

Assessment of NOUN Undergraduate Students' Digital Competencies and Strategies for Enhancing the Competencies for Utilization of Electronic Resources in Learning

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Abstract

The increasing integration of digital technologies into higher education has made digital competencies essential for effective learning, particularly in open and distance learning (ODL) environments where students depend extensively on electronic information resources. The National Open University of Nigeria (NOUN), a major ODL institution with over 700,000 students and more than one hundred and twenty (120) study centres distributed across Nigeria's six geopolitical zones, provides access to electronic books, journals, databases, institutional repositories, electronic courseware and other digital library services. However, the availability of these resources does not necessarily guarantee effective utilization, as students require appropriate competencies to access, search, retrieve, evaluate, organize and use digital information effectively and ethically. This study assessed the digital competencies of NOUN undergraduate students and identified strategies for enhancing these competencies for improved utilization of electronic resources in learning. The study was anchored on the Technology Acceptance Model (TAM) and adopted a mixed-methods research approach. Data were collected from undergraduate students across the six geopolitical zones, with 396 valid responses used for the quantitative analysis. Data were analyzed using mean and standard deviation. The findings revealed a high overall level of digital literacy competency among the students ($M = 3.47$, $SD = 0.57$). The highest-rated competencies were the ability to use the Internet for academic purposes and search for academic information online ($M = 3.56$ each), while the ability to evaluate the credibility of online academic resources recorded the lowest mean ($M = 3.33$) and was rated moderate. The findings also showed strong agreement with the proposed enhancement strategies, with regular digital literacy training recording the highest mean ($M = 3.67$), followed by the provision of user-friendly electronic platforms ($M = 3.64$) and continuous librarian support ($M = 3.61$). The study concludes that sustained digital literacy training, practical information literacy instruction, e-resource-oriented orientation, user-friendly electronic platforms, improved Internet infrastructure and continuous librarian support are essential for strengthening students' digital competencies and promoting effective utilization of electronic resources in the ODL environment.

Keywords: Competencies, Digital, Electronic, Enhancement, Resources,

Introduction

The continuous development of Information and Communication Technologies (ICTs) has significantly reshaped higher education by changing how students access, retrieve, evaluate and use academic information. The widespread use of the Internet, smart phones, electronic databases, e-books, e-journals, institutional repositories and virtual learning platforms has expanded access to educational resources, particularly in open and distance

learning (ODL). However, access to digital technologies and electronic resources alone does not guarantee effective learning. Students require appropriate digital competencies to search, retrieve, evaluate, organize and ethically use electronic information.

Digital competencies encompass the knowledge and skills required to use digital technologies effectively, critically, safely and responsibly. They include information and data literacy, digital communication and collaboration, content creation, safety and problem-solving. These competencies extend beyond basic computer or smart phone use to include the ability to conduct academic searches, evaluate information credibility and effectively use scholarly databases. Zhao, Pinto Llorente and Sánchez Gómez (2021) observed that many higher education students possess basic digital competencies but experience difficulties with more complex digital tasks, highlighting the need for continuous skills development. Digital competency is particularly important in ODL because students are geographically dispersed and assume greater responsibility for independent learning. Their ability to navigate digital platforms and access electronic information resources is therefore essential for academic engagement. Students with appropriate digital competencies are better positioned to identify information needs, locate relevant resources, evaluate information and apply retrieved knowledge to their academic activities.

The National Open University of Nigeria (NOUN) provides an important context for examining these competencies because of its extensive ODL structure and reliance on digital technologies. The University has more than 700,000 students and more than one hundred and twenty (120) study centres across Nigeria's six geopolitical zones: North Central, North East, North West, South East, South South and South West. Its electronic information services include e-books, e-journals, online databases, electronic courseware and institutional repositories, with resources such as EBSCOhost, ScienceDirect, Scopus, ProQuest and JSTOR supporting students' learning and research activities.

Electronic resources provide convenient, timely and remote access to scholarly information, making them particularly valuable to ODL students. However, their availability does not necessarily ensure effective utilization. Students must possess the skills to identify appropriate resources, formulate search strategies, retrieve relevant information, evaluate source credibility, organize materials and use information appropriately. Previous Nigerian studies have reported significant relationships between information literacy and electronic resource utilization, while studies at NOUN have highlighted the importance of awareness, user education and information literacy in effective use of library and information services (Imam, Okoro & Ilori, 2024; Okonkwo & Onyancha, 2021; Adigun & Tella, 2021).

In spite of these findings, there remains a need to assess the digital competencies of NOUN undergraduate students within the changing ODL environment and identify practical strategies for strengthening these competencies. The increasing volume and complexity of

electronic information require students to develop not only basic operational skills but also advanced abilities in information searching, evaluation, management and responsible use. Accordingly, it is based on this background that the study assesses NOUN undergraduate students' digital competencies and examines strategies for enhancing their effective utilization of electronic resources for learning. It focuses on students' abilities to access, search, retrieve, evaluate, organize and use electronic information, while considering strategies such as digital literacy training, e-resource orientation, user-friendly platforms, improved Internet infrastructure, continuous librarian support and integration of digital skills into learning. The study is expected to provide evidence for strengthening digital literacy programmes and electronic resource support services at NOUN and contribute to knowledge on digital competencies and electronic resource utilization in open and distance learning.

Background of the Study

The National Open University of Nigeria (NOUN) is a leading federal Open and Distance Learning (ODL) institution established to provide accessible and flexible higher education opportunities to learners irrespective of their geographical location, employment status or other personal circumstances. Unlike conventional universities where students and facilitators are largely located within the same physical environment, NOUN operates through a distributed system of study centres across Nigeria, supported by virtual learning platforms and digital technologies. With over 700,000 students and above 120 study centres distributed across the six geopolitical zones of Nigeria such as North Central, North East, North West, South East, South South and South West. The effective use of digital technologies is essential to the university's teaching, learning and research activities. The university library plays a vital role in supporting the academic activities of NOUN students, staff and researchers. The NOUN Library operates a hybrid system comprising the Gabriel Afolabi Ojo Central Library at the headquarters, regional libraries, faculty libraries and study-centre libraries. It provides both print and electronic information resources to meet the information needs of its widely dispersed users. Because NOUN students are geographically distributed, the library places considerable emphasis on electronic resources to enable students to access scholarly information without necessarily visiting a physical library. The electronic resources provided by NOUN Library include electronic books, electronic journals, online databases and other digital information resources. The library provides access to scholarly platforms and databases such as EBSCOhost, JSTOR, ScienceDirect, ProQuest, Scopus, Research4Life, LawPavilion, AGORA, OARE, ARDI and HINARI, among others. It also operates an integrated online public access catalogue (OPAC), which enables users to search for library resources available across the university's study centres. Access to NOUN's electronic resources is designed to support students irrespective of their physical location. Students can access these resources through the library portal and other university platforms using computers, laptops, tablets and smart phones. This arrangement enables them to obtain scholarly information from their homes, workplaces, study centres and other locations. The library also provides services such as reference services, user education, literature searching,

current awareness and library orientation to assist students in locating, accessing and using information resources effectively. However, the availability of electronic resources does not automatically guarantee their effective utilization. Students require appropriate digital competencies to operate digital devices, search electronic databases, formulate effective search strategies, retrieve relevant information, evaluate the credibility and quality of information sources, organize digital resources and use information responsibly and ethically. Inadequate digital competencies may therefore limit students' ability to take full advantage of the electronic resources provided by the university library. This is particularly important in NOUN because students depend substantially on digital technologies to access learning materials, conduct academic research, communicate with the university and participate in online learning activities. Consequently, students' level of digital competency may influence their ability to identify access, retrieve, evaluate and utilize electronic resources effectively. Assessing the digital competencies of NOUN undergraduate students and identifying appropriate strategies for enhancing these competencies are therefore essential for improving the effective utilization of electronic resources and promoting successful learning in the ODL environment.

Statement of the Problem

Presently, the intense advancement of digital technologies has significantly transformed the academic landscape, particularly in Open and Distance Learning (ODL). Access to and effective utilization of electronic resources, such as e-books, online journals, institutional repositories, and digital libraries, are essential for undergraduate students in ODL institutions like the National Open University of Nigeria (NOUN). However, in spite of the widespread availability of these resources, many students face challenges in navigating, retrieving, and effectively using them for academic purposes. In NOUN, digital competency is a critical factor influencing students' ability to access and utilize electronic resources effectively. Digital competency encompasses a range of skills, including information literacy, digital literacy, and technological proficiency. Many NOUN students, particularly those from underserved or technologically disadvantaged backgrounds, struggle with digital navigation, search strategies, evaluating sources, and proper citation techniques. The lack of adequate competencies in these areas can hinder students' academic progress, limit their engagement with high-quality academic materials, and ultimately impact their learning outcomes.

More so, existing studies on digital literacy in higher education often focus on traditional university students, with limited research examining the unique needs and challenges of ODL undergraduates. NOUN students rely heavily on self-directed learning, making digital competency even more crucial for their academic success compare to conventional learners. Furthermore, many NOUN students are adult learners or professionals who may have limited prior exposure to digital academic resources, further exacerbating or increasing the problem. Moreover, NOUN's efforts to provide digital learning platforms such as the Learning Management System (LMS), institutional repositories, and electronic libraries, the extent to which students can effectively utilize these resources remains unclear.

The absence of a systematic evaluation of undergraduate digital competencies at NOUN creates a knowledge gap that affects institutional policies, curriculum development, and the provision of digital support services. Hence, this study seeks to evaluate the digital competencies of undergraduate students at NOUN, assess their ability to access and utilize electronic resources, identify existing skill gaps, and propose evidence-based strategies to enhance digital literacy and academic performance. In addressing this issue, the research will contribute to improving students' engagement with electronic resources, enhancing institutional support systems, and ultimately promoting academic excellence within NOUN's ODL framework.

Research Objectives

The research objectives are outlined as follows:

1. To find out the level of digital literacy competencies among undergraduate students at NOUN?
2. To determine the strategies adopted for enhancing undergraduate students' digital competencies for better utilization of electronic resources at NOUN?

Research Questions

The following research questions guided this study

1. What is the level of digital literacy competencies among undergraduate students at NOUN, and how does it influence their use of electronic resources?
2. What are the strategies adopted for enhancing undergraduate students' digital competencies for better utilization of electronic resources at NOUN?

Review of Related Literature

Concept of Digital Competencies

Digital competencies refer to the knowledge, skills and attitudes required to use digital technologies effectively, critically, confidently, safely and responsibly. They extend beyond basic computer operation to include the ability to search for, evaluate, manage and communicate information, create digital content, protect digital identity and solve problems using digital technologies. The Digital Competencies 2.2 framework identifies five major areas of digital competence: information and data literacy, communication and collaboration, digital content creation, safety and problem-solving (Vuorikari et al., 2022). These competencies are increasingly important in higher education because students depend on digital technologies for accessing learning materials, conducting research, communicating with lecturers and completing academic activities. Digital competency should not be equated with frequent use of digital devices. A student may regularly use a smart phone or social media without possessing the skills required to conduct an effective scholarly search, evaluate the credibility of online information or use information ethically. Zhao et al. (2021) observed that although many university students possess basic digital competencies, their competence tends to be weaker when performing more complex digital and information-

related tasks. This suggests that higher education institutions need to provide structured opportunities for students to develop advanced digital competencies.

Digital Competencies among Undergraduate Students

The undergraduate students increasingly depend on digital technologies for learning, research, communication and academic collaboration. Relevant competencies include Internet navigation, effective search strategies, database searching, evaluation of information sources, management of electronic documents, use of electronic books and journals, digital communication, content creation, ethical use of information and protection of personal data. Studies in Nigeria indicate that students demonstrate varying levels of information and digital literacy. Onwuegbuzie et al. (2020) reported that although Nigerian university students possessed information literacy abilities, weaknesses were observed in areas such as paraphrasing, citation and referencing. Buba, Song and Mohammed (2021), in their study of undergraduate students in Nigerian federal universities, also demonstrated the importance of information literacy skills in students' use of electronic information resources. These findings indicate that access to digital technologies does not automatically translate into effective academic use of electronic information.

Electronic Resources and their Utilization

Electronic resources are information materials available in digital form and accessed through computers, smart phones, tablets and other digital devices. They include electronic books, electronic journals, online databases, institutional repositories, electronic theses and dissertations, multimedia resources and electronic courseware. These resources provide students with access to current and diverse academic information and are particularly important in open and distance learning, where students may be geographically separated from their institutions. Electronic resource utilization refers to the actual access and use of electronic information resources for academic purposes. It includes searching, retrieving, reading, downloading, evaluating and applying information obtained from electronic resources. Effective utilization depends not only on the availability of resources but also on students' awareness, digital competencies, Internet access, availability of devices and ability to evaluate information.

Electronic resources form an important part of the learning environment at the National Open University of Nigeria (NOUN). Students can access electronic databases, electronic courseware and other digital library resources through online platforms. These resources support independent learning, Tutor Mark Assignments (TMA), research and access to scholarly information irrespective of students' geographical locations.

Digital Competencies and Utilization of Electronic Resources

Digital competencies are closely related to students' ability to utilize electronic resources effectively. A student searching for scholarly information, for example, needs to identify an information need, formulate appropriate keywords, select a suitable database,

construct a search strategy, evaluate retrieved information and access relevant full-text materials. These activities require both digital and information literacy competencies. Empirical studies support the relationship between students' competencies and electronic resource use. Imam et al. (2024) found that information literacy skills significantly influenced electronic resource utilization among undergraduates in selected public university libraries in Lagos State. Similarly, Ilori and Okoro (2023) reported high levels of digital literacy and electronic resource utilization among undergraduates in selected universities in Lagos State. Popoola and Adedokun (2023) also identified computer self-efficacy, computer anxiety and cognitive skills as relevant factors in students' use of electronic library resources. These findings suggest that the availability of electronic resources alone is insufficient to ensure effective utilization. Students must possess the competencies required to locate, evaluate and appropriately use available information.

Digital Competencies and Learning

Digital competencies support learning by enabling students to access relevant information, participate in online learning activities, communicate with lecturers and peers, collaborate digitally and create academic content. Digital technologies have expanded access to educational content and created opportunities for new forms of learner engagement (UNESCO, 2023). Take for instance, students in open and distance learning institutions, digital competencies are particularly important because learning activities depend substantially on digital platforms and electronic information resources. However, the abundance of information available online can also create information overload. Students therefore require critical evaluation skills to distinguish relevant, accurate and credible academic information from unreliable or misleading content.

Electronic Resources and Learning at NOUN

The importance of electronic resources is particularly evident at NOUN because of its open and distance learning structure. Students are geographically dispersed and require access to learning materials without depending exclusively on physical library facilities. The NOUN Library provides electronic resources and online services intended to support students' learning and research activities. Electronic courseware, databases, electronic books, electronic journals and other digital resources enable NOUN students to obtain information at different times and locations. Shomoye, Adelokun and Adebisi (2023), in their study of electronic resource use among NOUN undergraduates in Kwara State, reported that students interacted with electronic learning resources and emphasized the need to encourage their continued use for learning.

Challenges Affecting Electronic Resource Utilization

In spite of the importance and availability of electronic resources, students may experience several challenges that limit their effective utilization. These include inadequate digital competencies, poor Internet connectivity, limited access to computers and other digital

devices, high cost of Internet data, unreliable electricity supply, lack of awareness of available resources and inadequate training. Studies conducted in the Nigerian higher education environment have identified infrastructural and competency-related barriers to effective use of digital resources. Osimetha identified ICT skills, Internet access, computer facilities and electricity supply as factors affecting access to electronic resources among NOUN students. Tella and Onyebinama (2022) similarly identified power supply, limited access to devices and inadequate funding as challenges affecting technology-based information literacy instruction. These challenges demonstrate that improving electronic resource utilization requires attention to both students' competencies and the institutional environment in which digital learning takes place.

Strategies for Enhancing Digital Competencies

To overcome these hindrances, improving students' digital competencies requires coordinated educational and institutional strategies such as regular digital literacy and information literacy programmes can equip students with skills for searching, retrieving, evaluating and managing electronic information. Practical training on academic databases, electronic journals, electronic books and institutional repositories can also improve students' confidence and effectiveness in using digital resources. In the case of open and distance learning institution such as NOUN, online facilitation or tutorials, webinars, video demonstrations, mobile-friendly learning materials and virtual library support are particularly relevant. Librarians can provide continuous research assistance, online reference services and individualized guidance to students. Digital competencies can also be integrated into relevant courses so that students develop these skills while performing actual academic tasks. However, training should be accompanied by improvements in Internet connectivity, electricity supply, access to appropriate digital devices and technical support. Tella and Onyebinama (2022) emphasized the importance of using digital platforms for information literacy instruction while recognizing infrastructural limitations in Nigerian universities. Continuous assessment of students' digital competencies can further help institutions identify areas requiring targeted intervention.

Empirical Review

Recent studies generally demonstrate a relationship between digital or information literacy and students' utilization of electronic resources. Zhao et al. (2021) found that university students commonly possess basic digital skills but may lack advanced competencies. Adigun and Tella (2021), in a study involving NOUN distance learners, found relationships between information literacy self-efficacy, library and information support services and user satisfaction. Babarotimi and Onyancha (2021) reported that electronic resources were available at NOUN and that contemporary approaches were used to create awareness, although lecturers demonstrated greater awareness than students. Tella and Onyebinama (2022) highlighted the growing role of digital technologies in information literacy instruction but identified infrastructural constraints. Shomoye et al. (2023) found that

NOUN undergraduate students interacted with electronic learning resources, while Popoola and Adedokun (2023) established the relevance of computer self-efficacy, computer anxiety and cognitive skills to students' use of electronic library resources. Imam et al. (2024) reported a significant influence of information literacy skills on electronic resource utilization among Nigerian undergraduates. More recently, Tachie-Donkor et al. (2025) identified inadequate institutional support, limited digital access and insufficient professional development as barriers to digital literacy in African academic and research institutions.

Knowledge Gap

The reviewed literature shows that digital competencies are important for effective utilization of electronic resources and successful learning in higher education. However, several gaps remain. Much of the existing literature focuses on information literacy or basic ICT skills rather than the broader, multidimensional concept of digital competencies. Furthermore, many studies have been conducted in conventional universities, with comparatively fewer studies examining the specific conditions of open and distance learning. Although previous studies have investigated electronic resource awareness, information literacy, ICT skills and library support services at NOUN, there remains a need for an integrated examination of undergraduate students' digital competencies, their utilization of electronic resources for learning and strategies for enhancing these competencies. The rapidly changing digital environment, including the growing use of mobile technologies, online learning platforms and emerging technologies, further reinforces the need for current evidence. The present study therefore seeks to address this gap by assessing the digital competencies of NOUN undergraduate students and examining strategies for enhancing these competencies for effective utilization of electronic resources in learning.

Methodology

The study adopted a mixed-methods research design to assess the digital competencies of undergraduate students of the National Open University of Nigeria (NOUN) and identify strategies for enhancing their competencies for effective utilization of electronic resources in learning. The study was anchored on the Technology Acceptance Model (TAM), which provides a framework for understanding users' acceptance and use of technology. The population comprised over 700,000 undergraduate students of NOUN distributed across study centres in the six geopolitical zones of Nigeria. The study covered the six geopolitical zones to ensure broad representation of students within the university's open and distance learning environment, and 396 valid responses were obtained for the quantitative analysis. Data were collected using a structured questionnaire designed to obtain information on students' digital literacy competencies and strategies for enhancing their competencies for effective utilization of electronic resources. The instrument contained items covering students' ability to operate digital technologies, use the Internet for academic purposes, search for academic information, evaluate online resources, and download, save and organize electronic resources. It also included items on strategies for improving students' digital

competencies. The items were measured using a four-point rating scale. The quantitative data were analyzed using mean and standard deviation. Mean scores were used to determine the level of students' digital competencies and their level of agreement with the proposed strategies for enhancing digital competencies, while standard deviations were used to determine the variation in respondents' ratings. Higher mean scores indicated higher levels of digital competency or stronger agreement with the proposed enhancement strategies. The findings were presented in tables and interpreted in relation to the research questions and relevant empirical literature.

Data Analysis and Results

Research Question 1: What is the level of digital literacy competencies among undergraduate students at NOUN?

Table 1: NOUN Undergraduates' Mean Ratings of Digital Literacy Competencies and Its Influence on Their Electronic Resource Usage

S/N	Access to Electronic Resources	Mean	SD	Remark
1	I possess basic computer operation skills	3.42	0.55	High
2	I can effectively use the internet for academic purposes	3.56	0.55	High
3	I know how to search for academic information online	3.56	0.60	High
4	I can evaluate the credibility of online academic resources	3.33	0.53	Moderate
5	I can download, save, and organize electronic resources	3.47	0.60	High
Overall Mean		3.47	0.57	High

Table 1 reveals that students possess high digital literacy skills, with the ability to use the internet for academic purposes ($M = 3.56$) and search for academic information online ($M = 3.56$, $SD = 0.60$), and download, save, and organize electronic resources ($M=3.47$) being the three highest-rated digital literacy skills. However, the ability to evaluate the credibility of online academic resources was moderate as shown by the mean rating of 3.33. In all, the results suggest that NOUN undergraduates' digital literacy was high as shown by the overall mean value of 3.47.

Research Question 2: What strategies can be recommended to enhance undergraduate students' digital competencies for better access and utilization of electronic resources at NOUN?

Table 2: NOUN Undergraduates' Mean Ratings of Strategies for Enhancing Their Digital Competences ($N=396$)

S/N	Strategies	Mean	SD	Remark
1	Regular digital literacy training should be organized for students]	3.67	0.47	Agree
2	Orientation programmes should include e-resource training]	3.56	0.50	Agree
3	NOUN should provide more user-friendly electronic platforms]	3.64	0.48	Agree
4	Improved internet infrastructure will enhance e-resource usage]	3.58	0.49	Agree
5	Librarians should offer continuous support for e-resource access]	3.61	0.49	Agree
6	Digital skills development should be integrated into the curriculum]	3.58	0.49	Agree

Table 2 shows the several strategies for improving digital competencies. Regular digital literacy training ($M = 3.67$) and the provision of user-friendly platforms ($M = 3.64$) were rated the highest. Additionally, orientation programs that include e-resource training ($M = 3.56$) and improved internet infrastructure ($M = 3.58$) were also highly rated.

Discussion of Findings

1. The study found that NOUN undergraduate students demonstrated a high level of digital competency for accessing and utilizing electronic resources, with an overall mean of 3.47 ($SD = 0.57$). The highest-rated competencies were the ability to use the Internet for academic purposes and search for academic information online (mean = 3.56), indicating that students possess the foundational digital skills required for learning in an Open and Distance Learning (ODL) environment. Students also

reported strong competence in downloading, saving, and organizing electronic resources (mean = 3.47), suggesting they can effectively manage retrieved academic materials. In spite of these strengths, evaluating the credibility of online academic resources recorded the lowest mean (3.33), highlighting a gap in higher-order digital literacy skills. This finding aligns with Zhao et al. (2021), who observed that university students often possess basic digital competencies while struggling with more advanced digital tasks, and with Onwuegbuzie et al. (2020), who identified weaknesses in information evaluation among Nigerian university students. Similarly, Imam et al. (2024) reported that information literacy significantly influences electronic resource utilization, reinforcing the need to strengthen students' critical evaluation skills. However, because this study did not compute a Pearson correlation between digital competency and electronic resource utilization, no statistical claim about the strength of their relationship can be made.

2. Secondly, in the case of strategies for enhancing digital competencies, respondents strongly supported all proposed interventions. Regular digital literacy training emerged as the most preferred strategy (mean = 3.67, SD = 0.47), followed by user-friendly electronic platforms (mean = 3.64) and continuous librarian support (mean = 3.61). Improved Internet infrastructure and the integration of digital skills into the curriculum (both mean = 3.58) were also highly endorsed, indicating that students view competency development as requiring both individual capacity building and institutional support. These findings are consistent with Tella and Onyebinama (2022), who emphasized technology-based information literacy instruction, and Tachie-Donkor *et al.* (2025), who highlighted digital skills training, improved digital access, and institutional support as essential for strengthening digital literacy in African higher education. Moreover, the findings suggest that while NOUN students possess adequate foundational digital competencies, sustained training, supportive digital infrastructure, and active librarian engagement are essential for improving critical information evaluation and maximizing effective use of electronic resources.

Implications of the Study

The findings have important implications for NOUN management, the university library, librarians, curriculum planners, lecturers and students.

- i. In the case of NOUN management, the findings imply that investment in electronic resources should be accompanied by investment in digital infrastructure and student competency development. Reliable Internet connectivity, accessible digital platforms and adequate technological facilities are necessary for students to benefit fully from the university's electronic resources.
- ii. For the NOUN Library, the findings reinforce the need for librarians to move beyond traditional library services towards continuous digital information support.

Librarians should provide regular database training, virtual reference services, online tutorials and research assistance to help students locate and evaluate scholarly information.

- iii. For curriculum planners and academic departments, the findings imply that digital competency should be incorporated into students' academic programmes. Digital skills should not be treated solely as an optional library orientation activity but should form part of students' broader academic development.
- iv. For lecturers and facilitators, the findings suggest the need to incorporate electronic resources into teaching and assignments. Students should be encouraged to search scholarly databases, evaluate online sources and use credible electronic resources in completing academic tasks.
- v. For students, the findings imply that basic Internet skills are not sufficient for academic success. Students need to develop higher-level competencies, particularly the ability to evaluate the credibility, relevance and authority of online academic information.
- vi. For policy makers and educational administrators, the study provides evidence that digital competency development should be considered an essential component of quality assurance in open and distance learning. This is particularly important as higher education becomes increasingly dependent on digital platforms and electronic information resources.

Recommendations

Based on the findings, the study recommends that:

1. NOUN should strengthen students' digital competencies through regular digital literacy training, with particular emphasis on evaluating the credibility, accuracy, relevance, authority, and currency of online academic information, which recorded the lowest competency mean.
2. NOUN should implement the identified strategies for enhancing digital competencies, including user-friendly and mobile-friendly electronic platforms, improved Internet infrastructure, continuous librarian support, practical electronic-resource orientation, and integration of digital skills into the curriculum.

Conclusion

The study concludes that NOUN undergraduate students possess a high overall level of digital literacy competency, with an overall mean score of 3.47. Students demonstrated particularly strong abilities in using the Internet for academic purposes, searching for academic information online, and downloading, saving and organizing electronic resources. However, their ability to evaluate the credibility of online academic resources was

comparatively lower and fell within the moderate level. The study further concludes that continuous intervention is required to strengthen students' digital competencies and improve their effective utilization of electronic resources. Regular digital literacy training, user-friendly electronic platforms, continuous librarian support, improved Internet infrastructure, e-resource-oriented orientation and integration of digital skills into the curriculum were strongly supported by the respondents. The findings therefore demonstrate that providing electronic resources alone is not sufficient. Students must possess the competencies required to locate, retrieve, evaluate, organize and use digital information effectively and responsibly. Strengthening these competencies is particularly important in NOUN because of the university's geographically dispersed student population and its heavy reliance on digital technologies for teaching, learning and research.

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