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ARTICLES

SCIENTIFIC LITERACY FOR SECURITY AND SAFETY EDUCATION IN NIGERIA SECONDARY SCHOOLS 1-16

Author(s): Olorewaju, A. O., Abdulsalam, A. B. & Amoo, D. O.

INFLUENCE OF SOCIAL MEDIA INFORMATION ON FASHION PREFERENCE AMONG UNDERGRADUATES IN UNIVERSITY OF ILORIN, NIGERIA 17-32

Author(s): Isah, A., Jacob, P. A., Muhammed, J. O., Adign, G. O. & Aderinto, Q. O.

APPRAISAL OF SOCIAL MEDIA ADDICTION AND STUDENTS' LEARNING IN NIGERIA 33-48

Author(s): Luwoye, A., Ahmed, A. T., Oyeyemi, T. W. & Abimbola, A. F.

LECTURERS' ACCESS AND USABILITY OF DIGITAL VISUAL INSTRUCTIONAL RESOURCES AMONG COLLEGES OF EDUCATION IN KWARA STATE 49-66

Author(s): Usman, S. R. & Bolaji, H. O.

UNDERGRADUATE STUDENTS' PERSPECTIVES IN OPTIMISING CHATBOT FOR REFERENCE SERVICES IN NIGERIAN HIGHER INSTITUTIONS: A COMPARATIVE ANALYSIS OF CHATGPT AND CONVENTIONAL REFERENCE ASSISTANCE 67-80

Author(s): Adigun, G. O., Ajani, Y. A. & Aboyade, M. A.

OPEN EDUCATIONAL RESOURCES AWARENESS AND USE AMONG LIBRARY AND INFORMATION SCIENCE UNDERGRADUATES IN KWARA STATE, NIGERIA 81-102

Author(s): Fagbola, O. O. Bashiru, M. O., Ajani, A. Y. & Bankole, Q. A.

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OPEN EDUCATIONAL RESOURCES AWARENESS AND USE AMONG LIBRARY AND INFORMATION SCIENCE UNDERGRADUATES IN KWARA STATE, NIGERIA

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Abstract
Open educational resources are free online media and documents that are used for teaching and learning. This study examined open educational resources awareness and use among Library and Information Science undergraduates in Kwara State, Nigeria. A descriptive survey design approach was adopted using a questionnaire developed by the researchers based on reviewed literature. The population comprised 1,323 undergraduates in the universities accredited for Library and Information Science Degree programme in Kwara State, Nigeria by the National Universities Commission. Data collection was done using Google Form and administered through dedicated WhatsApp forums specific to each population. The findings revealed a high level of awareness and use of open educational resources among the respondents. Also, a significant positive correlation was found between open educational resources awareness and use ($r = .419$, p (.000) $< .05$). However, no significant relationship was observed between gender and open educational resources use of the respondents ($r = -.612$, p (.437) $> .05$). Based on the findings, it was recommended that university administrators should prioritise ensuring uninterrupted electricity supply in the universities, particularly the libraries. Library management and librarians should regularly organise seminars and workshops aimed at increasing awareness of open educational resources among undergraduates and promoting the benefits of open educational resources use for their academic pursuits and improving students' information retrieval skills. Faculty members should also encourage open educational resources use by their students through uploading their publications to their respective university's institutional repository.

Keywords: Awareness, Library and Information Science, Undergraduates, Open Educational, Use

Introduction

All over the world, the education sector is constantly experiencing significant transformation because of advancements in information and communication technologies (ICTs). Internet plays an important role in the life of the people and offers real-time opportunities for improving access, transfer of information and knowledge from institutions of higher learning to a wide range of users, thereby promoting unhindered access to knowledge and knowledge-sharing practices (Abbas & Sharma, 2020).

The development of open educational resources (OER) in higher education in the twenty-first century constitutes a part of the larger social movement toward opening the educational landscape that was opened only to a limited number of people who paid for access to use information and services (Tella, 2020). Consequently, the Internet and other technological innovations which serve as the core tools for research, information retrieval, social networking and knowledge transfer have radically changed university education (Nyamwembe et al., 2018).

Open educational resources are the openly provided educational resources enabled by information and communication technologies, for consultation, use and adaptation by a community of users for non-commercial purposes (Elder, 2019). They encompass the various educational materials licensed under open copyright licences and attract no fee to the user (Itasanmi, 2020). Roncevic (2022) defined OER as digital educational materials that anyone can use freely and legally, anywhere, with user's right to copy, share, enhance and/or modify. In the field of education, OERs are a major revolutionary movement. According to Dsouza (2021), they give space for digital learning by providing access to ample learning materials worldwide. OER are public domain resources or those with intellectual property licences that permit their free use and re-purposing (Tuomi, 2013).

In the view of Mishra (2018), OER emerged as one of the most innovative teaching and learning practices and cost-effective mechanisms for improving educational quality. They are teaching, learning, and research materials in any format and medium that reside in the public domain or are under the copyright that have been released under an open license, and they permit no-cost access, reuse, repurpose, adaptation, and redistribution by others (United Nations Educational Scientific and Cultural Organisation (UNESCO), 2022). OER are teaching, learning and research contents that are 'libre' (openly licensed content) and at the same time 'gratis' (free of charge), such as textbooks, courses, source materials, interactive simulations, audiobooks, modules, open access books, videos, podcasts, and learning objects (Christoforidou & Georgiadou, 2022). As such, users can learn from, create, adapt, reuse, build upon and freely produce print versions of the digitised materials as long as license restrictions, such as giving the original creator(s) attributions and not using the new adaptations for profit. Roncevic (2022) avers that OERs run the gamut and stretches beyond digital textbooks; and are perceived as the most common educational resources – including course materials, university courses, e-learning platforms, software, streaming videos, lectures and digital repositories of monographs and journals. Commonwealth of Learning (2015) argue that OER can be openly licenced or put in the public domain to use or reuse freely.

Awareness plays a crucial role in the use of any innovative development (Eruanga, 2021). Awareness is knowledge about an innovation or the understanding of a situation at the present time based on information or experience (Adenariwo, 2022). Awareness, in relation to this study, encompasses recognition and acknowledgement of as well as familiarity with the available OERs in educational institutions (Hilton, 2016; Wiley, 2017). The assumption is that such awareness will serve as a driving force that will motivate the use of these resources among undergraduates (Jatlin International, 2017). Lack of such awareness can hinder students from utilising the resources for their academic pursuits (Nyamwembe et al., 2018).

Open educational resources use refers to the purposeful utilisation of OER to enhance students' learning experiences and overcome barriers to accessibility and affordability (Hilton, 2016). It involves the ease of use and successful execution of tasks on OER platforms (Ogunbodede & Antique, 2020). Use of OERs offer an alternative to costly commercial textbooks, reduces financial burden on undergraduates, improves access to educational materials and provides new pedagogical opportunities (Katz, 2020). Therefore, assessing the effective and seamless use of OER among undergraduates is important (Nielsen, 1993).

Initiatives on OERs have gained significant attention globally and are excellent tools for enhancing access to quality education. For instance, their adoption in educational institutions and the recognition of their potential benefits enhance access to quality educational materials, foster collaboration, eliminate barriers to education and promote creation, sharing, and use of these resources in educational settings (Hilton et al., 2016; de los Arcos et al., 2016; Cox & Trotter, 2017; Allen, 2023). The OER movement has gained wide recognition; countries like America, Canada, China, and South Africa have implemented national OER strategies to encourage their integration and adoption in educational institutions (Bialobrzeska et al., 2011; Hu et al., 2015; Paskevicius & Irvine, 2019). For example, in the United States of America, the Open Textbook Network movement has played a crucial role in advocating open textbook adoption, resulting in increased utilisation of OERs in higher education institutions (Wiley et al., 2019). In Europe, the Open Education Europa platform facilitates the discovery and sharing of OERs among educators and learners (de Langen & van der Woert, 2018). In Nigeria, the OER movement have become increasingly relevant in the educational landscape (Issa et al., 2020). These efforts have culminated in a global movement towards leveraging OER to enhance educational experiences and promote equitable access to knowledge.

The growing body of research on OERs has highlighted their positive impact on students' learning outcomes, accessibility and cost reduction (Hilton et al., 2019; Bliss et al., 2013). This evidence underscores the importance of raising awareness and providing support for educators and learners to effectively utilise OER (Pitt et al., 2020). Thus, it is imperative for higher educational institutions, libraries and librarians to play an active role in promoting use of OERs through awareness creation and sensitisation campaign programmes and training seminars (Mulder et al., 2019). Through the fostering, adoption and integration of OERs, educational institutions in Nigeria can contribute to the global movement and reap the benefits of open education.

The Library and Information Science undergraduates are students pursuing degree programmes and librarianship training. They are being prepared for the world of work in the Library and the Information profession. Libraries are known to provide access to educational materials and educate others about their use (Katz, 2020). Moreso, librarians play a critical role in OER initiatives. They are responsible for providing leadership on awareness creation and using OER in institutions of higher learning. As such, materials such as textbooks, courses, source materials, interactive simulations, audiobooks, modules, open access books, blogs, videos, podcasts, and learning objects, among others, are available online and cover the whole or aspects of librarianship, offering different types and forms of educational material that can enhance the learning process in Library and Information Science.

Studies on the use of these resources in higher educational institutions are gaining popularity globally (Arcebuche, 2022). The levels of their adoption vary between developed and developing countries (Komineas & Tassopoulou, 2016; Watson et al., 2017; Itasanmi, 2020; Arunkumar, 2020). The current literature on OERs and their utilisation by undergraduates in Nigeria revealed some gaps. First, there is lack of comprehensive information regarding the types of OERs accessible to students. Second, there is no clear understanding of the various formats of OERs (textbooks, courses, videos, and software) that are available for students' use. Couple with the fact that limited research exists on the level of awareness and use of OERs among undergraduates, especially Library and Information Science. Therefore, this assessed Library and Information Science (LIS) undergraduates' awareness and use of OERs for their educational pursuit in Kwara State, Nigeria.

Furthermore, preliminary investigations revealed a paucity of data on the frequency of OER use and the specific benefits accruable to LIS undergraduates in Kwara State, Nigeria from such use. It is, therefore, essential to examine the advantages students get when OER use is incorporated into their academic activities. It is against this background that this study investigated open educational resources awareness and use among the Library and Information Science undergraduates in Kwara State, Nigeria.

Objectives of the study

The broad objective of this study was to examine open educational resources awareness and use among the Library and Information Science undergraduates in Kwara State, Nigeria. The specific objectives were to:

1. ascertain the level of awareness of open educational resources among the Library and Information Science undergraduates in Kwara State, Nigeria;
2. identify the types of open educational resources available to the Library and Information Science undergraduates in Kwara State, Nigeria;
3. ascertain the frequency of open educational resources use among the Library and Information Science undergraduates in Kwara State, Nigeria;
4. identify the benefits of open educational resources use among the Library and Information Science undergraduates in Kwara State, Nigeria; and

5. identify the barriers militating against open educational resources use by the Library and Information Science undergraduates in Kwara State, Nigeria.

Hypotheses

The following null hypotheses were tested at $\alpha = 0.05$ level of significance.

$H0_1$: There is no significant relationship between open educational resources awareness and use among the Library and Information Science undergraduates in Kwara State, Nigeria.

$H0_2$: There is no significant relationship between gender and open educational resources use by the Library and Information Science undergraduates in Kwara State, Nigeria.

Literature review

Today, information and communication technologies are becoming more prevalent in education. They play crucial role in providing innovative forms of support to teachers, students, and the learning process (World Bank, 2022). People now have access to information and artefacts of knowledge – textual, visual, and audio works –that embody knowledge from anywhere and at any time (McMartin, 2008; Komineas & Tassopoulou, 2016).

The term 'open educational resources' (OER) was first used in 2002 during a conference hosted by UNESCO (Hylen, 2007). However, there are different definitions of OER. For instance, UNESCO (2022) defines OER as educational materials that are openly licensed, enabling users to modify and redistribute them. The William and Flora Hewlett Foundation (n.d.) views the term as teaching, learning, and research materials that are freely available in the public domain or released under open licences, allowing for no-cost access, use, adaptation, and redistribution with limited restrictions. According to Wolfe and Cedillos (2015), open educational resources are free online media and documents that are used for teaching and learning. They are materials that support education and can be freely accessed, reused, modified, and shared by anyone (Downes, 2011).

Open educational resources are digital educational resources made available for free use, modification, and distribution under open copyright licenses (COL, 2015). On their part, Obinyan et al (2023) assert that they are technology-enabled open provisions of educational resources for consultation, use, and adaptation for non-commercial purposes. Komineas and Tassopoulou (2016) state that they are teaching, learning, and research resources made available in the public domain or released under an intellectual property license allowing unrestricted usage or repurposing by third parties. OERs encompass a wide range of resources, including complete courses, course materials, textbooks, videos, tests, software, and other tools that facilitate access to knowledge (D'Antoni, 2009). They include various forms of educational materials freely available on the Internet, such as complete courses, course materials, modules, textbooks, streaming videos, tests, software, and other tools (Samzugi & Mwinyimbegu, 2014; Naidu & Mishra, 2014; Hilton, 2016). Also, COL (2015) categorises them based on the needs of the education sector, to include digital learning objects, open textbooks, OER courseware, and online

tools. Hylén (2007) avers that they include high-quality learning content, tools, and implementation resources. Hence, the massive campaign for their inclusion in learning.

These resources have become essential in higher education contexts. They can eliminate barriers to accessing knowledge and promote inclusivity by making high-quality educational materials and opportunities widely available (Dsouza, 2021). They also offer an alternative to expensive commercial textbooks, particularly for university students, by providing free or low-cost access to educational resources (Farrow et al., 2015). Besides, they benefit various stakeholders in the education sector. They connect faculty and students, improve the quality of training, learning and research, reduce financial burdens, provide high-quality resources, promote transparency, expand access to learning, foster innovation, and address the challenges faced by stakeholders (Hodgkinson-Williams, 2010; Allen & Seaman, 2014; Watson et al., 2017; Huynh et al., 2022).

In addition, these resources make learning more engaging and enhance the overall learning experience of students (Itasanmi, 2020). They are recognised as valuable resources for supporting the universalisation of education (Huynh et al., 2022). Therefore, the adoption and use of open educational resources by instructors can provide a cost-effective solution to the rising costs of commercial textbooks in higher education, particularly in developing countries, such as Nigeria, where necessary resources are limited. As the students' preferences shift from the printed materials to digital resources, library management should ensure the access to OERs and promote awareness for their use.

Research outcomes have revealed that OERs have gained global recognition and have become integral to education. For instance, Christoforidou and Georgiadou (2022) revealed that, in Greece, OERs promote free and open access to educational materials as a result of digitisation, increased Internet access, and flexible intellectual property licences. Kumar and Raja (2019) reported that, in India, OERs bridge the educational gap by providing high-quality learning resources for free, thereby improving the quality of higher education and making it more affordable. As noted by Bradshaw et al. (2013), in the United Kingdom, the sharing, revision and distribution of educational materials online through OERs can make learning more accessible and personalised and can revolutionise global learning and teaching methods. Bialobrzeska et al. (2011) observe that, in South Africa, OERs have the potential to transform learning and teaching by enabling personalised learning and quick feedback loops. Issa et al. (2020) assert that, in Nigeria, the importance of the OER movement has been increasing. From the trajectory above, it is evident that OER adoption and use in the educational landscape has come to stay.

OERs awareness and use of undergraduates

Awareness of open educational resources will play a significant role in their effective utilisation, especially among Library and Information Science undergraduates. Many studies have highlighted the importance of awareness in students' attitudes towards using these resources in different contexts. For example, a report by eCampus Ontario (2018) revealed that Canadian students were aware of OERs and open textbooks. Nagaiah and Thanuskodi's (2021) study on utilisation of open educational resources among college students affiliated to Alagappa University in India reported

that the respondents were aware of OERs and utilised them for educational purposes. Arcebuche (2022) investigated students' awareness and usage of OERs as learning tool at the University of the Philippines Open University. He found that students were aware and considered OERs valuable for the learning process. Ogunbodede and Antique (2022) examined the usability of OERs among students at Al Kabir Polytechnic in Jamshedpur, India. They discovered high awareness and usage levels, with a positive link between awareness and OER use. Similarly, Nyamwembe et al. (2018) examined the relationship between awareness and utilisation of OER among students in private universities in Kenya. They reported a positive correlation between awareness and use. Li and Huang (2015) studied students' usage of OERs in Zhejiang University, China. They found that a majority of the university students had used OERs, albeit with challenges related to student, content, interface and environmental factors.

In Nigeria, studies focusing on specific student populations have also been conducted. For example, Omolafe et al. (2022) studied Primary Education undergraduates' awareness and perception of OER utilisation at the University of Ilorin, Nigeria, and found that the students were aware of OERs and had a positive perception of using them for learning. Wiche and Ogunbodede (2021) investigated awareness and use of OER among Library and Information Science students of Ignatius Ajuru University of Education, Rivers State, Nigeria. They reported high level awareness and utilisation of the different types of OERs among the respondents. The study of Itasanmi et al. (2019) on OER awareness and usage among open and distance learning students in southwestern Nigeria revealed a significant positive relationship between awareness and use of OERs among the respondents. Similarly, Ememe and Modebelu (2019) explored the challenges of accessibility and utilisation of OERs in open education institutions in Lagos, Nigeria, and reported relatively high awareness and complementary use of OER materials alongside lecturer-provided materials. Akomolafe and Olajire (2014) studied the utilisation of OER and quality assurance in Nigerian universities and found moderate awareness among undergraduates regarding the availability and usage of OERs. Abdullahi and Umar (2022) explored the perceptions and experiences of university students on the use of OERs in Nigeria. They discovered positive impact of OERs on students' learning outcomes, accessibility to educational resources, and cost reduction.

Use of open educational resources in higher institutions of learning is relevant for academic achievements of students and have been associated with improved academic performance, increased satisfaction, engagement, access to a wide range of materials across different subjects and reduction in cost of education (Feldstein et al., 2012; Farrow et al., 2015; Gambo & Aliyu, 2017; Watson et al., 2017; Hendricks et al., 2017; Ogunbodede & Antique, 2020). The review of related literature identified some gaps. These gaps relate to discrepancies in OER adoption between developed and developing nations, the necessity for increased awareness campaigns and training seminars to encourage OER use, and the role of libraries and librarians in advancing OER initiatives. Furthermore, there is a lack of specific focus on OER awareness and use among undergraduates studying Library and Information Science in Kwara State, Nigeria. These gaps indicate the need for further research to explore the unique context of OER awareness and utilisation among this group of students. No empirical study has examined awareness and use of OER among Library and Information Science undergraduates in Kwara State, Nigeria. Therefore,

much work has to be done in broadening the role of OER in the seamless attainment of educational and academic pursuits of undergraduates. There is also the need for higher educational institutions, through the library management and librarians, to promote the OER initiative by deploying awareness creation, sensitisation and training seminars to encourage the use of OER in teaching, learning, and research. Hence, this study investigated OER awareness and use by the Library and Information Science undergraduates in Kwara State, Nigeria.

Methodology

This study adopted the descriptive survey design of correlational type to examine the relationship between the awareness and use of open educational resources among undergraduates in Kwara State, Nigeria. The target population comprised 1,323 Library and Information Science undergraduates enrolled in the institutions accredited by the National Universities Commission for Library and Information Science degree programme in Kwara State, Nigeria. The institutions were Al-Hikmah University, Adewole, Ilorin, Kwara State University, Malete and the University of Ilorin. The nonprobability sampling technique was employed to select the participating universities, considering that not all the universities in Kwara State were accredited to run the Bachelor of Science degree programme in Library and Information Science. Within each university, the purposive sampling technique was deployed to select respondents from the second, third, and fourth years of study. This group of undergraduates was purposively chosen based on their assumed familiarity with online information access and retrieval, having spent a quality period on campus.

To collect data, a structured questionnaire named Open Educational Resources Awareness and Use Scale (OERAAUS) was employed. The questionnaire was digitised using a Google Form. It had six sections consisting of both close-ended and open-ended items. The reliability of the questionnaire was assessed using Cronbach's alpha, and a reliability coefficient of $\alpha = 0.70$ was considered acceptable for the study. Class representatives were enlisted from the three universities listed above and the Google Form link to access the survey was made available to them. These course representatives shared the Google Form link with their colleagues on their Course Level WhatsApp group platforms. The questionnaire administration lasted for a period ten (10) days. Strict adherence to ethical guidelines was maintained to ensure the privacy and confidentiality of the respondents. Informed consent forms were provided as cover page to the administered questionnaire, explicitly outlining the study's purpose, voluntary participation and assurance of anonymity. The collected data were anonymised and securely stored to safeguard the privacy of the respondents. A total of 159 valid responses were received and subjected to analysis using the Statistical Product and Service Solution (SPSS) software version 25. The descriptive statistics used were frequency count, percentage, mean and standard deviation. The inferential statistics used was Pearson Product Moment Correlation for hypothesis testing at $\alpha = 0.05$. The results were presented in tables.

Table 1: Questionnaire administration and retrieval

S/N	Name of University	Population	Questionnaire retrieved and usable	Response rate (%)

1	Al-Hikmah University.	22	9	6
2	Kwara State University.	150	82	52
3	University of Ilorin.	106	68	42
	Total	**278**	**159**	**100**

Results

The demographic profile of the respondents showed that, out of the 159 Library and Information Science undergraduates surveyed, 96 (60%) were males, while 63 (40%) were females. This implies that most of the respondents were males. The reason could be that more males are being admitted into the B.Sc. Library and Information Science degree programme. Their age varied from 15 to more than 26 ($\bar{x}$ = 21.68; SD = 3.73). This implies that most respondents were in the 22 - 25 age brackets. In addition, the sampled respondents were distributed among the three (3) universities, with most of the respondents from Kwara State University, Malete. The results also showed that, of the 159 Library and Information Science undergraduates surveyed, 74(46%) were in the 400 level, 68(43%) were in the 300 level, and 17(11%) were in the 200 level of their studies.

Table 2: Mean and standard deviation scores of OER level of awareness of the respondents

S/N	OER level of awareness statements	Mean ($\bar{x}$)	SD
1.	I am aware of open educational resources.	3.20	0.82
2.	I am aware that open educational resources are readily available for use and reuse.	3.21	0.76
3.	I am aware that OER are readily available for research.	3.19	0.77
4.	I am aware open educational resources are very easy to access.	3.23	0.81
5.	I am aware that open educational resources can be copied freely, modified and shared legally.	2.98	0.85
6.	I am aware open educational resources are high quality materials available for teaching and learning.	3.20	0.76
7.	I am aware open educational resources	3.20	0.79

	are online to read.		
8.	I am aware open educational resources are available in audio and video formats.	3.28	0.79
	Weighted mean ($\bar{x}$) value = 3.18		

To ascertain the level of awareness of OERs among the Library and Information Science undergraduates in Kwara State, Nigeria is the focus of Objective One. Table 2 captures the mean and standard deviation scores for each item. The average mean score for each of the items was 2.50. The average mean score was calculated by adding up each value of the 4-point Likert scale (Strongly Agree = 4, Agree = 3, Disagree = 2, and Strongly Disagree = 1: (4+3+2+1=10) and dividing by 4. All the items had mean scores greater than the average mean score. Also, the overall weighted mean of the awareness level of the respondents was $\bar{x}$ = 3.18, which was greater than the threshold of 2.50. This implies that the Library and Information Science undergraduates in Kwara State, Nigeria were highly aware of OERs.

Table 3: Mean and standard deviation scores of types of OER available to the respondents

S/N	Types of OER	Mean ($\bar{x}$)	SD
1	Open courseware.	1.39	0.49
2	Learning Modules.	1.27	0.45
3	Streaming videos.	1.23	0.42
4	Open Textbooks.	1.14	0.35
5	Open Access Journal.	1.31	0.47
6	Online Tutorials.	1.08	0.28
7	Digital learning object.	1.24	0.43
8	Conference papers.	1.45	0.50
9	Course materials.	1.06	0.24
10	Test	1.08	0.28
	Weighted mean ($\bar{x}$) value = 1.24		

Objective Two is on identifying the types of OERs that were available to the Library and Information Science undergraduates. Table 3 presents the mean and standard deviation scores of the types of OERs available to the respondents. The types were conference papers ($\bar{x}$ = 1.45; SD = 0.50), open courseware ($\bar{x}$ =1.39; SD = 0.49), open access journal ($\bar{x}$ =1.31; SD = 0.47) and learning modules ($\bar{x}$ =1.27; SD = 0.45) among others.

Table 4: Mean and standard deviation scores of frequency of use of OER by the respondents

S/N	Frequency of use of OER	Mean ($\bar{x}$)	SD
1.	Open Courseware.	3.18	0.78
2.	Learning Modules.	2.10	0.98
3.	Streaming videos.	2.30	1.04
4.	Open textbooks.	3.20	0.93
5.	Open Access Journal.	3.11	0.95

6.	Online Tutorial.	2.21	0.98
7.	Digital Learning Object.	2.98	0.96
8.	Conference papers.	2.82	1.01
9.	Course materials.	3.12	1.01
10.	Test.	3.09	0.96
	Weighted mean ($\bar{x}$) value = 2.81		

Table 4 presents the mean and standard deviation scores of the frequency of use of OERs by the Library and Information Science undergraduates in Kwara State, Nigeria, as stated in Objective Three. The average mean score for each of the items was 2.50. This was calculated by adding up each value of the 4-point Likert scale (Daily = 4, Weekly = 3, Occasionally = 2, and Never = 1: (4+3+2+1=10) and dividing by 4. All the items, except items 2, 3 and 6, had mean scores greater than the average mean score. Also, the overall weighted mean frequency of OER use by the respondents was $\bar{x}$ = 2.81, which was greater than the threshold of 2.50. This implies that the Library and Information Science undergraduates in Kwara State, Nigeria had a high frequency of OER use.

Table 5: Mean and standard deviation scores of benefits of OER use

S/N	Benefits of OER use	Mean ($\bar{x}$)	SD
1	Showcasing of innovation and talent.	2.98	1.08
2	Expanded access to learning.	3.36	0.84
3	Prompt circulation of information and knowledge.	3.58	0.61
4	Enhance course contents.	3.50	0.63
5	Augmentation of class materials.	3.48	0.60
6	Increase diversity.	3.26	0.83
7	Scalability.	3.18	0.75
8	Continually improve course / learning material and resources.	3.33	0.75
	Weighted mean ($\bar{x}$) value = 3.33		

Table 5 reveals the mean and standard deviation scores of the items that best described the benefits of OER use among the Library and Information Science undergraduates in Kwara State, Nigeria, as stated in Objective Four. The average mean score for each of the items was 2.50. This was calculated by adding up each value of the 4-point Likert scale (Strongly Agree = 4, Agree = 3, Disagree = 2 and Strongly Disagree = 1: (4+3+2+1=10) and dividing by 4. All the items had mean scores greater than the average mean score. The overall weighted mean of the benefits of OER use by the respondents was $\bar{x}$ = 3.33, which was greater than the threshold of 2.50. This implies that the Library and Information Science undergraduates in Kwara State, Nigeria benefitted greatly from the use of OERs.

Table 6: Mean and standard deviation score of barriers to OER use

S/N	Barriers to OER use	Mean ($\bar{x}$)	SD
1.	Cumbersome interface of information retrieval system.	3.43	0.71
2.	Poor Internet connectivity.	3.31	0.66
3.	Inadequate ICT infrastructure.	3.39	0.79
4.	Epileptic power supply.	3.52	0.72
5.	Lack of time to browse for suitable resources.	3.50	0.73
6.	Lack of support from lecturers.	3.49	0.78
7.	Lack of sensitisation program on the use of OER by the library.	3.23	0.81
8.	Lack of institutional policy on the use of OER.	3.00	0.91
9.	Limited understanding of the open licence initiative and copyright law.	3.26	0.81
10.	Lack of access to computer / laptop.	3.17	0.81
	Weighted mean ($\bar{x}$) value = 3.33		

Objective Five concerned identifying the barriers militating against OER use among the Library and Information Science undergraduates in Kwara State, Nigeria. Table 6 reveals the mean and standard deviation scores of the items that best described the barriers that are militating against the OER use of the respondents. The average mean score for each of the items was 2.50. This was calculated by adding up each value of the 4-point Likert scale (Strongly Agree = 4, Agree = 3, Disagree = 2 and Strongly Disagree = 1: (4+3+2+1=10) and dividing by 4. All the items had mean scores greater than the average mean score (2.50). The overall weighted mean of the barriers militating against the OER use of the respondents was $\bar{x}$ = 3.33, which was greater than the threshold of 2.50. Thus, it can be deduced that there were barriers militating against the effective use of OER by the Library and Information Science undergraduates in Kwara State, Nigeria.

Table 7: Summary of the test of relationship between OER awareness and use of the respondents

Variable	$\bar{x}$	SD	N	df	Correlation	sig.P	Remark
OER awareness.	3.18	0.62	I59	158	.419**	.000	sig
OER use.	2.78	0.55					

***Correlation is significant at p<0.05**

Table 7 presents the summary of Pearson's Product Moment Correlation of the test of the relationship between OER awareness and OER use among the Library and Information Science undergraduates in Kwara State, Nigeria. There was a significant positive relationship between

OER awareness and OER use (r = .419, p (000) <.05) among the respondents. This implies that the higher the level of OER awareness among the Library and Information Science undergraduates, the greater their use of the resources. Hence, the Null Hypothesis One was rejected.

Table 8: Summary of the test of relationship between gender and OER use of the respondents

Variable	$\bar{x}$	SD	N	df	Correlation	sig. P	Remark
Gender.	1.40	0.49	I59	158	-.612**	.437	not sig
OER use.	2.78	0.55					

***Correlation is significant at p<0.05**

Table 8 summarises the Pearson's Product Moment Correlation of the relationship test between gender and OER use among the Library and Information Science undergraduates in Kwara State, Nigeria. There was no significant relationship between gender and OER use (r = -.612, p (.437) >.05) of the respondents. This implies that gender did not affect OER use among the respondents; each student used the OER according to their specific information need. Hence, Null Hypothesis Two was accepted.

Discussion

Open educational resources are ubiquitous learning tools of the 21st century and the recognition of their benefits have led to movements worldwide aimed at promoting their creation, adoption, sharing and use in educational institutions of diverse settings. This study examined open educational resources awareness and use among the Library and Information Science undergraduates in Kwara State, Nigeria. The findings of this study showed a significant positive relationship between OER awareness and use among the Library and Information Science undergraduates in Kwara State, Nigeria. On this premise, Null Hypothesis One was rejected. This implies that the higher the level of OER awareness among the Library and Information Science undergraduates, the greater their use of the resources. This finding corresponds with that of Obinyan et al. (2023), who established a positive correlation between awareness and use of OER. Similarly, Ogunbodede and Antique (2022) reported that there was a positive link between students' awareness and the use of OER. This means that the more students are aware of the OER, the more they will use these resources in their educational pursuit.

This study found no significant relationship between gender and OER use of the Library and Information Science undergraduates in Kwara State, Nigeria. This implies that gender has nothing to do with OER use among the Library and Information Science undergraduates in Kwara State, Nigeria. Every student uses OER based on his/her specific information need. On this premise, Null Hypothesis Two was accepted. However, this finding is contrary to Issa et al. (2021), who discovered a significant difference between males and females in their use of OER for learning. This indicates that male undergraduates utilise OERs more than female undergraduates.

This study found a high level of OER awareness and use among the Library and Information Science undergraduates in Kwara State, Nigeria. Wiche and Ogunbodede (2021) and Obinyan et

al. (2023) agree with this finding. They reported that students have a high degree of awareness of OER and use various forms of OERs. Also, Arcebuche (2022) also asserts that students are aware of open educational resources and consider them a valuable tool for the learning process in their course of study.

Equally, it was found that conference papers, open courseware, open access journal, learning modules and digital learning object were some of the OERs available to the Library and Information Science undergraduates in Kwara State, Nigeria. This finding agrees with Urbano (2022), whose study revealed that academic publications, videos and images were the common types of open educational resources students use. This is true considering that open educational resources can be utilised to accomplish course-related activities.

This study revealed that the benefits of OER use among the Library and Information Science undergraduates in Kwara State, Nigeria include prompt circulation of information and knowledge, enhanced course content, augmentation of class materials, expanded access to learning, and continuous improvement of course materials and resources. In line with this finding, Domizi and Clouser (2017) and Katz (2020) argue that OER use have several benefits for undergraduates, such as expanded access to learning and educational materials anywhere and at any time, improved resources, quick circulation of information, promote diversity, augmenting regular course content, promotion of inclusivity, improved access and provision of new pedagogical opportunities.

Lastly, this study revealed that the barriers to OER use among the Library and Information Science undergraduates in Kwara State, Nigeria were epileptic power supply, lack of time to browse for suitable resources, lack of support from the lecturers, cumbersome interface of the information retrieval system and inadequate ICT infrastructure, among others. The finding is corroborated by Hettige et al. (2022), who found that lack of time during academic hours and difficulty in reading the digital screens for a longer period were the major constraints for students to use OERs. Also, Christoforidou and Georgiadou (2022) affirm that inadequate knowledge of the OER, difficulty in finding OERs online, time-consuming nature of the process, lack of encouragement from the university, and lack of information retrieval and technological skills for using OERs were some of the barriers against OER use identified by their respondents. Moreover, the findings from the study are in consonance with Ogunbodede et al. (2021), whose study discovered that poor electricity supply, poor Internet connectivity, lack of library sensitisation on OER use, and lack of access to computers/laptops were some of the barriers against the effective use of open educational resources among the participants in their study.

Conclusion

No doubt, OERs have come to stay in the educational landscape. They facilitate free access to knowledge and enhance the teaching and learning process. They also help to reorient educational offerings in higher education around the world, especially in developing nations, like Nigeria, where access to high-quality educational materials is limited.

The undergraduates in this study demonstrated a high degree of OER awareness and use. The survey also found that the Library and Information Science undergraduates benefited from OER use and the major barriers to effective OER use were epileptic power supply, lack of time to browse

for suitable resources, lack of support from the lecturers, cumbersome interface of the information retrieval system and inadequate ICT infrastructure. The hypothesis test revealed that there was a significant positive relationship between OER awareness and use of Library and Information Science undergraduates in Kwara State, Nigeria. This suggests that the LIS undergraduates' awareness of OER had a favourable impact on their use. In other words, there is a nexus between OER awareness and use. Therefore, it could be concluded that this study brought into the fore the fact that there was a high level of OER awareness and use among the LIS undergraduates in Kwara State, Nigeria. Also, the independent variable (OER awareness) positively determines OER use among the respondents. The findings highlighted the importance of infrastructure improvements, awareness raising initiatives, and faculty involvement to optimise the benefits of OER use in educational settings.

Recommendations

Based on the findings of this study, the following recommendations are made to address the shortcomings identified with the hope that institutions of higher learning in Africa, particularly in Nigeria, through the university administrators, will create an environment that supports the effective use of OER, ultimately enhancing the educational experiences of undergraduates and promoting access to quality educational materials.

1. Improving infrastructure: The university administration should prioritise improving electricity supply to their campuses, provide adequate ICT infrastructure, and enhance Internet bandwidth. These will help remove barriers militating against OERs, overcome technical limitations, and promote effective OER use among students for their academic activities.
2. Promoting OER use: The library management should play an active role in promoting the use of OERs among undergraduates. Organising programmes and workshops that sensitise students to the benefits of OERs in academic activities and improve their information retrieval skills will enhance their engagement with these resources.
3. Enhancing information retrieval and technological skills: Students should be equipped with the necessary information retrieval and technological skills as a prerequisite for effective use of OERs. Libraries, in conjunction with the faculty, can organise training programmes and workshops to enhance and equip their students with the relevant digital literacy skills, familiarise them with the OER platforms and tools, thus promoting and enabling them to navigate and utilise OER effectively.
4. Faculty engagement: Faculty members should be encouraged on the need to regularly upload their publications to the institutional repositories of their respective universities and the need for them to use the same resources for their class engagements as a way of promoting use among the students. This will ensure that students have easy and uninterrupted access to high-quality and relevant educational materials for their studies.
5. Communication and collaboration: The library management and personnel (librarians and the paraprofessionals) through regular awareness campaigns, seminars presentations, workshop trainings should endeavour to bring to the notice of students the benefits inherent in the use of OERs for their educational pursuits. Besides, they should facilitate communication between the faculty and students regarding OER efforts. This will foster a

collaborative environment and encourage students to leverage OERs for their academic pursuits.

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