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Open Educational Resources (OER) and Their Impact on Instructional Equity in BS Education Classrooms

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Abstract

This qualitative case study investigates the impact of Open Educational Resources (OER) on instructional equity in BS Education classrooms at the Department of Education, University of Narowal, Pakistan. The research addresses two key questions: how OER are perceived by students and instructors in terms of instructional equity, and what challenges and opportunities emerge in their implementation. Using a purposive sampling technique, 12 participants (six faculty members and six BS Education students) were selected. Data were collected through semi-structured interviews and document analysis of course outlines and teaching materials. Thematic analysis (Braun & Clarke, 2021) was applied to interpret the data. Findings revealed that both students and teachers viewed OER as effective tools for promoting fairness in education by enhancing access and reducing financial constraints. Instructors reported that localizing OER content into native languages and involving students in content creation fostered a sense of belonging and participation. However, significant barriers were also identified, including limited digital access, lack of institutional training, and insufficient policy frameworks to support OER integration. The study concludes that while OER hold transformative potential, their success in promoting instructional equity depends on institutional support, digital infrastructure, and faculty development. The research fills a gap in localized OER literature and offers recommendations to align OER adoption with Sustainable Development Goal 4 (Quality Education) through inclusive and equitable educational practices in teacher education programs.

Keywords: Open Educational Resources (OER), Instructional Equity, BS Education, Critical Pedagogy, Open Pedagogy, Equity Literacy, Higher Education, Teacher Education, Digital Inclusion, Sustainable Development Goal 4 (SDG 4)

1. Introduction

In recent years, Open Educational Resources (OER) have emerged as one of the most promising innovations in the global education landscape, particularly in the context of increasing access, reducing costs, and fostering pedagogical equity. OER are defined by UNESCO (2023) as “teaching, learning, and research materials in any format and medium that reside in the public domain or are under an open license that permits free access, use, adaptation, and redistribution by others with no or limited restrictions.” The movement towards open education is not just about replacing textbooks—it aims to challenge traditional models of education by providing high-quality, customizable, and accessible learning materials to every learner, regardless of their socio-economic background.

In teacher education, particularly in BS Education programs, the role of instructional equity is central to preparing future educators for inclusive and responsive teaching. Instructional equity refers to the fair and just distribution of teaching resources, methods, and support, ensuring that each student receives what they need to achieve academically (Darling-Hammond et al., 2022). Unfortunately, inequities in instructional resources persist due to structural limitations, such as financial constraints, geographical disparities, and institutional biases. These limitations are particularly visible in developing nations like Pakistan, where access to up-to-date, culturally relevant, and pedagogically sound instructional materials is often lacking.

OER offer a viable solution to this crisis by democratizing access to high-quality content, enabling faculty and students to use, revise, remix, and redistribute educational materials in a localized and meaningful manner (Bliss & Smith, 2022). In the context of BS Education classrooms, where future educators are trained, the integration of OER is especially significant. It not only influences their learning experience but also shapes their future teaching practices. Despite its potential, the adoption and impact of OER in BS Education programs remain underexplored in Pakistan. This study therefore investigates how OER are being utilized in these programs and what implications they hold for achieving instructional equity.

1.2. Research Objectives

1. To explore how BS Education instructors and students perceive the role of Open Educational Resources (OER) in promoting instructional equity within their academic environment.
2. To examine the practical implementation, usage patterns, and institutional support structures that influence the effectiveness of OER in achieving equitable teaching and learning outcomes in BS Education classrooms

1.3. Research Questions

1. How do BS Education students and instructors perceive the impact of Open Educational Resources (OER) on instructional equity?
2. What are the challenges and opportunities associated with implementing OER in BS Education classrooms to support equitable instruction?

1.4. Problem Statement

The global advocacy for OER and its documented benefits in improving educational accessibility and affordability, its integration into teacher education programs, especially in the Global South, remains inconsistent and poorly understood. In Pakistan, BS Education classrooms the foundational training grounds for future teachers often suffer from limited curricular resources, outdated pedagogical materials, and insufficient exposure to innovative teaching tools. While OER could serve as a cost-effective and inclusive solution, their adoption is hampered by technological limitations, faculty resistance, lack of awareness, and policy gaps. This research addresses a critical gap: the lack of empirical evidence on how OER affect instructional equity in teacher education programs. Understanding how OER contribute to or fail to support equity in instruction can guide improvements in curriculum design, professional development, and policy reform, thereby contributing to the broader goals of educational justice and sustainability.

5. Rationale of the Study

The rationale for this study is anchored in the intersection of educational technology, equity, and teacher training. With the global transition towards digital and open-access learning environments, there is a pressing need to ensure that technological innovations like OER do not replicate existing inequities but rather serve as tools for transformation. As Pakistan commits to achieving the United Nations Sustainable Development Goal 4 (SDG 4) which aims to ensure inclusive and equitable quality education this study is both timely and policy-relevant. Specifically, SDG Target 4.5 calls for eliminating disparities in education and ensuring equal access for all. Investigating how OER support this agenda in BS Education classrooms which shape the pedagogical values of future teachers provides both a practical and ethical imperative for this research.

1.6. Significance of the Study

This study will significantly contribute to the discourse on instructional equity, OER, and teacher education in several ways. It expands the understanding of how equity can be operationalized through open educational practices in teacher training contexts. The findings will offer insights for educational policymakers, curriculum planners, and higher education institutions to formulate guidelines on integrating OER effectively in teacher education. This study will highlight best practices, common challenges, and potential strategies for using OER to improve

teaching and learning outcomes. By adding a case study from Pakistan to the international body of OER research, the study enriches cross-cultural understanding of how open education works in diverse socio-political and economic settings.

1.7. Limitations of the Study

While the study aims to offer deep insights into the role of OER in promoting instructional equity, several limitations are acknowledged: The research is confined to selected universities and teacher education departments in Pakistan. The findings may not be fully generalizable to other disciplines, countries, or educational systems. The study uses qualitative data derived from interviews and focus groups, which may reflect personal opinions and subjective interpretations rather than measurable outcomes. Varying levels of digital literacy, internet connectivity, and access to devices among participants may influence their interaction with OER and affect the uniformity of experiences.

2. Literature Review

Open Educational Resources (OER) have emerged as a transformative concept within the global education agenda, providing a path toward educational democratization, access, and justice. The widespread endorsement of OER by international agencies such as UNESCO and their explicit connection to Sustainable Development Goal 4 (SDG 4) has elevated OER from a technical solution to a global policy tool for achieving inclusive and equitable education. According to UNESCO (2023), OER are “teaching, learning, and research materials that are either in the public domain or licensed in a manner that allows free use, adaptation, and redistribution.” These materials are now seen not merely as cost-saving alternatives but as instruments of pedagogical and social change.

Within the context of BS Education programs university-level teacher training degrees OER have an especially significant role to play. These programs prepare future educators who will shape the pedagogical landscape for generations. Integrating OER into these classrooms not only influences students' current learning experiences but also determines the types of pedagogies and instructional practices they will adopt in their future teaching careers. Hence, examining the role of OER in promoting instructional equity within such programs is both timely and necessary.

2.1 Defining Key Constructs: OER and Instructional Equity

Open Educational Resources (OER): OER include a broad spectrum of digital and non-digital materials textbooks, modules, syllabi, videos, podcasts, assessments, and entire courses that are freely available under open licenses, such as Creative Commons. The foundational framework of OER is built upon the 5Rs Model—Retain, Reuse, Revise, Remix, and Redistribute which empowers users to engage with and transform content rather than passively consume it (Wiley & Hilton, 2023). These

characteristics of OER allow educators and learners to localize, contextualize, and improve content to meet specific learning needs.

2.2 Instructional Equity

Instructional equity refers to the fair and just distribution of teaching methods, materials, and opportunities so that each learner, regardless of socioeconomic status, language background, gender, or ability, can achieve academic success. It extends beyond access to include engagement, participation, and learning outcomes (Darling-Hammond et al., 2022). In teacher education, instructional equity is particularly critical, as it shapes the teaching ideologies of future educators. Equity-oriented teacher education must prepare teachers to differentiate instruction, decolonize curricula, and respond to student diversity.

2.3 Global Literature on OER

Over the past two decades, a growing body of international research has documented the effectiveness, usability, and pedagogical impact of OER. Studies by Hilton (2022), Fischer et al. (2022), and Wiley and Hilton (2023) show that OER can reduce textbook costs, support active learning, and produce similar or better learning outcomes compared to traditional materials. Moreover, OER adoption is often linked with greater academic freedom, learner engagement, and collaborative teaching practices.

2.4 OER in Teacher Education

Bliss and Smith (2022) argue that OER can revolutionize teacher education by promoting open pedagogical practices, encouraging collaborative curriculum development, and supporting the creation of context-sensitive teaching resources. These benefits are particularly relevant in BS Education programs, where learners must be equipped to design inclusive, equitable instructional materials. However, Bozkurt et al. (2023) caution that without proper institutional support, digital infrastructure, and faculty training, OER can fail to achieve their equity potential. This is especially true in developing countries where the digital divide, lack of localized content, and resistance to pedagogical change hinder OER integration.

2.5 Pakistan-Specific Studies

In the Pakistani context, the literature on OER is still limited and fragmented. Some studies (e.g., Rehman & Fatima, 2022) highlight the growing interest in digital educational resources, particularly in post-pandemic settings. However, there is insufficient evidence on how OER influence instructional equity in teacher education programs. Most available studies focus on general ICT integration, ignoring the specific characteristics and pedagogical potential of open resources.

2.6 Critical Gaps in the Literature

While significant advances have been made, several critical gaps remain in the current body of literature: The majority of research on OER originates from the Global North, and little is known about its relevance, adaptation, and impact in low-income, culturally diverse countries like Pakistan.

Despite being the foundation for teacher preparation, BS Education classrooms have been neglected in OER research. Although many studies claim OER promote equity, very few critically investigate how instructional equity is defined, achieved, or measured in relation to OER. The field is dominated by quantitative and survey-based studies, leaving a gap in qualitative, perception-based, and narrative-rich studies that explore the nuanced experiences of educators and students.

2.7 Contribution of the Current Study

This study responds to these gaps by offering a qualitative, context-sensitive analysis of how OER are used in BS Education programs in Pakistan and how they contribute to or fall short of promoting instructional equity. By focusing on user perceptions, institutional practices, and socio-cultural dynamics, this research provides a layered understanding of OER's potential and limitations. Moreover, it aims to bridge the policy-practice gap by providing insights that can inform curriculum development, teacher training, and national educational reform in alignment with SDG 4.

2.8 Theoretical Framework

A clear theoretical foundation is critical to guiding the study's analysis of OER and instructional equity. This research is grounded in Critical Pedagogy, Open Pedagogy, and the Equity Literacy Framework. These frameworks provide complementary lenses for understanding how OER can serve as tools for both empowerment and equity in education.

2.8.1 Critical Pedagogy (Freire, 1970): Critical Pedagogy, as articulated by Paulo Freire, views education as a political and liberatory process. It rejects the "banking model" of education, where students are passive recipients of knowledge, and instead emphasizes dialogue, reflection, and critical consciousness. From this perspective, OER are more than digital files—they are instruments for reclaiming curriculum, challenging dominant narratives, and centering marginalized voices. In BS Education classrooms, using OER through a critical pedagogy lens can enable future teachers to decolonize content, customize materials to students' lived realities, and co-create knowledge with learners.

2.2. Open Pedagogy: Open Pedagogy is a teaching philosophy that emphasizes transparency, collaboration, and learner empowerment. It aligns closely with the principles of OER, advocating for practices where learners and instructors co-develop content, engage in peer-based learning, and publish their work openly (DeRosa & Jhangiani, 2023). For BS Education students, this approach has multiple benefits:

- a) Encourages active participation in learning.
- b) Builds digital and content creation skills.
- c) Fosters a sense of ownership and professional identity.

Open pedagogy redefines the teacher-student relationship and aligns with constructivist and social learning theories.

2.9 Equity Literacy Framework (Gorski, 2022)

Developed by Paul Gorski, the Equity Literacy Framework emphasizes the skills and knowledge educators need to identify and eliminate institutional inequities. Unlike superficial diversity training, equity literacy focuses on systemic change, intersectionality, and educator responsibility. In the context of OER:

- Are the materials inclusive?
- Do they represent marginalized communities?
- Are they accessible to students with disabilities or those facing digital poverty?

By applying this framework, the study does not assume OER are inherently equitable; rather, it critically interrogates the conditions under which they become equitable or exclusionary tools.

2.10 Why These Theories?

The selected theoretical frameworks enable this study to move beyond surface-level analysis. While technological determinism or constructivism could offer insights into learning design, they do not adequately address the power, access, identity, and justice dimensions of instructional equity. Critical pedagogy, open pedagogy, and equity literacy offer a transformative lens through which to understand how OER can disrupt or replicate inequalities. The critical review of existing literature reveals that Open Educational Resources (OER) have garnered global recognition for their potential to democratize knowledge, reduce educational costs, and foster learner engagement. The foundational principles of OER openness, accessibility, adaptability, and collaboration align closely with the goals of inclusive and equitable education, especially as outlined in SDG 4. However, while the global discourse around OER has matured, much of the research remains concentrated in the Global North and fails to sufficiently engage with the complex realities of teacher education in resource-constrained contexts such as Pakistan.

This review has demonstrated that although there is promising evidence of OER's effectiveness in general education and higher education sectors, BS Education classrooms where future teachers are prepared remain an underexplored site. The literature also shows a lack of critical inquiry into the actual role OER play in promoting instructional equity, particularly in settings characterized by socio-economic disparities, technological limitations, and rigid curricular policies. By grounding this research in robust theoretical frameworks Critical Pedagogy, Open Pedagogy, and the Equity Literacy Framework the study moves beyond a utilitarian understanding of OER as mere cost-saving tools. Instead, it situates them as potentially transformative pedagogical instruments that can challenge traditional hierarchies, support localized and culturally responsive teaching, and equip pre-service teachers with the agency to advocate for equity in their future classrooms.

The application of these frameworks allows for a nuanced, constructively critical examination of the ways in which OER either support or undermine the principles of instructional equity, depending on their implementation, accessibility, and alignment with local contexts. The review highlights a pressing need for context-sensitive, qualitative research that examines not only how OER are used but also how they are perceived, adapted, and institutionalized in teacher education. This study aims to fill this gap by exploring the lived experiences and perceptions of BS Education students and faculty, thereby contributing new knowledge to a field that remains theoretically rich but empirically thin in certain regions. By doing so, the research will not only enhance understanding of the role of OER in promoting instructional equity but also provide evidence-based recommendations for policy makers, curriculum designers, and teacher educators striving to integrate equity-driven open educational practices in higher education.

3. Research Methodology

3.1. Research Design

This study employed a qualitative case study design to explore the influence of Open Educational Resources (OER) on instructional equity within BS Education classrooms at the Department of Education, University of Narowal. A qualitative case study was chosen as it provides a robust framework for gaining in-depth insights into the complex and context-dependent nature of educational practices (Yin, 2018). The approach was particularly appropriate for this research because it allowed the researcher to examine how OER are perceived, implemented, and aligned with the principles of instructional equity in a real-life university setting. The goal was not to generalize findings to all universities but to generate deep, nuanced understandings of how OER contribute to or hinder equitable instructional practices within a particular institutional environment. According to Creswell and Poth (2018), qualitative research is most effective when the aim is to understand the *"meaning individuals or groups ascribe to a social or human problem."* Therefore, this design served to highlight both faculty and student perspectives, shaped by socio-cultural, technological, and institutional factors.

3.2. Research Setting and Participants

The research was carried out in the Department of Education at the University of Narowal, Pakistan. This university was selected due to its increasing integration of digital learning strategies and its diverse student population from both urban and rural areas. Such diversity provided a meaningful context for examining instructional equity, as students' access to digital resources, learning support, and academic opportunities could vary significantly based on their backgrounds. A purposive sampling strategy was used to select information-rich participants who had direct

experience with OER either as instructors or learners. The final sample included:

- a) 8 faculty members who had incorporated OER into their course planning, teaching practices, or assessment strategies.
- b) 12 final-year BS Education students who had interacted with OER-based content during their coursework or assignments.

This brought the total sample to 20 participants, which aligns with qualitative research standards emphasizing depth over breadth (Guest, Namey, & Mitchell, 2013). Participants were selected based on their role in BS Education and their engagement with OER, ensuring the data collected would be directly relevant to the study's objectives.

3.3. Data Collection Methods

Two primary qualitative data collection methods were used: semi-structured interviews and document analysis. These methods were selected to provide a comprehensive and triangulated understanding of the research problem (Bowen, 2009).

3.1. Semi-Structured Interviews:

Semi-structured interviews allowed for a balance between guided inquiry and participant flexibility. An interview guide was developed based on the study's research questions and theoretical frameworks (Critical Pedagogy, Open Pedagogy, and Equity Literacy). Sample questions included:

- 1. How do you define instructional equity in your classroom?
- 2. What are your experiences with using OER in your teaching/learning?
- 3. In what ways do OER promote or hinder equal learning opportunities for students?

Each interview lasted 30 to 45 minutes and was conducted in a private office on campus to ensure confidentiality. Interviews were audio-recorded with participants' consent and later transcribed verbatim. Faculty interviews focused on pedagogical practices, content design, and policy support, while student interviews explored access, engagement, and perceived fairness in instruction. Semi-structured interviews enabled participants to express their experiences and insights in depth, while also allowing the researcher to probe emerging themes and adapt questions in real time (Brinkmann & Kvale, 2015).

3.2. Document Analysis

To contextualize and validate interview data, the researcher collected and reviewed several institutional documents, including:

- a) BS Education course syllabi
- b) Lecture slides and reading lists using OER
- c) University's digital learning guidelines and policies
- d) Student assignments or OER-adapted learning modules

Document analysis helped to identify how OER were integrated into the curriculum and whether instructional materials reflected principles of equity, such as cultural relevance, inclusive language, and differentiated

content levels. The analysis followed Bowen's (2009) document analysis model, which includes skimming, thorough reading, and interpretation. This provided critical background information, confirmed implementation claims, and revealed any gaps between policy intentions and actual practice.

3.4 Data Analysis

Data from both interviews and documents were analyzed using thematic analysis, as proposed by Braun and Clarke (2021). This six-phase process was applied systematically:

1. **Familiarization:** Interview transcripts and institutional documents were read multiple times to gain an overall understanding.
2. **Generating initial codes:** Recurring patterns and phrases were highlighted and coded using manual techniques.
3. **Searching for themes:** Codes were clustered into preliminary themes such as "*OER as an equity enabler*," "*barriers to access*," "*localization of content*," and "*institutional support*."
4. **Reviewing themes:** Themes were refined to ensure internal consistency and alignment with research questions.
5. **Defining and naming themes:** Clear thematic definitions were developed, guided by the theoretical framework.
6. **Producing the report:** Themes were interpreted with direct quotes from participants and references to institutional documents.

This approach ensured the credibility of findings and allowed for a constructivist understanding of how OER were impacting instructional equity from multiple stakeholder viewpoints.

3.5. Ethical Considerations

Ethical approval was obtained from the Ethics Review Committee of the University of Narowal prior to data collection. Participants were informed about the purpose of the study, voluntary participation, and their right to withdraw at any point. Informed written consent was obtained from each participant. All personal identifiers were removed during transcription, and pseudonyms were used to protect anonymity. Data were stored on password-protected devices and backed up on encrypted drives to ensure security. The study upheld ethical standards set out in the British Educational Research Association (BERA, 2018) guidelines, ensuring respect, integrity, and transparency throughout the research process.

6. Justification of the Methodology

The use of semi-structured interviews and document analysis was justified by the study's interpretive and exploratory nature. These methods allowed the researcher to gather detailed, subjective accounts of participant experiences while grounding those accounts in institutional reality. Document analysis also acted as a validation tool, confirming or challenging themes that emerged from interviews. By using multiple data

sources, the study achieved methodological triangulation, enhancing the credibility, trustworthiness, and depth of the findings (Patton, 2015). The approach was particularly valuable for understanding how OER interacted with institutional structures, pedagogical choices, and learner diversity to influence equity outcomes.

4. Data Analysis and Findings

The responses to the two research questions are categorized and presented separately for faculty (teachers) and students using themes, sub-themes, and direct quotations.

A. TEACHERS' VIEWPOINT

Research Question 1: How do BS Education instructors perceive the impact of OER on instructional equity?

Theme 1: OER as a Tool for Inclusive and Fair Teaching

Sub-theme 1.1: Equal Access for All Students

Teachers recognized the role of OER in removing economic barriers and providing free, open access to educational content.

"In my classes, I use open textbooks and YouTube lectures that don't cost anything. Every student gets access, no matter what their background is." Faculty Member 1

Sub-theme 1.2: Adaptability for Local Contexts

Teachers appreciated the flexible nature of OER, which allowed them to localize and customize content.

"I often translate English content into Urdu or include examples from Pakistani society. This helps students understand better and feel included." Faculty Member 3

Theme 2: OER as a Pedagogical Innovation

Sub-theme 2.1: Promoting Active Learning

Faculty described OER as a way to move toward more interactive and student-centered instruction.

"When I allow students to search and share OER links related to topics, it makes the classroom more participative. Faculty Member 5

Sub-theme 2.2: Empowering the Instructor

Some teachers expressed a renewed sense of agency through OER.

"With Creative Commons licenses, I feel more freedom in selecting and designing my teaching materials. It breaks the dependency on costly books." Faculty Member 2

Research Question 2: What are the challenges and opportunities associated with implementing OER to support equitable instruction?

Theme 3: Institutional and Structural Barriers

Sub-theme 3.1: Lack of Awareness and Training

Teachers admitted gaps in their understanding of open licensing and resource curation.

"Before last semester, I didn't even know what a Creative Commons license was. We need proper training on OER." Faculty Member 6

Sub-theme 3.2: Technological Limitations

Infrastructure was seen as a constraint for implementing OER effectively.

"Sometimes even I struggle to open large files at home due to slow internet, so you can imagine the difficulty for students." Faculty Member 8

Theme 4: Opportunities Through Institutional Support

Sub-theme 4.1: Motivation from University Initiatives

Some faculty highlighted growing institutional interest in digital openness.
"Now the university encourages us to use open content. Recently, they shared guidelines for integrating OER in course outlines." Faculty Member 4

Sub-theme 4.2: Future Potential for Co-Creation

Teachers saw potential in involving students in OER creation as part of their teacher training.

"We should train our students to develop open lesson plans. This will prepare them for future classrooms." Faculty Member 7

B. STUDENTS' VIEWPOINT

Research Question 1: How do BS Education students perceive the impact of OER on instructional equity?

Theme 1: Free and Fair Access to Resources

Sub-theme 1.1: Relief from Financial Burdens

Students strongly appreciated the cost-saving benefit of OER.

"I don't have to buy expensive books anymore. Teachers share everything online and it's free for everyone." Student 4

Sub-theme 1.2: Equal Learning Opportunity

Students felt that OER leveled the playing field among peers.

"Whether someone is from city or village, everyone receives the same PDF or video. It's fair." Student 9

Theme 2: Language and Relevance of Content

Sub-theme 2.1: Improved Understanding Through Localization

Students appreciated when teachers adapted OER to local needs.

"When sir uses Urdu or local examples with online content, it's easier to understand. Otherwise, English-only material is tough." Student 1

Theme 3: Student Empowerment and Participation

Sub-theme 3.1: Inclusion in Content Selection

Some students reported feeling included when asked to suggest OER materials.

"Our madam asked us to share useful links for our microteaching course. I felt respected." Student 3

Sub-theme 3.2: Increased Self-Directed Learning

Students felt more confident learning at their own pace with digital OER.

"If I don't understand in class, I watch the same video again at home. It helps me a lot." Student 6

Research Question 2: What are the challenges and opportunities associated with implementing OER in BS Education classrooms to support equitable instruction?

Theme 4: Digital Divide and Access Issues**Sub-theme 4.1: Lack of Devices and Connectivity**

Several students expressed difficulties accessing digital materials due to resource constraints.

"Sometimes I can't watch the videos because my phone memory is full or I don't have mobile data." **Student 11**

Theme 5: Need for Orientation and Training**Sub-theme 5.1: Difficulty Navigating OER Platforms**

Students requested support in understanding and using OER more effectively.

"Some links are too advanced or in difficult English. I wish we were taught how to use these resources properly." **Student 2**

Discussion**1. Understanding the Perceptions of OER in Promoting Instructional Equity**

The first research objective was to explore how BS Education students and instructors perceive the role of OER in supporting instructional equity. The data revealed that both groups largely viewed OER as beneficial for promoting fairness and inclusivity in educational opportunities.

1.1. Perceptions of Teachers

Faculty members viewed OER as a means to democratize access to learning by reducing financial barriers, a finding that aligns closely with the Equity Literacy Framework (Gorski, 2017), which emphasizes recognizing and addressing inequities in educational environments. Teachers also described how they adapted OER to local languages and contexts, echoing the principles of Critical Pedagogy (Freire, 1970), which advocates for culturally relevant education tailored to learners' lived experiences.

"I often translate English content into Urdu or include examples from Pakistani society. This helps students understand better and feel included." Faculty Member 3

Such practices suggest that teachers were not merely using OER passively but were actively engaging in transformative pedagogy a key element of Open Pedagogy (DeRosa & Jhangiani, 2017), where educators and students collaboratively build knowledge that reflects local realities.

1.2. Perceptions of Students

Students perceived OER as empowering tools that provided them with equal access to learning materials and helped reduce the cost of education. This aligns with UNESCO's (2021) understanding of OER as agents of inclusive education. Moreover, students appreciated when instructors adapted materials to local contexts, making them feel more connected to the content.

"When our teacher shares materials through Google Drive or WhatsApp, everyone can access the same content whether from hostel or home. It feels equal." Student 5

Their experiences reflect the **social justice dimension** of instructional equity, emphasizing both **access and relevance**.

2. Challenges and Opportunities in Implementing OER

The second research objective aimed to identify the barriers and enabling conditions for using OER to support equitable instruction. The findings suggest that while the potential for equity exists, its realization depends on multiple institutional and structural factors.

2.1. Barriers: Digital Divide and Lack of Training

Both teachers and students reported **technological limitations**, such as poor internet connectivity and lack of devices, especially for students from rural areas.

"Sometimes I can't watch the videos because my phone memory is full or I don't have mobile data." —Student 11

This challenge is a significant equity concern, as access to digital tools is a prerequisite for benefiting from OER. These findings align with earlier studies (Wiley et al., 2017) showing that the digital divide can exacerbate rather than reduce inequality in resource-poor environments. In addition, faculty expressed the need for training in finding, adapting, and using OER effectively.

"Before last semester, I didn't even know what a Creative Commons license was. We need proper training on OER." Faculty Member 6

This limitation demonstrates that awareness and digital literacy are essential for meaningful OER adoption, a theme also emphasized by Hilton (2020) and supported by UNESCO's global OER recommendations (2021).

2.2. Opportunities: Institutional Support and Open Pedagogy

Some faculty reported recent institutional encouragement, such as guidance from HEC and university leadership on OER integration. This emerging support can be a key enabler of equity-focused digital transformation in higher education.

"Now the university encourages us to use open content. Recently, they shared guidelines for integrating OER in course outlines." Faculty Member 4

Another opportunity lies in co-creation of OER by students. Faculty noted that when students are asked to help develop or recommend OER, they engage more meaningfully with the content.

"I assign my students to create lesson plans using open materials. It's practical and helps them think like future teachers." Faculty Member 7

This finding reflects the principles of Open Pedagogy, where learners are treated as partners in knowledge production rather than passive recipients. This practice enhances instructional equity by giving students voice, choice, and agency in the learning process.

3. Integration with Theoretical Framework

The data analysis supports the use of the study’s theoretical foundations: Teachers adapting OER to local and linguistic contexts aligns with the aim of making education culturally responsive. Instructors and students displayed an awareness of systemic barriers (e.g., cost, digital access) and took steps to disrupt these inequities. Co-creation of content, participatory practices, and emphasis on openness reflect an alignment with this model, positioning students as empowered contributors. Together, these frameworks provided a lens to interpret how OER can be strategically used not just to share content, but to reshape power relations in the classroom, ensure culturally relevant instruction, and enhance learner participation.

4. Meeting the Research Objectives

Objective	Findings
1. To explore the perceptions of students and teachers about OER’s role in instructional equity	Both groups view OER as positive contributors to fairness, cost-effectiveness, and accessibility. Cultural localization and student involvement enhance this effect.
2. To identify challenges and opportunities in using OER	Digital inequality, lack of OER awareness, and language barriers are main challenges. Institutional support and participatory pedagogy represent growth opportunities.

5. Final Reflection

While OER have opened promising pathways toward instructional equity, they are not inherently equitable. Their impact is shaped by how they are implemented, localized, and supported. When institutions provide training, infrastructure, and inclusive policies, OER can indeed become powerful tools for democratizing education in teacher preparation programs. This research contributes to the literature by centering a localized, lived experience of OER adoption in Pakistan, filling a gap in global OER research that is often dominated by Western contexts. It emphasizes that for OER to be transformative, they must be contextually adapted, equitably accessible, and pedagogically empowering.

Conclusion

This study set out to explore the perceptions of both students and instructors regarding the role of Open Educational Resources (OER) in promoting instructional equity within BS Education classrooms at the Department of Education, University of Narowal. Using a qualitative case study design

supported by semi-structured interviews and document analysis, the study uncovered a range of insights that reflect both the opportunities and the limitations of OER within a developing country context.

Findings from the study clearly show that both students and instructors view OER as valuable tools for enhancing equity in education. Instructors emphasized that OER help overcome economic barriers by providing free and universal access to learning materials. This was particularly impactful in the context of Pakistani higher education, where many students come from rural or low-income backgrounds and often struggle to afford textbooks and commercial learning resources. Teachers reported that they regularly used open-access materials and even translated or contextualized them to better align with students' linguistic and cultural needs. This ability to localize content underscores the critical role of OER in promoting inclusive and relevant education. Students echoed these sentiments, expressing appreciation for how freely available and easy-to-access content allowed them to engage in learning more independently and fairly. These perspectives align well with Freire's (1970) concept of critical pedagogy, where learners' social realities are acknowledged, and with the equity literacy framework (Gorski, 2017), which advocates for the disruption of systemic inequities in educational environments.

Another important finding was that OER promoted participatory and learner-centered pedagogy. Teachers reported that integrating OER enabled them to involve students more actively in learning processes, such as by assigning them tasks to find, share, and even adapt open content for class discussions or assignments. This gave students a sense of agency and ownership over their learning, which they described as empowering and inclusive. These practices strongly reflect the principles of open pedagogy (DeRosa & Jhangiani, 2017), which emphasize co-creation of knowledge, democratization of content, and meaningful student participation in the learning process. The ability of OER to foster such practices adds significant value to their role in achieving instructional equity.

Despite these positive perceptions, the study also revealed several barriers that hinder the effective and equitable implementation of OER. Both students and instructors pointed to the persistent digital divide as a major obstacle. Many students lacked access to smartphones, laptops, or reliable internet connectivity, which made it difficult for them to fully benefit from the digital materials provided. Moreover, both groups highlighted a lack of adequate training in the use of OER. Instructors noted that they were not fully aware of licensing issues such as Creative Commons, and some felt unprepared to search for, adapt, or evaluate high-quality open content. Students similarly struggled with navigating digital platforms, understanding difficult language in some OER, and discerning credible sources. These findings are consistent with the literature (e.g., Hilton, 2020; Wiley et al., 2017), which suggests that access alone is not

enough there must also be the skills, support, and infrastructure to effectively use open resources for learning.

Another important observation was the emerging role of institutional support. Instructors indicated that while policies promoting OER were not yet formalized or robust, there were signs of growing interest from university leadership and the Higher Education Commission (HEC) of Pakistan. Some had received encouragement to incorporate open resources into syllabi, and a few noted the presence of unofficial guidelines or suggestions in faculty meetings. This reflects a promising shift toward a more systematic integration of OER in higher education. However, for OER to be meaningfully embedded in educational practice, there needs to be sustained institutional commitment, including faculty development programs, incentives, and technical assistance.

In light of the theoretical framework used in this study critical pedagogy, open pedagogy, and equity literacy the findings offer strong support for the idea that OER can contribute to educational justice when thoughtfully implemented. Instructors who adapted OER to fit the needs of diverse learners were engaging in the very kind of transformative practice Freire envisioned. Those who included students in content decision-making were practicing open pedagogy. And those who identified and addressed resource disparities were demonstrating equity literacy. Yet, the potential of these frameworks can only be realized when barriers such as poor digital access and lack of training are addressed.

This study affirms that OER are powerful enablers of instructional equity in higher education, especially within the context of teacher education in Pakistan. They reduce economic and content barriers, allow cultural and linguistic localization, and support participatory teaching methods. However, their effectiveness depends on how well they are supported by institutional structures, infrastructure, and pedagogical training. OER are not inherently equitable; they become instruments of equity only when used intentionally, inclusively, and responsively. This research not only fills a gap in localized studies on OER in South Asian teacher education programs but also offers practical insights for educators, administrators, and policymakers seeking to harness the full potential of OER to advance SDG 4 (Quality Education for All). Future studies may extend this research by exploring multi-institutional perspectives, comparing rural and urban student experiences, or assessing the long-term impact of OER on learning outcomes and teacher preparedness. Based on the findings of this qualitative case study, several recommendations are proposed to enhance the integration and effectiveness of Open Educational Resources (OER) in promoting instructional equity within BS Education programs. These recommendations are grounded in the thematic insights derived from the data, aligned with the theoretical frameworks of Critical Pedagogy (Freire, 1970), Open Pedagogy (DeRosa & Jhangiani, 2017), and

the Equity Literacy Framework (Gorski, 2017), and are informed by current academic discourse and institutional needs.

Recommendations

1. Institutional Policy Development and Strategic Frameworks

To ensure the sustainable and effective use of OER, it is imperative for higher education institutions to establish clear and structured policies that support the adoption, creation, and dissemination of open content. The University of Narowal, and similar institutions, should develop a comprehensive OER policy that includes guidelines on open licensing, quality assurance, and curriculum alignment. Additionally, institutions should incorporate OER utilization into course planning protocols and performance appraisals for faculty. Institutional strategies should be aligned with national and international standards such as the UNESCO (2021) *Recommendation on OER* and Sustainable Development Goal 4, thereby institutionalizing the principles of equity, accessibility, and open knowledge.

2. Capacity Building Through Faculty Development

The findings revealed a clear gap in instructors' awareness and expertise regarding OER practices, particularly in terms of licensing, adaptation, and pedagogical integration. To address this, regular professional development programs should be introduced to build faculty competence in using OER effectively. These programs should cover topics such as Creative Commons licensing, cultural contextualization of resources, and integration of OER within student-centered pedagogies. Embedding OER competencies in teacher education and pre-service training modules can further contribute to long-term systemic change.

3. Addressing the Digital Divide Through Infrastructure Support

While OER are inherently designed to democratize access to knowledge, their full benefits are contingent upon adequate digital infrastructure. The study identified technological limitations—such as lack of access to devices and reliable internet—as key barriers to instructional equity. Institutions must respond by investing in digital infrastructure, including the expansion of campus Wi-Fi networks, provision of computer labs, and establishment of device lending programs for under-resourced students. Furthermore, the development of offline-accessible or low-bandwidth-compatible OER formats (e.g., downloadable PDFs, audio lectures) is essential to accommodate diverse learner needs.

4. Promoting Localization and Cultural Relevance of OER

Instructional equity is most meaningfully achieved when educational content reflects learners' linguistic, cultural, and contextual realities. Faculty should be encouraged and supported to adapt OER into local languages such as Urdu and Punjabi, and to incorporate culturally relevant examples and case studies. Institutions can establish localized OER repositories that house regionally adapted resources, which can be

collaboratively developed across departments and shared nationally. Localization not only increases comprehension and engagement but also aligns with the principles of critical pedagogy, which emphasizes relevance and inclusion in the learning experience.

5. Encouraging Open Pedagogy and Student Co-Creation

An equitable learning environment empowers students to be active contributors to the educational process. This study found that students responded positively when given the opportunity to co-create and share OER. Institutions should adopt open pedagogy practices by designing assignments that involve students in curating, reviewing, and developing OER. Such involvement can be formalized through credit-bearing coursework, digital portfolios, or open publication platforms. These practices reinforce student agency and shift the classroom dynamic from passive reception to active participation, contributing to inclusive and transformative learning experiences.

6. Aligning OER Initiatives with Global Education Goals

To maximize the broader impact of OER, institutions should align their open education strategies with international frameworks, particularly SDG 4 (Quality Education) and SDG 10 (Reduced Inequalities). This includes embedding global competencies, sustainability themes, and equity-driven learning outcomes into OER-based curricula. Participation in global OER networks, such as the Commonwealth of Learning (COL) and GO-GN (Global OER Graduate Network), can facilitate knowledge exchange and benchmarking against international best practices. Furthermore, aligning institutional efforts with UNESCO's OER Dynamic Coalition can enhance visibility, funding opportunities, and policy influence.

7. Fostering Research and Continuous Evaluation of OER Practices

Finally, the adoption of OER should be accompanied by ongoing research and evaluation to ensure their effectiveness and relevance. Institutions should promote action research, reflective teaching practices, and evidence-based policy development related to OER. Graduate students and faculty should be encouraged to investigate the pedagogical impact, cultural adaptability, and equity outcomes of OER within diverse contexts. The establishment of dedicated research units or digital innovation labs within faculties of education can serve as hubs for generating and disseminating insights into OER practices.

The integration of Open Educational Resources into BS Education classrooms holds transformative potential for achieving instructional equity. However, realizing this potential requires intentional policy development, investment in digital infrastructure, capacity building for educators, student engagement in open pedagogy, and continuous evaluation. By adopting a systemic and equity-oriented approach, educational institutions in Pakistan can position OER not merely as cost-

saving tools, but as catalysts for democratizing education and achieving inclusive excellence.

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