Jewel Journal of Librarianship
ISSN: 2141-3908 (Print); ISSN: 2736-0881 (Online)
https://www.jeweljournals.com/
Volume 20, Issue 3, 2025

Evaluating E-learning Readiness, Digital Literacy Skills and Open Educational Resources Use among Students of National Open University of Nigeria (NOUN)

Shamwil Bala Salisu
Mani Study Centre, Katsina State
National Open University of Nigeria
ssalisu@noun.edu.ng
https://orcid.org/0009-0005-9748-4850

Babangida Iro
Kaduna Study Centre
National Open University of Nigeria
biro@noun.edu.ng

Dahiru Usman
Gabriel Afolabi Central Library
National Open University of Nigeria
udahiru@noun.edu.ng
https://orcid.org/0009-0006-2912-2943

Abstract
This study examined e-learning readiness, digital literacy skills, and use of Open Educational Resources (OERs) among Open and Distance Learning (ODL) student. The study employed descriptive survey designed and collected data using structured questionnaire with Cronbach Alpha Coefficient of 0.80 indicating high level of internal consistency of the test items. The population of the study consisted of all registered undergraduate and postgraduate students of National Open University of Nigeria (NOUN) across its nationwide study centres totally 115,688 students as of the 2024_2 academic session. The study employed multi-stage sampling technique; in the first stage, all six geopolitical zones. In the second stage, one major study centre per zone was purposively selected – namely Abuja, Maiaduguri, Kaduna, Enugu, Port Harcourt and Lagos to serve as zonal representatives. In the final stage, the Research Advisor (2006) Sample Size Table guided the selection of 1,976 participants proportionally drawn from the selected representative centres in each of the zones. The findings revealed high usage of OERs (weighted mean = 3.45), moderate e-learning readiness (weighted mean = 2.93), and high digital literacy skills (weighted mean = 3.19). Students demonstrated strong motivation and competence in using software and online communication tools, though technical support and device access remain moderate challenges. It is

Jewel Journal of Librarianship
ISSN: 2141-3908 (Print); ISSN: 2736-0881 (Online)
https://www.jeweljournals.com/
Volume 20, Issue 3, 2025

recommended that NOUN strengthen its technical support systems, enhance students' access to reliable digital devices, and institutionalize periodic digital literacy training.

Keyword: E-learning Readiness, Digital Literacy Skills, Open Educational Resources.

Introduction

Open Educational Resources (OERs) are teaching, learning and research materials that offer unrestricted access to a vast array of educational materials and tools and can be seen as an advance step in the field of education. The emergence of open and distance learning (ODL) and a broader culture of open knowledge, open source, free sharing, and peer collaboration in the late 20th century served as the impetus for the OERs movement (Mishra et al., 2022). Bliss and Smith (2017) opined that the open-source community supported the movement, which aimed to increase information access by utilising free and open content. Establishing equitable access for both privileged and underprivileged individuals worldwide to construct a collective knowledge base was the tacit objective. With its global momentum, this revolutionary movement is changing the way that education is delivered and this opens up new avenues for students of all stripes.

The National Open University of Nigeria (NOUN), a leading institution of Open and Distance Learning in Nigeria, leverages open educational resources to enhance accessibility and quality of educational delivery. By operating OERs policy, NOUN provides a wide range of freely available, high-quality educational materials that support diverse learning needs and promote lifelong learning. This not only reduces the cost of educational resources for students but also ensures that up-to-date and relevant materials are readily available, fostering inclusive and flexible learning environment in line with global educational standards.

The use of OERs by students is intrinsically linked to factors such as e-learning readiness and the development of digital literacy skills. E-learning readiness is a multifaceted concept that takes into account the technological, cognitive and social aspects of online learning. The typical e-learning readiness assessment measures the users' ability to adapt to technological challenges, collaborative learning skills and training as well as the synchronous and asynchronous self-paced learning and training (Hashim & Tasir, 2014). Other indices of e-learning readiness include availability of technological infrastructure, the link to access to relevant electronic devices, learning skills required to use engage with the electronic contents, technical support and internet connectivity available for use. By addressing these factors, students can enhance his/her readiness to effectively engage with OERs and benefit therefrom. This study adopted access to relevant electronic devices, access to internet connectivity, technical support and learners' motivation as indicators of NOUN students' e-learning readiness.

Another factor that can facilitate the use of OERs by NOUN students is digital literacy skills. Library and Learning Commons (2023) described digital literacy skills as the ability to

Jewel Journal of Librarianship
ISSN: 2141-3908 (Print); ISSN: 2736-0881 (Online)
https://www.jeweljournals.com/
Volume 20, Issue 3, 2025

understand information and perform tasks in digital environments. It refers to the ability to effectively navigate, evaluate and utilise digital technologies and resources. Digital literacy encompasses a range of skills and competencies necessary to engage with digital tools, online platforms and information sources. Such skills include using a computer to find, manipulate and communicate information; identifying information in various types of media and formats (such as databases, the Internet or films); critically evaluating media and information sources for truthfulness, credibility and reliability; and using digital tools and information ethically and safely. This study adopted three indicators: basic computer skills, internet navigation and online communication to measure the digital literacy skills of OERs use by NOUN students. It is against this backdrop that this study intends to investigate e-learning readiness, digital literacy and OERs use by students of the National Open University of Nigeria (NOUN).

Statement of the Problem

The shift towards e-learning has necessitated an examination of students' readiness in digital learning activities, particularly in institutions like the National Open University of Nigeria (NOUN). E-learning readiness encompasses various factors, including access to technology, technical support and learner motivation to engage in virtual learning. For NOUN students, many of whom are adults balancing education with work and family responsibilities, the transition to online learning can be challenging. These students must not only possess basic digital literacy skills but also have the confidence and ability to engage effectively with digital learning platforms. The extent to which NOUN students are prepared for e-learning directly impacts their academic success and the overall effectiveness of the university's educational delivery.

Moreover, the use of Open Educational Resources (OERs) presents both opportunities and challenges. OERs can significantly enhance learning by providing free and flexible resources, but they also require students to navigate and utilize digital content efficiently. For NOUN students, who may have varying levels of digital literacy, the ability to find, evaluate, and use OERs is critical. This raises important questions about the current state of their digital literacy skills and the technical support available to help them leverage these resources. Understanding and addressing these factors is crucial for improving educational outcomes and ensuring that all students can fully benefit from the advantages of e-learning and OERs.

Objectives of the Study

The main objective of this study was to investigate e-learning readiness, digital literacy skills and the use of open educational resources by National Open University of Nigeria (NOUN) students. Specifically, the study sought to identify:

1. Level of use open educational resources by National Open University of Nigeria (NOUN) students;

Jewel Journal of Librarianship
ISSN: 2141-3908 (Print); ISSN: 2736-0881 (Online)
https://www.jeweljournals.com/
Volume 20, Issue 3, 2025

2. the level of e-learning readiness of National Open University of Nigeria (NOUN) students;
3. examine the level of digital literacy skills of National Open University of Nigeria (NOUN) students.

Research Questions

The study attempts to answer the following research questions:

1. What is the level of open educational resources use by National Open University of Nigeria (NOUN) students?
2. What is the level of e-learning readiness of National Open University of Nigeria (NOUN) students?
3. What is the level of digital literacy skills of National Open University of Nigeria (NOUN) students?

Literature Review

E-learning readiness has emerged as a crucial determinant of students' ability to succeed in open and distance learning environments. Ucar and Ugurhan (2023) demonstrated that students with higher e-learning readiness were more capable of managing their learning processes, setting achievable goals, and maintaining motivation. Their study emphasized that fostering readiness prior to enrolment significantly enhances self-regulation and academic performance. Similarly, Caliskan, Tugun, and Uzunboylu (2017) found that while most university students displayed moderate technological competence, many lacked self-management and independent learning skills, suggesting that readiness encompasses cognitive and affective factors beyond technological proficiency.

Mahajan and Kalpana (2018) reported that flexibility and accessibility remain major strengths of e-learning, yet low motivation, limited instructor interaction, and poor internet connectivity impede student engagement. They recommended improvements in infrastructure and instructional design to enhance learner satisfaction. In a related study, Bovermann et al (2018) discovered that students with higher readiness levels responded more positively to gamified online learning elements such as badges and leaderboards, which in turn boosted motivation and persistence. Torun (2020) reinforced this by revealing a strong positive correlation between e-learning readiness and academic achievement, recommending readiness assessments before course enrolment.

Majid and Lakshmi (2022) conceptualized readiness as a multidimensional construct influenced by contextual factors such as infrastructure, culture, and prior exposure to digital tools. They emphasized that accurately measuring readiness helps identify skill gaps and tailor interventions for effective adoption. Similarly, Vijaya (2021) examined faculty readiness and found that while lecturers possessed subject expertise, many lacked digital pedagogical competence and confidence in virtual instruction. These findings align with Vijaya Lakshmi,

Jewel Journal of Librarianship
ISSN: 2141-3908 (Print); ISSN: 2736-0881 (Online)
https://www.jeweljournals.com/
Volume 20, Issue 3, 2025

Das, and Majid (2020), who revealed that both students and faculty required improved institutional support, training, and infrastructure for sustainable e-learning.

Technical support represents a critical dimension of e-learning readiness. Adequate support systems, including helpdesks, tutorials, and troubleshooting channels, enhance learners' confidence and reduce dropout rates (Caliskan et al., 2017; Torun, 2020; Vijaya, 2021). Institutions offering responsive technical assistance increase adoption rates and overall satisfaction. Access to digital devices such as laptops, tablets, or smartphones is a fundamental enabler of e-learning participation. Research shows that inadequate or poor-quality devices limit learners' ability to engage with interactive content and synchronous sessions (Mahajan & Kalpana, 2018; Ucar & Ugurhan, 2023). Bovermann et al. (2018) further noted that high-quality devices improve participation and motivation in digital learning environments.

Learner motivation is another pivotal factor. Both intrinsic and extrinsic motivation influence persistence and engagement (Ucar & Ugurhan, 2023). Torun (2020) and Caliskan et al. (2017) found that even when technical support and devices are available, low motivation leads to disengagement. Motivation can be enhanced through interactive content, prompt feedback, online communities, and gamification (Bovermann et al., 2018). Digital literacy forms the backbone of e-learning readiness. Ata and Yıldırım (2019) argued that integrating digital literacy training into teacher education enhances instructional quality and equips learners with 21st-century skills. The American Library Association (2013, as cited in David-West, 2022) defines digital literacy as the ability to locate, evaluate, and create information using ICT tools - a blend of technical and cognitive skills. Alamsyah (2017) found that lecturers at Sriwijaya University demonstrated high levels of digital literacy, while Sen (2017) linked digital proficiency to full participation in the knowledge society. In contrast, Omosekejimi et al. (2018) reported that many Nigerian lecturers lacked basic ICT competencies, revealing a gap that hampers e-learning adoption.

Other studies in Africa have echoed these findings. Ayannuga, Adeoye et al (2021) and Abdulraheem and Olatokun (2017) emphasized the need for training initiatives to improve digital resource utilization. Similarly, Olalekan and Olawoyin (2018) identified weaknesses in content creation and collaboration among Nigerian engineering faculty. Emerging communication tools such as WhatsApp (Gon & Raweka, 2017), Zoom (Nadezhda, 2020), and Google Classroom (Mafa, 2018; Hasanah & Dewi, 2019) have further transformed the e-learning landscape by enhancing interactivity and autonomy. Hardware competence such as operating laptops, connecting devices, and troubleshooting - determines students' effective participation in digital environments (Agyemang et al., 2020; Adeoye & Adeniran, 2020; Rahman et al., 2022). Students with strong hardware skills experience fewer disruptions and greater engagement.

Jewel Journal of Librarianship
ISSN: 2141-3908 (Print); ISSN: 2736-0881 (Online)
https://www.jeweljournals.com/
Volume 20, Issue 3, 2025

Software literacy, which includes the use of productivity tools, cloud storage, and learning management systems, has also been linked to higher academic performance (Khoza & Mpungose, 2020; Olagunju et al., 2019). UNESCO (2021) emphasized that software literacy extends beyond technical knowledge to include the strategic selection of digital tools for academic tasks. Online communication literacy - students' ability to interact effectively through digital platforms is essential for fostering engagement. Studies have shown that students skilled in virtual communication perform better academically and develop stronger peer learning networks (Ng, 2021; Okike, 2022; Yakubu & Dasuki, 2019; Aramide et al 2025). AlFarsi et al. (2023) also demonstrated that active participation in online academic communities correlates with improved grades and satisfaction. A growing body of research has explored awareness and utilization of OERs in higher education. Wiche and Ogunbodede (2021) found high awareness and usage of OERs among Library and Information Science students, though limited by poor infrastructure and literacy skills. Similarly, Nwaohiri (2021) and Arunkumar and Kannan (2020) reported moderate awareness but low repository navigation skills, emphasizing the need for training.

Omoike and Oyelude (2024) found that distance learners at the University of Ibadan primarily used digitized projects, open-access journals, and YouTube to supplement their studies. Institutional barriers such as low funding and weak ICT infrastructure persist across Nigerian universities (Idowu Simisaye & Okiki, 2023). Globally, Venegas-Muggli and Westerman (2019) showed that students using OERs achieved better academic outcomes than peers relying solely on traditional materials. The frequency and purpose of OER use also vary. Itasanmi (2020) found that awareness leads to consistent use, while Menon et al. (2018) observed that frequency depends more on digital competence than availability. Venegas-Muggli and Westerman (2019) and Ifijeh et al. (2024) confirmed that performance improvement and cost reduction are primary motivators for OER adoption.

Methodology

This study employed a descriptive survey research design with quantitative approach to examine the e-learning readiness, digital literacy and the use of open educational resources (OERs) among students of National Open University of Nigeria (NOUN). The descriptive design was appropriate for obtaining a current and accurate representation of the research variables across a large and diverse student population. The quantitative methods approach enabled the collection of quantitative, facilitating a comprehensive understanding of the phenomenon under investigation. The data were gathered through a structured questionnaire with sections on each of the research variables.

The study population comprised all registered undergraduate and postgraduate students of NOUN across its nationwide study centres, totalling 115,688 students as of the 2024_2 academic session. A multi-stage sampling technique was employed to ensure representativeness across Nigeria's six geopolitical zones. In the first stage, all six zones were

Jewel Journal of Librarianship
ISSN: 2141-3908 (Print); ISSN: 2736-0881 (Online)
https://www.jeweljournals.com/
Volume 20, Issue 3, 2025

selected. In the second stage, one major study centre per zone was purposively selected—namely Abuja, Maiduguri, Kaduna, Enugu, Port Harcourt, and Lagos—to serve as zonal representatives. In the final stage, the Research Advisors (2006) Sample Size Table guided the selection of 1,976 participants proportionally drawn from the selected representative centres in each of the political zone. This sampling strategy ensured a balanced inclusion of students across geographical and demographic lines.

Data were collected using a structured questionnaire titled *E-learning Readiness, Digital Literacy Skills and Open Educational Resources Use Questionnaire (ERDLSOERUQ)*. The questionnaire, adapted from validated instruments in related studies, was divided into five sections addressing demographic data, awareness and frequency of OER use, e-learning readiness, and digital literacy skills. Responses were measured using four- and five-point Likert scales. The instrument underwent face and content validation by academic experts in the Department of Library and Information Science, in both National Open University of Nigeria and Umaru Musa Yardaua University and a pilot test was conducted among 30 students at the Distance Education Centre of Ahmadu Bello University Zaria. The pilot study yielded a Cronbach's alpha coefficient of 0.80, confirming good internal consistency and reliability across the sub-scales.

Questionnaires were distributed electronically through Google Forms via WhatsApp platforms managed by student counsellors in each of the sampled study centre. This approach ensured accessibility and a high response rate given the distance learning nature of NOUN programmes. The data were analysed using descriptive statistics; frequency, mean and standard deviation. Tables 1 – 4 presented the data analysis based on the stated objectives.

Results

Table 1: Biodata of the respondents

Study Centre	**Freq.**	**Percentage**
Abuja	94	4.90
Enugu	227	11.89
Kaduna	241	12.59
Lagos	1042	54.55
Maiduguri	200	10.49
Port Harcourt	107	5.59
Total	**1911**	**100.00**
Gender	**Freq**	**Percentage**
Male	922	48.25
Female	989	51.75
Total	**1911**	**100.00**
Programme	**Freq**	**Percentage**
Undergraduate	1082	56.64
Postgraduate	829	43.36
Total	**1911**	**100.00**

Jewel Journal of Librarianship
ISSN: 2141-3908 (Print); ISSN: 2736-0881 (Online)
https://www.jeweljournals.com/
Volume 20, Issue 3, 2025

Faculty	Freq	Percentage
Agricultural sciences	40	2.10
Arts	134	6.99
Computing	94	4.90
Education	521	27.27
Health sciences	307	16.08
Law	-	0.00
Management sciences	321	16.78
Sciences	94	4.90
Social Sciences	401	20.98
Total	**1911**	**100.00**
Level of study	**Freq**	**Percentage**
100	214	11.19
200	414	21.68
300	147	7.69
400	227	11.89
500	107	5.59
700	241	12.59
800	535	27.97
900	27	1.40
Total	**1911**	**100.00**
Age (in years)	**Freq**	**Percentage**
Less than 18	0	0
18 – 22	94	4.90
23 – 27	374	19.58
28 – 32	428	22.38
33 – 37	361	18.88
38 – 42	267	13.99
43 – years above	388	20.28
Tota	**1911**	**100.00**

Source: Survey, 2025

Data in Table 1 above show4ed the demographic distribution of respondents across the six selected study centres reveals a highest number of participants from Lagos. This level of concentration suggests that Lagos remains the largest and most active study hub of the National Open University of Nigeria (NOUN), likely because of its population density, infrastructure, and accessibility to educational resources.

In terms of academic and demographic characteristics, the majority of respondents were undergraduate students (56.64%), while a substantial 43.36% were enrolled in postgraduate programmes. The Faculty of Education (27.27%) had the highest student representation, followed by Social Sciences (20.98%) and Management Sciences (16.78%). The level of study distribution shows that most students were in the advanced stages, with 800-level

Jewel Journal of Librarianship
ISSN: 2141-3908 (Print); ISSN: 2736-0881 (Online)
https://www.jeweljournals.com/
Volume 20, Issue 3, 2025

(27.97%) and 200-level (21.68%). Age distribution showed the highest proportions were within the 28–32 years (22.38%) and 43 years and above (20.28%) brackets.

Table 2: Use of OER among NOUN students

S/N	Frequency of OERs Use I use OERs:	Daily = 5	Weekly = 4	Monthly = 3	Occasionally = 2	Never =1	Mean	Std
i.	Open access journals, magazines and periodicals	**254**	**588**	**374**	**481**	**214**	**3.10**	**0.83**
ii.	Open access reference e-books	388	575	281	481	187	3.26	0.01
iii.	Open access e-text books	575	508	254	428	147	3.49	0.23
iv.	Open access reports	334	468	468	347	294	3.10	0.88
v.	Open online courses and tutorials	668	615	267	267	94	3.78	0.46
vi.	Open online anti-plagiarism	254	454	428	428	347	2.92	0.70
vii.	Open online grammar checkers	441	374	454	281	361	3.13	0.95
viii.	Openly shared video clips of lectures	414	708	307	321	160	3.47	0.18
ix.	Openly shared lecture notes and class notes	544	535	307	267	147	3.67	0.38
x.	Open courseware (course materials)	935	575	94	254	53	4.09	0.74
Xi	Open online tutorials on specific topics	641	682	200	241	147	3.75	0.45
Xii	Open online interactive help desks and forums	561	601	374	174	200	3.60	0.32
			Weighted Mean				**3.45**	

Source: Survey, 2025

Results in the Table 2 indicate a generally high frequency of Open Educational Resources (OERs) use among respondents, with a weighted mean of 3.45, which falls within the high-

Jewel Journal of Librarianship
ISSN: 2141-3908 (Print); ISSN: 2736-0881 (Online)
https://www.jeweljournals.com/
Volume 20, Issue 3, 2025

frequency range (3.34–5.00). This finding suggests that the majority of learners actively engage with different categories of OERs as part of their academic activities. Specifically, resources such as open courseware (Mean = 4.09), open online courses and tutorials (Mean = 3.78), and openly shared lecture notes (Mean = 3.67) recorded the highest levels of usage. However, certain OERs such as open online anti-plagiarism tools (Mean = 2.92) and open access reports (Mean = 3.10) were used at only moderate levels, likely due to limited awareness of their benefits or difficulties in navigating such tools effectively.

These findings closely relate with previous studies of Wiche and Ogunbodede (2021) who observed high awareness and use of OERs among Library and Information Science students, though infrastructural constraints and low digital literacy hindered their full potential. Likewise, Nwaohiri (2021) and Arunkumar and Kannan (2020) reported moderate awareness but low repository navigation skills, support the argument that access alone does not guarantee optimal use unless with adequate training and support. The current data reinforce these assertions by demonstrating that while students actively utilize OERs—particularly those that are intuitive and directly linked to coursework—the less interactive or technically demanding resources remain underused. Therefore, enhancing students' digital competence and information literacy could further strengthen the educational impact of OERs, ensuring equitable and effective participation in open and distance learning environments.

Table 3: Level of e-learning readiness of NOUN students

S/N	E-learning Readiness	VHE (4)	HE (3)	LE (2)	VLE (1)	Mean	Std
	Technical Support						
i.	To what extent is technical support readily available to assist you when you encounter difficulties using Open Educational Resources at NOUN?	428	855	481	147	2.82	0.42
ii.	To what extent does NOUN provide timely and effective technical assistance for resolving issues related to Open Educational Resources?	401	922	481	107	2.85	0.43
iii.	To what extent do the guidelines and troubleshooting resources provided by NOUN help students overcome technical challenges when using Open Educational Resources?	361	1056	414	80	2.89	0.45
iv.	To what extent does NOUN provide multiple technical support channels (e.g., email, chat, phone, or helpdesk) that facilitate the resolution of issues related to Open Educational Resources?	535	962	321	94	3.01	0.59

Jewel Journal of Librarianship
ISSN: 2141-3908 (Print); ISSN: 2736-0881 (Online)
https://www.jeweljournals.com/
Volume 20, Issue 3, 2025

v.	To what extent are you satisfied with the responsiveness and competence of NOUN's technical support team in addressing challenges related to Open Educational Resources?	494	909	361	147	2.92	0.52
	Weighted Mean					**2.89**	
	Device Access						
vi.	To what extent do you have personal access to a functional device (e.g., laptop, tablet, or smartphone) for engaging with Open Educational Resources?	922	628	294	67	3.26	0.84
vii	To what extent does your primary device support seamless access to Open Educational Resources (e.g., compatibility with required file formats, stable performance, etc.)?	682	855	347	27	3.15	0.71
viii.	To what extent do you experience interruptions in accessing Open Educational Resources due to device-related issues (e.g., battery life, screen size, processing speed, or hardware failure)?	307	601	748	254	2.50	0.15
Ix	To what extent do you have access to alternative devices (e.g., borrowing from friends, using public computers) when your primary device is unavailable?	334	588	655	334	2.48	0.15
x.	To what extent does the cost of acquiring and maintaining a suitable device affect your ability to access Open Educational Resources?	307	909	521	174	2.71	0.31
	Weighted Mean					**2.82**	
	Learner Motivation						
Xi	To what extent do Open Educational Resources (OERs) enhance your motivation to engage in independent learning?	695	909	241	67	3.17	0.73
xii	To what extent does the availability of Open Educational Resources encourage you to explore additional learning materials beyond the provided course content?	535	909	374	94	2.99	0.57
xiii.	To what extent do Open Educational Resources help you stay motivated to complete your coursework and academic activities at NOUN?	641	989	254	27	3.17	0.72
xiv.	To what extent do the interactive and multimedia features of Open Educational Resources (e.g., videos, simulations, quizzes)	428	989	414	80	2.92	0.49

Jewel Journal of Librarianship
ISSN: 2141-3908 (Print); ISSN: 2736-0881 (Online)
https://www.jeweljournals.com/
Volume 20, Issue 3, 2025

	improve your engagement with learning materials?						
xv.	To what extent does easy access to Open Educational Resources reduce learning-related stress and improve your confidence in completing academic tasks?	655	855	374	27	3.12	0.68
	Weighted Mean			**3.08**			

Source: Survey, 2025

The analysis in the Table 3 reveals that students at the National Open University of Nigeria (NOUN) demonstrated a generally high level of e-learning readiness across the three dimensions assessed - technical support, device access, and learner motivation—based on the decision rule (3.00–4.00 = high; 2.00–2.99 = moderate; 1.00–1.99 = low). Technical support yielded a weighted mean of 2.89, which is a moderate level of readiness. This suggests that while students perceived the availability and effectiveness of NOUN's technical assistance positively, there is still room for improvement, particularly in the responsiveness and diversity of support channels. Similarly, device access recorded a weighted mean of 2.82, also within the moderate range, implying that while most students have personal access to devices, challenges such as high acquisition costs, limited alternative device access, and occasional performance issues hinder seamless engagement with Open Educational Resources (OERs).

In contrast, the learner motivation dimension achieved a high weighted mean of 3.08, suggesting that OERs play a positive role in stimulating independent learning, engagement, and confidence among students. These findings are closely related to the assertion of Ucar and Ugurhan (2023), who reported that students with greater e-learning readiness exhibit stronger self-regulation, goal setting, and motivational control. However, the moderate results in technical and device-related factors reflect Caliskan et al (2017) observation that while many university students are technologically competent, they often struggle with self-management and consistent access to functional learning tools—indicating that readiness encompasses more than digital skills alone. Additionally, the influence of motivation on engagement resonates with Mahajan and Kalpana's (2018) findings, emphasizing that while e-learning's flexibility and accessibility are key advantages, persistent issues like limited instructor interaction, cost of devices, and poor internet connectivity continue to constrain full student participation.

Jewel Journal of Librarianship
ISSN: 2141-3908 (Print); ISSN: 2736-0881 (Online)
https://www.jeweljournals.com/
Volume 20, Issue 3, 2025

Table 4: Level of Digital Literacy Skills of NOUN students

S/N	Digital Literacy Skills	VHE (4)	HE (3)	LE (2)	VLE (1)	Mean	Std
	Hardware Skills						
i.	To what extent are you able to set up and operate digital devices (e.g., laptops, tablets, smartphones) for accessing Open Educational Resources?	722	909	254	27	3.22	0.77
ii.	To what extent can you troubleshoot basic hardware issues (e.g., connectivity problems, device overheating, or unresponsive screens) when accessing Open Educational Resources?	388	722	695	107	2.73	0.33
iii.	To what extent are you skilled in connecting and using external devices (e.g., flash drives, external hard drives, printers, headphones) to support your access to Open Educational Resources?	615	695	428	174	2.92	0.55
Iv	To what extent can you effectively manage your device's storage (e.g., saving, organizing, and retrieving OER materials) without technical assistance?	708	829	254	120	3.11	0.70
v.	To what extent are you confident in setting up and maintaining an internet connection (e.g., Wi-Fi, mobile data, hotspots) to access Open Educational Resources?	695	1042	120	53	3.24	0.79
	Weighted Mean					**3.04**	
	Software Skills						
vi.	To what extent are you able to navigate and use web browsers (e.g., Chrome, Firefox, Edge) effectively to access Open Educational Resources?	882	815	214	0	3.35	0.88
vii.	To what extent can you download, install, and update software applications needed to access and utilize Open Educational Resources?	762	935	200	13	3.28	0.82
viii.	To what extent are you proficient in using document management software (e.g., PDF readers, word processors, spreadsheets) to open, edit, and save Open Educational Resources?	735	855	321	0	3.22	0.76
iv.	To what extent are you confident in using learning management systems (e.g., NOUN's e-learning platform, Moodle, Zoom) to access Open Educational Resources?	775	815	281	40	3.22	0.78

Jewel Journal of Librarianship
ISSN: 2141-3908 (Print); ISSN: 2736-0881 (Online)
https://www.jeweljournals.com/
Volume 20, Issue 3, 2025

x.	To what extent can you effectively use online communication tools (e.g., email, discussion forums, video conferencing software) to engage with Open Educational Resources and collaborate with peers?	788	775	321	27	3.22	0.78
	Weighted Mean					**3.26**	
	Online Communication						
xi.	To what extent are you able to effectively use email (e.g., composing, attaching files, and responding) for academic communication related to Open Educational Resources?	788	748	361	13	3.21	0.77
xii.	To what extent can you participate in online discussion forums or group chats to exchange ideas and seek support when using Open Educational Resources?	762	922	174	53	3.25	0.80
xiii.	To what extent are you confident in using video conferencing tools (e.g., Zoom, Microsoft Teams, Google Meet) for virtual learning sessions and discussions on Open Educational Resources?	708	949	214	40	3.22	0.77
xix.	To what extent can you effectively use social media or online collaboration platforms (e.g., WhatsApp, Telegram, Google Drive) to engage with peers and lecturers on Open Educational Resources?	1029	695	174	13	3.43	0.97
xv.	To what extent do you follow proper online communication etiquette (e.g., clear messaging, respectful tone, timely responses) when interacting with others in Open Educational Resources platforms?	842	748	267	53	3.24	0.81
	Weighted Mean					**3.27**	

Source: Survey, 2025

The results in the Table 4 indicate that students of the National Open University of Nigeria (NOUN) exhibit a generally high level of digital literacy skills across the three domains assessed—hardware skills, software skills, and online communication—based on the decision rule (3.00–4.00 = high; 2.00–2.99 = moderate; 1.00–1.99 = low). Hardware skills category recorded a weighted mean of 3.04, indicating high level of confidence the students possess in operating and managing digital devices, setting up internet connections, and handling basic storage management tasks. However, the mean score for troubleshooting hardware issues (2.73) fell within the moderate range, revealing a relative weakness in students' ability to resolve technical problems independently. This finding resonates with Agyemang et al. (2020) and Adeoye and Adeniran (2020), who emphasized that effective participation in digital environments depends heavily on students' ability to manage their hardware

efficiently. The result suggests that while most NOUN students are comfortable using devices, occasional technical challenges may still disrupt their learning experiences, consistent with Rahman et al. (2022), who observed that limited hardware competence can hinder students' sustained engagement in online learning.

Similarly, the results for software skills (weighted mean = 3.26) and online communication literacy (weighted mean = 3.27) both fall within the high range, indicating that students demonstrate strong abilities in using web browsers, productivity tools, learning management systems, and online collaboration platforms to access and engage with Open Educational Resources (OERs). This aligns with Khoza and Mpungose (2020) and Olagunju et al. (2019), who found that proficiency in software tools and cloud-based systems enhances academic performance and digital adaptability. Moreover, the high scores in online communication reflect the findings of Ng (2021), Okike (2022), and Yakubu and Dasuki (2019), who identified digital interaction skills as vital for sustaining learning networks and fostering academic engagement in virtual spaces. The strong performance in this domain further supports AlFarsi et al. (2023), who demonstrated that active participation in online academic communities positively influences grades and learner satisfaction. Overall, the findings underscore UNESCO's (2021) and that of Salisu et al (2024) position that digital literacy extends beyond mere technical competence—it encompasses the ability to strategically and confidently navigate digital platforms to achieve meaningful academic outcomes.

Conclusion

The study concludes that while students of the National Open University of Nigeria (NOUN) demonstrate commendable levels of digital literacy and actively engage with OERs, their overall e-learning readiness remains moderate due to infrastructural and technical limitations. This indicates that successful integration of OERs in open and distance learning depends not only on awareness and access but also on institutional support and learners' digital capacity. Strengthening these foundational factors will enhance students' ability to navigate digital learning environments, maximize the use of OERs, and achieve improved educational outcomes.

Recommendation

1. NOUN should establish responsive and multi-channel technical support systems (e.g., chatbots, helpdesks, and live assistance) to provide timely solutions to students' OER-related challenges.
2. The university should collaborate with ICT partners to offer subsidized devices and affordable data packages to ensure equitable access to e-learning platforms.
3. Regular capacity-building workshops and online modules should be integrated into the curriculum to continually develop students' hardware, software, and online communication competencies for sustainable OER engagement.

Disclosure: The authors received and acknowledged funding from the Senate Research Grant (2024), National Open University of Nigeria.

References

Adeoye, B., & Adeniran, T. (2020). *Hardware competencies and e-learning engagement among distance learners at the National Open University of Nigeria. Journal of Educational Technology Research*, 8(2), 45–58.

Agyemang, K., Boateng, R., & Mensah, E. (2020). *Digital device proficiency and online participation among university students in Sub-Saharan Africa. African Journal of Educational Technology*, 12(1), 1–14.

Alamsyah, M. (2017). *Digital literacy levels among university lecturers: A case study of Sriwijaya University. Indonesian Journal of Education*, 5(3), 212–220.

AlFarsi, A., Khan, M., & AlRawahi, F. (2023). *Online communication literacy and academic performance in higher education. International Journal of Educational Research*, 120, 102–115.

Ata, F., & Yıldırım, A. (2019). *Integrating digital literacy into teacher education: A pedagogical framework. Education and Information Technologies*, 24(6), 3495–3512.

Aramide, K.O., Salisu, S.B**.**, & Zubairu, A. N (2025). Exploring social media use among undergraduates of National Open University of Nigeria, Katsina Study Centre. *INFORMARE: Journal of the Department of Library and Information Science Adeleke University. 1(1)*. ISSN: 3092 -8192 (Online). A Publication of Library and Information Science Department, Adeleke University Ede, Osun State. Accessed via: http://ijdlis.adelekeuniversity.edu.ng/index.php/ijdlis/article/view/13

Bovermann, K., Weidlich, J., & Bastiaens, T. (2018). Online learning readiness and attitudes toward gaming in gamified online learning. *International Journal of Educational Technology in Higher Education*, 15(1), 1–17.

Caliskan, S., Tugun, V., & Uzunboylu, H. (2017). University students' readiness for e-learning. *Education and Information Technologies*, 22(5), 2679–2698.

David-West, T. (2022). *Digital literacy in academic contexts: A conceptual review. Library Philosophy and Practice*, 6574.

Gon, S., & Raweka, A. (2017). *The use of WhatsApp in higher education: Opportunities and challenges. International Journal of Innovative Research in Education*, 4(1), 7–14.

Mahajan, M., & Kalpana, M. (2018). A study of students' perception about e-learning. *Indian Journal of Educational Studies*, 5(1), 20–28.

Majid, S., & Lakshmi, V. (2022). E-learning readiness: Understanding the measurement of its dimensions. *Asian Journal of Distance Education*, 17(2), 112–130.

Menon, V., Thomas, J., & Joseph, A. (2018). Adoption and integration of OER materials in self-instructional course development. *Open Learning: The Journal of Open, Distance and e-Learning*, 33(3), 233–248.

Nwaohiri, N. (2021). Promotion and awareness opportunities for academic libraries on OER use in Nigerian universities. *Library Philosophy and Practice*, 5632.

Olagunju, T., Yusuf, A., & Lawal, K. (2019). *Software literacy and academic performance among Nigerian university students. Contemporary Educational Research Journal*, 6(2), 83–95.

Omoike, R., & Oyelude, A. (2024). Perception and use of open educational resources by distance learning students of the University of Ibadan. *Information Development*, Advance online publication.

Salisu, S. B., Okpala, A. E., & Ibrahim, H. (2024). Impact of electronic health records (EHR) on quality of patients care in Turai Yaradua Children and Maternity Clinic Katsina, Nigeria. *Nigerian Libraries. 58 (2).* ISSN: 0029-0122. A Publication of Nigerian Library Association.

Torun, E. (2020). Online distance learning in higher education: E-learning readiness as a predictor of academic achievement. *Open Praxis*, 12(2), 123–135.

Ucar, H., & Ugurhan, G. (2023). The role of e-learning readiness on self-regulation in open and distance learning. *International Review of Research in Open and Distributed Learning*, 24(3), 45–63.

Vijaya Lakshmi, V. (2021). E-learning readiness of higher education faculty members. *International Journal of Distance Education*, 39(4), 88–102.

Vijaya Lakshmi, V., Das, S., & Majid, S. (2020). Assessment of e-learning readiness of academic staff and students in higher education institutions in Gujarat, India. *Asian Journal of Distance Education*, 18(1), 70–89.

Wiche, O., & Ogunbodede, F. (2021). Awareness and use of open educational resources by library and information science students of Ignatius Ajuru University of Education, Rivers State, Nigeria. *Library Philosophy and Practice*, 6124.