities should promote initiatives that ensure the availability of resources, support, and means that uphold equality for individuals with disabilities in comparison to other students; ensure the universal design of facilities, learning environments, virtual platforms, services, procedures, information, and curricula to guarantee that no individual's right to enroll, navigate, reside, communicate, study, or access information is compromised. Inclusive education is a universal principle that regards access to and inclusion of students in the educational system as a fundamental human right. The inclusive education model seems to be the sole legitimate framework in a democratic society that, in principle, acknowledges and values differences, ensuring that individuals within specific groups distinguished by particular characteristics have equal access to education, training, and development opportunities (Ortiz et al., 2018). Education is regarded as a crucial mechanism for tackling both national and global issues, including political or religious extremism, poverty, and hunger. For developing countries to compete effectively with Western industrialized nations, a fundamental transformation in the perception of education and an enhancement in teaching quality are essential, alongside robust support from other nations (Richter & McPherson, 2012). Proponents of open educational resources (OER) regard these materials as a solution to all educational challenges (Mishra, 2017). Bangladesh comprises 108 private universities and 50 public universities (Bhuiyan, 2022). In higher education, students face several challenges which impede inclusive education in Bangladesh (Akter & Bhuiyan, 2022). In

Bangladesh, Bangladesh Open University (BOU) the sole open and distant learning (ODL) university along with other universities try to ensure inclusive education with the help of OER (Bhuiyan, 2024).

Statement of the Problem:

The notion of Open Educational Resources (OER) has gained international recognition for more than twenty years; nevertheless, its application in Bangladesh is still in its infancy (Ashikuzzaman et al., 2025). Bangladesh Open University (BOU), the Commonwealth of Learning (CoL), multiple government initiatives, and other private universities have made significant efforts to advance and disseminate Open Educational Resources (OER) across the nation. Restricted access to educational resources and inadequate infrastructure hinder several individuals from seeking tertiary education. Recently, private universities in Bangladesh have increasingly depended on digital learning, which is frequently expensive for students. Integrating OER in these institutions may enhance accessibility to education for both educators and learners in a more economical manner (Akter & Mahbub, 2020).

Objectives of the study: The objectives of the study are:

1. To find out the role of OER in ensuring Bangladesh's inclusive education.
2. To ascertain the benefits of OER in inclusive education.

Research Questions: The study tries to address the following research questions which are:

1. What role OER plays in ensuring inclusive education of Bangladesh?
2. What are the benefits of OER in inclusive education?

Significance of the Study

Few studies address the role of OER in inclusive education. This research aims to investigate the role of Open Educational Resources (OER) in promoting inclusive education in Bangladesh. This research will assist education specialists in determining the advantageous aspects of OER in inclusive education. This study's findings will furnish authorities with novel insights for the implementation of OER and inclusive education policy. The study's findings will demonstrate to policymakers the importance of OER in inclusive education.

Literature Review

Open Educational Resources (OER) is a relatively recent development that can be viewed as part of a broader trend towards openness in higher education, encompassing better recognized initiatives such as Open Source Software (OSS) and Open Access (OA). The phrase Open Educational Resources was first utilized in 2002 during a conference organized by UNESCO. At the forum, participants defined OER as: "The open provision of educational resources, facilitated by information and communication technologies, for consultation, utilization, and adaptation by a community of users for non-commercial purposes." (Hylén, 2006). Open educational resources (OER) are instructional materials either licensed under an open copyright or situated in the public domain (Wiley et al., 2014). OER aims to provide "high-quality educational resources freely accessible globally in multiple languages." (Keller & Mossink, 2008). McAndrew and Santos (2009) contend that, notwithstanding certain terminological discrepancies (Hylén, 2006), open educational materials predominantly consist of digital assets (music, graphics, text, animations) organized into a coherent framework by a course developer who has assigned an open license to them. The content is publicly available, easily discoverable, openly accessible, and readily reusable, allowing users to modify it and perform specific actions permitted by the license without requiring the creator's consent (Ehlers, 2011).

The swift proliferation of open educational resource (OER) initiatives and the multitude of learners they engage signify a nascent revolution in education and learning (Tuomi, 2013). The right to inclusive education was explicitly articulated in the Salamanca Statement and Framework for Action, which underscored the necessity for schools to transform and adapt. The UN Convention on the Rights of Persons with Disabilities enshrined inclusive education as a legal entitlement. The significance of adequate resourcing for inclusion is emphasized in the UN Standard Rules on the Equalization of Opportunities for Persons with Disabilities and other disability-related papers. Significant progress remains necessary for Education for all to materialize, and its success hinges on more grassroots involvement and

efficient resource distribution. The mitigation of poverty is a priority alongside other Millennium Development Goals. Education for All, and consequently inclusive education, are developmental challenges that will not advance without concurrent efforts to alleviate poverty (Stubbs, 2008).

The introduction of Open Educational Resources across various dimensions has gained momentum and evolved into a movement. The reasons stem from the pervasive influence of the internet across all facets of human existence, facilitating instantaneous communication and global access to information, which has begun to unveil new the domains of distant learning, both autonomously and in partnership with other stakeholders (Kozinska et al., 2010). OER has undoubtedly facilitated access to free education in wealthy nations. Nevertheless, less developed and third world countries have yet to experience this. It can be rationally asserted that if implemented on a wider scale, learners in these countries may derive even greater benefits, as the internet is now largely available to the majority. Inclusive education encompasses a diverse array of tactics, actions, and procedures aimed at actualizing the universal right to excellent, relevant, and suitable education. Concentrating solely on selected students, rather than the entire cohort, contradicts the tenets of inclusive education (Messiou, 2016). In accordance with the 2012 Paris OER Declaration, the promotion and utilization of Open Educational Resources (OER) should focus on enhancing access to education across all levels, both formal and informal, within the framework of lifelong learning, thereby fostering social inclusion, gender equity, and education for individuals with special needs (Teixeira et al, 2013).

Hilton (2018) characterizes open pedagogy as a compilation of educational methodologies made possible by the distinctive benefits of open educational resources, as enabled by the "5Rs"; they also present criteria to assess if a teaching strategy qualifies as OER-enabled pedagogy. The five principles of Open Educational Resources (OER) are Retain, Reuse, Revise, Remix, and Redistribute (Sanabria-Z et al., 2024). These fundamental permissions delineate the open characteristics of OER, enabling educators and learners to freely access, utilize, modify, and disseminate educational resources. Open Educational Resources (OER) can facilitate equal and inclusive access to education for everyone (Brahim et al., 2020). In the context of Bangladesh, limited research has been undertaken on OER and inclusive education. No research have been undertaken on role of OER in inclusive education of Bangladesh. This study will address the deficiencies in the current literature.

Research Methodology

Research Design

This research utilized a mixed methods approach. Mixed methods research was chosen for its capacity to provide a comprehensive answer to the research questions, thereby connecting theory and practice (Creswell, 2016). This study sought to evaluate the contribution of Open Educational Resources (OER) to promoting inclusive education in Bangladesh. To attain a thorough comprehension, both quantitative and qualitative data have been collected, as this area of research is still unexplored.

Description of the Research Context

This research was done among students from both private and public universities in Bangladesh. The research examines students' perceptions of Open Educational Resources (OER) and their contribution to promoting inclusive education in Bangladesh, focusing on participants from 50 public universities and 108 private universities.

Sampling of the Research Participants

The students of all universities in Bangladesh were the population of this this study. The representative sample for the research has been selected from the study conducted by Kanyenji et al. (2020) utilizing Cochran's (1963) formula, which is articulated as follows:

$$n_0 = \frac{z^2 \times p(q)}{e^2} \dots \dots \dots (1)$$

Where:

$$n = (1.645)^2 * .5 * .5 / (.08)^2 = 105$$

n_0 = estimated sample size

Z_2 = selected critical value of desired level of confidence or risk

For instance, at 90% confidence interval, the sample size was calculated.

p = estimated proportion of an attribute that is present in the population or maximum variability of the population

$$q = 1 - p$$

e = error margin

A total of 110 respondents were chosen as samples for this survey to conduct the research. Six students have been chosen for a focus group discussion who were not included in survey. Quantitative data was gathered using simple random sampling in the survey, while qualitative data was acquired via purposive sampling in the focus group discussion.

Demographic Information of the Participants

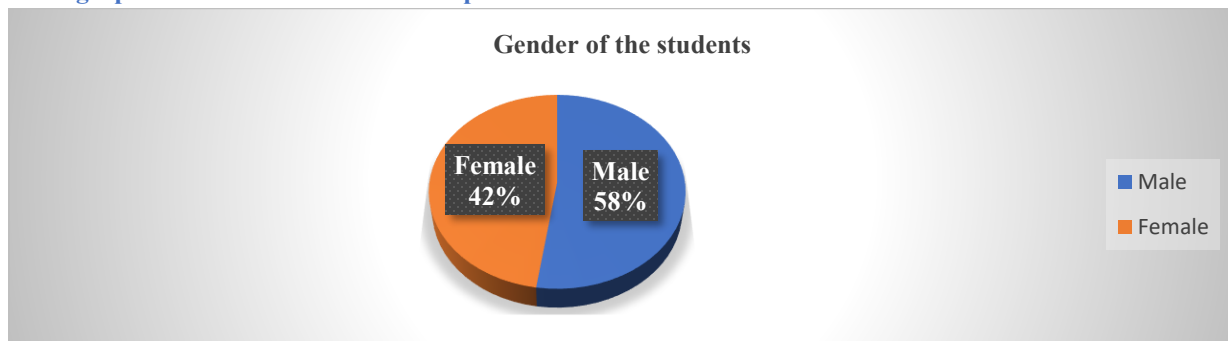


Figure-01: Students participated in the survey questionnaire (gender wise)

Figure 1 illustrates the demographic data of the respondents (students) that participated in the study, revealing that 58% were male and 42% were female. Among 110 participants, 70% were Bachelor students and 30% were Master's students (Figure-2). Of the subjects, 40% were from Business Administration, 20% from Economics, 5% from Computer Science and Engineering, 15% from English, 10% from Pharmacy, 5% from Industrial Production Engineering, 2% from Electrical and Electronics Engineering, and 3% from Statistics (Figure-3). This data has been gathered from ten distinct universities in Bangladesh: Notre Dame University Bangladesh, Ahsanullah University of Science and Technology, Daffodil International University, Sher-e-Bangla Agricultural University, North South University, BRAC University, Bangladesh Open University, East West University, Dhaka International University and University of Asia Pacific.

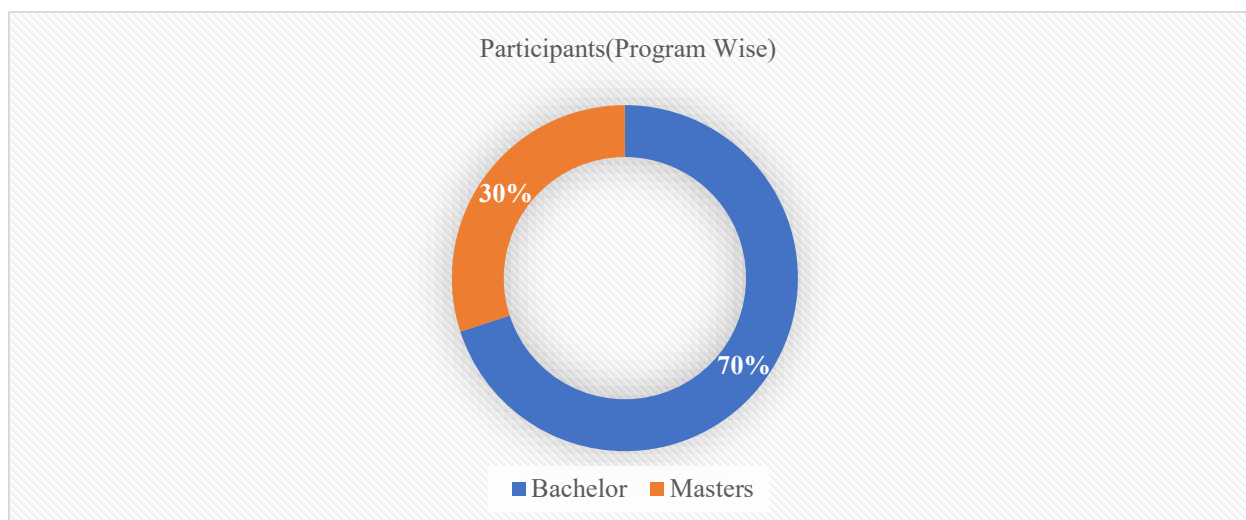


Figure-02: Students participated in the survey questionnaire (program wise)

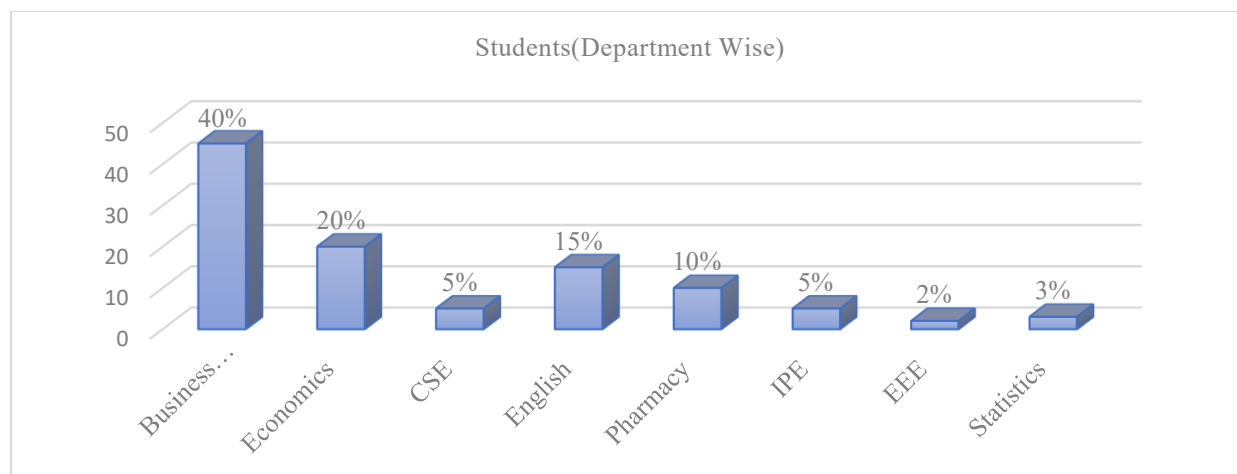


Figure-03: Students participated in the survey questionnaire (department wise)

Method of Data Collection

A carefully crafted questionnaire has been developed to collect quantitative data from the students. The questionnaire has been created via Google Forms. The link was distributed over other websites. Five comprehensive one-on-one interviews have been conducted by purposive sampling to collect qualitative data from the students. Table 1 provides a summary of the research methodologies.

Table-01: Overview of the Research Methodology

Research Question	Approach	Method	Instrument	Sampling method
1. What role OER plays in ensuring inclusive education of Bangladesh?	Quantitative Qualitative	Survey Semi-structured interview	Questionnaire Interview schedule	Simple Random and Purposive Sampling
2. How OER ensures inclusive education of Bangladesh?	Quantitative Qualitative	Survey Semi-structured interview	Questionnaire Interview schedule	Simple Random and Purposive Sampling

Pilot Study

From the total sample size, 30 responses were selected for the survey, and one respondent was chosen for the interview to conduct the pilot project. The Cronbach's Alpha value derived from the 30 surveys is .85, above the minimum threshold of .70 (Mohajan, 2017; Tabata & Johnsrud, 2008).

Ethical Consideration

To mitigate potential risk factors, no identifiable information has been gathered, and the confidentiality and anonymity of respondents have been preserved in this study. To ensure clarity on the study, general information sheets and ethical consent forms for the survey and interview have been sent to the research participants to facilitate informed consent.

Limitation of the study

The study was conducted on a modest basis with 110 people. The inclusion of more players may illustrate a distinct scenario regarding the role of OER. The participants of this study are university students. Collecting replies from college and school pupils will yield startling results. Participants recruited for interviews by purposive sampling may introduce bias.

Method of Data Analysis

Microsoft Excel was employed to tabulate and analyze each item of the questionnaire in accordance with the study questions pertaining to the quantitative data. Descriptive analysis was selected for the quantitative data. In qualitative

data, each interview is initially transcribed and subsequently categorized into analogous themes and sub-themes in alignment with the study goals. The findings of the theme were given descriptively.

Results and Discussion

Research Question-01: What role OER plays in ensuring inclusive education of Bangladesh?

From the study of Weller et al. (2015) the role of OER in inclusive education has been investigated. In table-02 the performance, openness, access, retention, reflection and economic role of OER in ensuring higher education has been demonstrated. According to the survey responses mean of performance role is 4.01 which means that students agree that the utilization of OER enhances student performance and happiness. The mean of openness role is 4.00 which means that students agree that the open nature of OER generates distinct usage and adoption patterns compared to other online resources. The mean of access role is 4.02 which means that students agree that OER models facilitate more fair access to education, catering to a wider demographic of learners compared to conventional education. The mean of retention role is 3.97 which means that students agree that the utilization of OER is an efficacious strategy for enhancing retention among at-risk students. The mean of reflection role is 3.85 which means that students agree that the utilization of OER fosters critical reflection among educators, demonstrating enhancements in their professional practice. The mean of economic role is 4.09 which means that students agree that the adoption of OER at the institutional level results in economic advantages for both students and institutions.

Table-02: Role of OER in inclusive education of Bangladesh

Items	Mean	SD	Decision
The utilization of OER enhances student performance and happiness	4.01	0.46	Agree
The open nature of OER generates distinct usage and adoption patterns compared to other online resources	4.00	0.74	Agree
OER models facilitate more fair access to education, catering to a wider demographic of learners compared to conventional education	4.02	0.53	Agree
The utilization of OER is an efficacious strategy for enhancing retention among at-risk students	3.97	0.50	Agree
The utilization of OER fosters critical reflection among educators, demonstrating enhancements in their professional practice	3.85	0.50	Agree
The adoption of OER at the institutional level results in economic advantages for both students and institutions	4.09	0.81	Agree

In focus group discussion 5 out of 6 students give their consent that OER plays crucial role in ensuring inclusive education in Bangladesh. One of the participants narrated that:

It is quite difficult for us to buy online books and study materials with higher price as most of the students do not earn much in the student life. With the help of OER we can get open access of the books and other study materials which helps us to continue our academic activities (Participant: 05)

One of the participants are not in favor of OER and argued that:

The content and books that is found in open and free resources are outdated and do not fulfill the requirements of the students. (Participant: 02)

Another participants are in favor of OER and argued that:

OER facilitated my acquisition of information in topics I previously deemed challenging to master due to the lack of access to comprehensive textbooks. (Participant: 04)

Research Question-02: What are the benefits of OER in inclusive education?

From the study of Henderson and Ostashevski (2018) the benefit of OER in inclusive education has been investigated. In table-03 how OER ensures inclusive education has been demonstrated. According to the survey responses the mean of financial benefit is 4.03 which means that students agree that OER provided financial advantages for both students and institutions. The mean of accessibility benefit is 4.01 which means that students agree that OER enhances accessibility to diverse resources. The mean of autonomy benefit is 4.03 which means that students agree that OER facilitates greater autonomy for learners. The mean of collaboration benefit is 4.01 which means that students agree that OER facilitates collaborative networking and open pedagogy. The mean of equality benefit is 4.10 which means that students agree that OER promotes social justice, alleviates poverty, and fosters equality. The mean of customization benefit is 4.01 which means that students agree that OER can be customized to address student requirements in course development.

Table-03: Benefits of OER in inclusive education of Bangladesh

Items	Mean	SD	Decision
OER provided financial advantages for both students and institutions	4.03	0.41	Agree
OER enhances accessibility to diverse resources	4.01	0.75	Agree
OER facilitates greater autonomy for learners	4.03	0.52	Agree
OER facilitates collaborative networking and open pedagogy	4.01	0.41	Agree
OER promotes social justice, alleviates poverty, and fosters equality	4.10	0.77	Agree
OER can be customized to address student requirements in course development	4.01	0.36	Agree

In focus group discussion 5 out of 6 students demonstrates their positive feedback on OER. Stating financial benefit one of the learners narrated that:

OER benefited us through cost savings. With the help of OER our dream of achieving higher education has been fulfilled. (Participant: 01)

One of the participants stated accessibility and narrated that:

In earlier days we did not get access to valuable books which enriched our knowledge. But with the help of OER we get open access to that books and materials..... (Participant: 03)

Supporting the above statement another participants stated that:

OER provides greater autonomy to our learning process and help us to be a self and life-long learner (Participant: 06)

Stating collaborative learning one of the learners narrated that:

In our learning process collaboration is important. Therefore, OER helps us in collaborative networking and open learning. (Participant: 02)

Supporting the above statement another participants stated that:

There exists discrimination in learning and education but OER endorses social fairness, alleviates poverty, and fosters equality (Participant: 04)

Stating customization one of the learners narrated that:

OER can be personalized to meet student requirements in course design (Participant: 02)

Conclusion:

The teaching-learning process incorporates both traditional classroom education and online teaching methodologies. It underscores the significance of OERs in both the teaching-learning process and the assessment process. It facilitates a novel trajectory in the domain of Open Educational Resources within higher education. The key objective of this study is to find out the role of OER in ensuring inclusive education of Bangladesh. The findings of this study reveal that most of the learners agreed that OER has performance, openness, access, retention, reflection and economic role which enables inclusive education in Bangladesh. According to the survey questionnaire and focus group discussion it is found that with the help of OER students get financial, accessibility, autonomy, collaborative learning, customization benefits which ultimately ensures inclusive education. In terms of technological integration in education, Bangladesh remains in the nascent phase of embracing e-learning, despite its recognition as a viable method for providing excellent education (Bhuiyan, 2023). There exists a number of misconceptions about the nature of OER and lack of awareness regarding the potential of OER within the higher education community. If this misconception has been removed, Bangladesh has huge prospect to introduce, implement and amend OER policy and therefore reap up the benefits of OER to ensure inclusive education in Bangladesh.

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