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ASSESSING AWARENESS, USABILITY, AND READINESS TOWARDS USING OPEN EDUCATIONAL RESOURCES (OERS) AMONG COMPUTER SCIENCE LECTURERS IN KEBBI STATE POLYTECHNICS IN POST COVID-19 ERA

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Abstract
Open educational resources (OERs) significantly enhance the education system by providing free and openly licensed educational materials that will support teaching, learning, and research activities. However, despite the numerous advantages of OERs, a few educators adopt and utilize them, particularly polytechnic lecturers. Therefore, this study assesses the awareness, usability, readiness, and challenges affecting the effective utilization of OERs in the post-COVID-19 era. A descriptive survey design was used for the study. A total of 32 computer science lecturers of two (2) polytechnics in Kebbi State constitute the study population. A questionnaire titled "Lecturers' Awareness, Usability and Readiness towards Open Educational Resources (OERs)" was used, which was validated by experts. Research questions were answered using descriptive statistics (mean and Standard deviation). The findings reveal that the lecturers possessed a high level of awareness and readiness to use OERs, emphasizing their potential to enhance pedagogical practices. Meanwhile, the usability remains moderate. It was recommended that staff training and support should be enhanced, and infrastructural development should be needed for better accessibility and usability of OERs.

Keywords: Awareness, Usability, Readiness, Open Educational Resources (OERs), Post Covid-19

Introduction
Open Educational Resources (OERs) are freely accessible, openly licensed materials available online for teaching, learning, and research purposes with minimal or no restrictions (Dsouza, 2021). These resources exist in diverse formats, including textbooks, curricula, videos, and multimedia applications (OECD, 2007; Commonwealth of Learning, 2017). The concept is guided by the “five Rs” (reuse, revise, remix, redistribute, and retain) which collectively promote openness, collaboration, and adaptability of educational content (LAUTECH, 2023). Through these principles, OERs contribute to making education more inclusive, equitable, and responsive to changing global learning demands.

OERs play a transformative role in modern education by expanding access, reducing costs, and enhancing the quality of teaching and learning materials (Wiche & Ogunbodede, 2021). Their open nature allows for flexibility, innovation, and contextual adaptation to meet learners' needs across disciplines (Ganesan & Raja, 2019). In Nigeria, OERs have been increasingly recognized as instruments for knowledge dissemination and technological development, serving as catalysts for educational transformation (Bello et al., 2023a; Sani et al., 2016). Through providing free and high-quality materials, OERs bridge gaps in access to up-to-date instructional resources and strengthen collaboration and innovation among educators (Anthony et al., 2018; Alimi et al., 2020).

Despite these advantages, several challenges threaten the sustainability and large-scale integration of OERs in Nigeria. Limited digital infrastructure, especially in rural areas, hampers accessibility and consistent use (Bello et al., 2023b). In addition, concerns about quality assurance, the absence of strong institutional frameworks, and faculty reluctance to adopt openly shared content persist (Ganesan & Raja, 2019). Sustainability also remains uncertain in contexts where funding, maintenance, and continuous updating of resources depend heavily on external initiatives. Hence, while OERs hold significant promise, their success requires deliberate institutional support, capacity-building, and policies that ensure long-term relevance and quality. The COVID-19 pandemic accelerated the adoption of digital and open resources due to the global shift to online learning (Gangathulasi, 2023; Bello et al., 2024a). This period revealed both the potential and the gaps in OER adoption and showcasing their role in maintaining educational continuity, yet exposing inequalities in technological readiness and educator preparedness. Post-pandemic, there is a growing recognition that integrating OERs into regular academic practice is essential for building flexible, resilient, and technology-driven education systems (Issa et al., 2020). Moreover, institutions such as the National Open University of Nigeria (NOUN) have pioneered OER initiatives by collaborating with international partners to localize and distribute open resources (OER Africa, 2022), setting a model for others to follow.

In addition to broad educational benefits, OERs are particularly vital to Nigeria's polytechnic education system, which focuses on technical and vocational skill development. By offering openly licensed materials aligned with industrial and technological trends, OERs can enhance the relevance and quality of polytechnic curricula (Ojo et al., 2023; Okpare & Oniyemofe, 2015). They provide cost-effective, up-to-date content that supports both instructors and students in acquiring practical competencies (Elebe, 2014; Samaila et al., 2021). According to the National Policy on Education (FRN, 2013), polytechnics aim to equip learners with applied technical skills essential for national economic growth. OERs directly support this mandate by promoting inclusive access to training resources, enabling personalized learning, and bridging socio-economic gaps among students (Ukpai, 2013). In addition, the collaborative and adaptive nature of OERs encourages pedagogical innovation through blended learning, flipped classrooms, and peer co-creation of content, fostering a dynamic and practice-oriented learning environment (Butcher, 2015; Attah et al., 2024; Abdurrahman et al., 2022).

Therefore, OERs represent a transformative approach to expanding access, equity, and quality in Nigerian polytechnic education. Their integration into technical and vocational programs offers opportunities to improve instructional quality, align training with industrial needs, and democratize access to learning resources. However, sustaining this momentum requires addressing persistent challenges related to infrastructure, faculty engagement, and quality assurance. Future efforts should prioritize institutional capacity-building, policy development, and research-driven innovation to ensure that OERs continue to advance the goals of inclusive and sustainable education in Nigeria.

Statement of the Problem

Open Educational Resources (OERs) play a crucial role in enhancing teaching, learning, and research by providing free, accessible, and adaptable instructional materials that reduce educational costs and promote inclusivity. Their flexibility allows educators to modify, share, and update learning materials to meet evolving academic and industrial needs. Globally, OERs have been recognized as a

transformative tool for improving the quality of education and expanding access to lifelong learning opportunities, particularly in developing contexts where access to current educational materials remains a challenge (Abdurrahman et al., 2024). Nigerian polytechnic institutions face several structural and systemic constraints that hinder educational quality and innovation. Challenges such as inadequate funding, outdated infrastructure, and a persistent skills gap between curriculum design and industry requirements continue to affect teaching and learning outcomes. Many polytechnic lecturers depend heavily on traditional textbooks and teaching notes, which often become obsolete due to rapid technological changes and limited access to updated instructional resources (Ukpai, 2013). Consequently, the integration of OERs presents a significant opportunity to strengthen technical and vocational education by providing cost-effective, current, and contextually relevant materials that can enhance both teaching effectiveness and student learning experiences.

The field of Computer Science is particularly dynamic, characterized by rapid technological evolution, constant software updates, and the need for frequent curriculum revision. This makes it an ideal domain for leveraging OERs, given their adaptability, open-access nature, and digital compatibility. Computer Science lecturers, therefore, represent a strategic focus group for examining OER awareness and utilization, as they are typically more digitally literate and operate in a field that relies heavily on the open exchange of knowledge. Beyond infrastructural limitations, several deeper barriers continue to impede the effective adoption of OERs in Nigerian polytechnics. These include the absence of clear institutional policies promoting open education, inadequate incentives for lecturers to create or adapt OERs, lack of quality assurance mechanisms to validate openly shared materials, and concerns surrounding intellectual property rights and copyright protection (Commonwealth of Learning, 2017). Without addressing these systemic challenges, OER initiatives risk remaining fragmented and unsustainable.

The limited empirical evidence on polytechnic lecturers' awareness, usability, and readiness to adopt OERs, particularly among Computer Science educators in Kebbi State represents a critical research gap. Understanding their perceptions and usage patterns is vital to developing targeted interventions that encourage effective OER integration. Findings from this study will not only inform institutional and national policy reforms but also guide the design of professional development programs aimed at enhancing lecturers' capacity to create, adapt, and apply OERs sustainably. Furthermore, the results will provide insights that can support the strategic integration of OERs into polytechnic curricula, thereby contributing to the achievement of Sustainable Development Goal 4 (SDG 4) on inclusive and equitable quality education.

Purposes of the Study

The purposes of this study are to:

1. Determine the level of awareness of OERs among computer science lecturers at Kebbi State Polytechnics.
2. Ascertain the usability of OERs among computer science lecturers at Kebbi State Polytechnics.
3. Examine the readiness of computer science lecturers towards using OERs in Kebbi State Polytechnics.
4. Identify the factors that can hinder the effective utilization of OERs among computer science lecturers at Kebbi State Polytechnics.

Research Questions

The following research questions guided this study:

1. What is the level of awareness of OERs among computer science lecturers at Kebbi State Polytechnics?
2. To what extent do computer science lecturers use OERs in Kebbi State Polytechnics?

3. What is the readiness level of computer science lecturers towards using OERs in Kebbi State Polytechnics?
4. What factors affect the effective utilization of OERs among computer science lecturers at Kebbi State Polytechnics?

Methodology

Descriptive survey design was used in this study. Sani (2017) highlighted that survey design is a useful scientific tool to use when one is interested in the ideas and attitudes of respondents and the relationship between these opinions and their behaviour. The study's population comprises all computer science lecturers from two (2) Kebbi State Polytechnics, Waziri Umaru Federal Polytechnic and Kebbi State Polytechnic Dakingari. The instrument used for the study was a 4-point Likert-scale questionnaire divided into five sections adapted from (Falode et al., 2018; Ogunbodede et al., 2021). The instrument was labeled "Lecturers' Awareness, Usability and Readiness towards Open Educational Resources (LAUROERs)," containing 37 items. Experts confirmed the validity of the instrument's content. A split-half approach was adopted, and a reliability coefficient of 0.85 was obtained. Data were collected through an online Google form, a 4-point Likert-scale questionnaire with a decision mean value of 2.50. Also, mean and standard deviation (SD) were used to answer the research questions, and the Pearson moment correlation (r) coefficient was used to test the hypotheses, respectively. The decision rule was established by calculating the average score of the scoring values$\left(i.e.\frac{4+3+2+1}{4}=\frac{10}{4}=2.5\right)$. As a result, any item with a mean score greater than 2.50 would be accepted whereas any item with a mean score of less than 2.50 would be rejected (Muhammad et al., 2023). The mean formula used was $\bar{x}=\left[\frac{\left(\frac{(SA\times4)+(A\times3)+(D\times2)+(SD\times1)}{N}\right)}{4}\right]$.

Results

Research Question One: What is the level of awareness of OERs among computer science lecturers at Kebbi State Polytechnics?

Table 1: Level of Awareness of OERs among Computer Science Lecturers

S/N	Items	Mean	SD
1	I am aware of the term open educational resources (OERs)	3.50	0.51
2	I am aware that OERs are readily available for use, reuse and research	3.20	0.89
3	I am aware that anyone can legally and freely copy, adapt and re-share OERs	3.30	1.03
4	I know that OERs is very easy to access	3.30	0.80
5	I am aware that OERs provide quality free materials for learning and teaching	3.50	0.69
6	I know that it is very easy to find OERs in my specific field	3.60	0.68
7	I am aware that OERs are in online/electronic format	3.80	0.41
8	I know that OERs do assist me in carrying out my academic activities	3.50	0.95
9	OERs could foster collaboration and innovation among lecturers.	3.50	0.69
10	OERs encourage globalization of curriculum.	3.60	0.68
11	Adoption of OERs can advance openness and sharing of intellectual property.	3.60	0.50
	Overall	**3.49**	**0.71**

Table 1 above shows that the respondents are strongly aware of the term OERs (Mean=3.50; SD=0.51); also, they are intensely aware that OERs are readily available for use, reuse, and research (Mean=3.20; SD=0.89), similarly, they are intensely aware that anyone can legally and freely copy, adapt and re-share OERs and also know that OERs are easy to access (Mean=3.30; SD=1.03 and Mean=3.30; SD=0.80) respectively. However, the respondents are strongly aware that OERs provide quality free materials for learning and teaching, and it is also very easy to find OERs in their specific fields (Mean=3.50; SD=0.69 and Mean=3.60; SD=0.68). Equally, the respondents indicate they are strongly aware that OERs are in online/electronics format (Mean=3.80; SD=0.41) and they show similar responses that OERs do assist them in carrying out academic activities and could foster collaboration

and innovation among them (Mean=3.50; SD=0.95 and 3.50; SD=0.69) respectively. Furthermore, the respondents highlight strong awareness that OERs encourage globalization of curriculum and adoption of it can advance openness and sharing of intellectual property (Mean=3.60; SD=0.68 and Mean=3.60; SD=0.50), respectively. Therefore, the overall mean awareness of OERs among lecturers of Kebbi State Polytechnics was found to be 3.49 (SD=0.71). This indicates that the lecturers are aware of the OERs.

Research Question Two: To what extent do computer science lecturers use OERs in Kebbi State Polytechnics?

Table 2: Extent of Usability of OERs among Computer Science Lecturers

S/N	Items	Mean	SD
1.	I use online Lecture Notes	3.40	0.50
2.	I use Open online textbooks	3.20	0.62
3.	I use Open access journals/databases	2.90	0.97
4.	I use online Projects reports	2.90	0.85
5.	I use Courseware from other institution/university	2.90	0.85
6.	I use online Conference papers	3.10	0.97
7.	I use YouTube videos	3.20	0.89
	Overall	**3.09**	**0.81**

Table 2 highlights that the respondents strongly agree to use online lecture notes and open online textbooks (Mean=3.40; SD=0.50; Mean=3.20; 0.62), respectively. However, the respondents indicate that they use open-access journals/databases, online project reports, and also use courseware from other institutions (Mean=2.90; SD=0.97, Mean=2.90; SD=0.85 and Mean=2.90; SD=0.85) respectively. Furthermore, the respondents used online conference papers and YouTube videos (Mean=3.10; SD=0.97 and Mean=3.20; SD=0.89). The overall Mean of the extent of usability of OERs is 3.09 (SD=0.81).

Research Question Three: What is the readiness level of computer science lecturers towards using OERs in Kebbi State Polytechnics?

Table 3: Readiness of Computer Science Lecturers towards using OERs

S/N	Items	Mean	SD
1	I am ready to use OERs in text, audio or video format for my teaching.	3.70	0.47
2	I am ready to adopt OERs for teaching to fulfil global academic requirement.	3.70	0.47
3	I am ready to use knowledge of ICT for accessing OERs materials.	3.80	0.41
4	I am ready to learn about effectiveness and efficiency of OERs for my teaching.	3.70	0.47
5	I am ready to share open educational resources for others to use.	3.70	0.47
6	I am ready to use OERs because they are available at reduced cost.	3.70	0.47
7	I am ready to use OERs because it can be reused without copyright.	3.30	1.03
8	I am ready to interact with other OERs users.	3.70	0.47
9	I am ready to use OERs to enhance my teaching pedagogy	3.60	0.50
	Overall	**3.66**	**0.53**

Table 3 above shows that the respondents are ready to use OERs in text, audio, or video format for teaching, ready to adapt OERs for teaching to fulfil global academic requirements, and ready to use knowledge of ICT for accessing OER materials (Mean=3.70; SD=0.47, Mean=3.70; SD=0.47 and Mean 3.80; SD=0.41) respectively. Similarly, the respondents indicate readiness to learn about the effectiveness and efficiency of OERs for teaching, ready to share educational resources for others to use, and also ready to use OERs because they are available at reduced cost (Mean=3.70; SD=0.47, Mean=3.70; SD=0.47 and Mean=3.70; SD=0.47) respectively. Moreover, the respondents highlight their readiness to use OERs because they can be reused without copyright, ready to interact with other OER users, and also ready to use OERs to enhance teaching pedagogy (Mean=3.30; SD=1.03, Mean=3.70; SD=0.47 and Mean=3.60; SD=0.50) respectively. The overall Mean of readiness to use OERs by lecturers was 3.66 (SD=0.53).

Research Question Four: What factors affect the effective utilization of OERs among computer science lecturers at Kebbi State Polytechnics?

Table 4: Factors Affecting the Effective Utilization of OERs among Computer Science Lecturers

S/N	Items	Mean	SD
1.	Inadequate information retrieval skills	2.70	0.66
2.	Poor internet connectivity	2.90	0.85
3.	Poor electricity supply	3.30	0.80
4.	Lack of access to computers	2.40	0.82
5.	Lack of time to look for suitable resources	2.60	0.94
6.	Lack of library sensitization on the use of OERs	2.40	0.94
	Overall	**2.72**	**0.84**

Table 4 above highlights the factors affecting the effective utilization of OERs; it shows that the respondents agree that inadequate information retrieval skills, poor internet connectivity, and poor electricity supply (Mean=2.70; SD=0.66, Mean=2.90; SD=0.85 and Mean=3.30; SD=0.80) respectively are part of the factors affecting utilization of OERs. Likewise, the respondents revealed that the lack of access to computers (Mean=2.40; SD=0.82) and lack of time to look for suitable resources (Mean=2.60; SD=0.94) undermine the utilization of OERs. Lack of library sensitization on the use of OERs (Mean=2.40; SD=0.94) did not profoundly affect the utilization of OERs.

Discussion of Results

Results revealed that the computer science lecturers at Kebbi State Polytechnics have a high level of awareness about open educational resources (OERs). They are particularly aware of the term OERs and also the fact that these resources are freely accessible for use, reuse, and research purposes. The high level of awareness among the lecturers indicates positive understanding, potential benefits and availability of OERs. However, the awareness level is a strong foundation towards promoting academic usage and integration into pedagogical practice that can enhance the quality of education. This high awareness is consistent with the findings of Janet (2017) and Dsouza (2021) who reported significant awareness and usage of OERs among faculty, staff and students at St. Joseph Engineering College. Likewise, Ganesan and Raja (2019) found that higher institution students have a moderate to high awareness of OERs. However, Wiche and Ogunbodede (2021) pointed out that despite high awareness, actual usage and effective integration of OERs remain a challenge due to factors like inadequate information technology literacy skills, indicating a gap between awareness and practical application.

The extent of OER usability among lecturers was found to be moderately high. Lecturers frequently use online lecture notes and open online textbooks. This signifies that there is a need to expand the potential of certain types of underutilized OERs and also the need to increase support and training on the underutilized resources. This is in line with the findings of Dsouza (2021), who reported that online resources like SWAYAM-NPTEL and COURSERA are widely used due to their ease of access and reliability. However, the moderate usage of open-access journals, online project reports, and courseware from other institutions indicates an ongoing challenge. Ganesan and Raja (2019) also noted similar challenges, emphasizing the need for better institutional support and training to enhance the usability of OERs. Despite these challenges, the integration of digital resources has been crucial, especially during the pandemic, as pointed out by Issa et al. (2020).

The findings shows a high level of readiness among lecturers to use OERs. Lecturers are ready to use OERs in various formats and adapt them to meet global academic standards. This level of readiness implies the lecturers' potential for future integration of new materials into their curriculum and institutions can also capitalize on it through providing necessary resources. This readiness aligns with the study of Dsouza (2021), who found that faculty members are progressively prepared to integrate OERs into their educational practices. Furthermore, Wiche and Ogunbodede (2021) highlighted the importance of institutional support towards fostering readiness among lecturers, suggesting that targeted training and awareness programs could further enhance this readiness. However, the varying levels of

readiness across different institutions, as indicated by Ganesan and Raja (2019), show the need for a more uniform approach to promoting OER adoption.

The study identified several factors affecting the effective utilization of OERs, including inadequate information retrieval skills, poor internet connectivity, and poor electricity supply. These challenges could present significant barriers to the effective utilization and adoption ability, and if not tackled, the lecturers will continue to face integration challenges and difficulties. Furthermore, the institutions need to focus on improving infrastructures and providing support and training. These challenges remain consistent with findings from Francis and Antique (2022) and Wiche and Ogunbodede (2021), who highlighted similar barriers to effective OER usage. Moreover, Dsouza (2021) pointed out that a limited understanding of copyright laws and authenticity concerns also hinder the utilization of OERs. However, despite these challenges, there is a recognized potential for OERs to enhance educational practices if these barriers are addressed. Ganesan and Raja (2019) also emphasized the need for improved infrastructure and institutional policies to support the effective use of OERs, suggesting that addressing these challenges could significantly enhance the adoption of OERs in educational institutions.

Conclusion

The study indicates a high level of awareness and readiness to use of Open Educational Resources (OERs) among Computer Science lecturers at Kebbi State Polytechnics, emphasizing the significant potential of OERs towards enhancing pedagogical practices. Nevertheless, despite this awareness and readiness, the actual usability of OERs remains moderate, primarily due to challenges such as inadequate information retrieval skills, poor internet connectivity, and insufficient infrastructure. Addressing these barriers is crucial to fully leverage the benefits of OERs in improving teaching and learning practice.

Recommendations

The following recommendations are made from the study's findings:

1. Enhance staff training and support: Institutions should provide regular training sessions and workshops for lecturers to improve their information retrieval skills and digital literacy. This will help them to effectively utilize OERs and integrate these resources into their educational practices.
2. Improve infrastructure: It is crucial to address infrastructural challenges such as poor internet connectivity and unreliable power supply. Investing in advanced technological infrastructure will facilitate better access to OERs and support their effective usage.
3. Institutional policy and support: Educational institutions should develop clear policies and provide strong support for the adoption of OERs. This includes encouraging collaboration among lecturers and also offering incentives for OER usage.

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