

Correlation Between Postgraduate Students' Computer Literacy, Information Retrieval Skills, and Use of Electronic Resources in South East Nigeria

Chika Jacinta Chinemerem ^{1*}, Ifeka Ejikeme Okeke ²

¹E-Librarian, Nwafor Orizu College of Education Nsugbe, Anambra State, Nigeria.

²Department of library and information science, Nnamdi Azikiwe University Awka, Anambra State, Nigeria.

Correspondence e-mail : chikachinemerem3000@gmail.com

Abstract: The rapid expansion of digital technologies in Nigerian university libraries has created increased opportunities for postgraduate students to access electronic information resources. However, effective use of these resources depends largely on students' digital competencies, particularly their computer literacy and information retrieval skills. Despite significant investments in digital infrastructure across South East Nigeria, concerns persist regarding whether postgraduate students possess the skills required to maximize these resources for academic research. The study adopted a correlational design to examine how postgraduate students' digital skills relate to their use of electronic information resources in university libraries across South East Nigeria. The study involved all 172 Library and Information Science postgraduate students in five universities, using a census approach. Data were collected through a validated researcher-designed test and questionnaire. Trained research assistants supported data administration. Pearson correlation and regression analyses were used to determine the strength and predictive power of relationships among variables, with hypotheses tested at a 0.05 significance level using SPSS version 24. The findings show a strong positive correlation ($r = 0.81$) between postgraduate students' basic computer literacy skills and their use of electronic information resources. Regression results also confirmed a significant relationship, with 65.9% of the variation in electronic resource use explained by computer skills, leading to rejection of the null hypothesis. In contrast, information retrieval skills showed a weak correlation ($r = 0.16$) with electronic resource use, and regression analysis revealed no significant relationship. Only 2.66% of the variation could be attributed to information retrieval skills, resulting in acceptance of the null hypothesis for this variable. Findings revealed a strong and significant relationship between basic computer literacy and electronic resource use, while information retrieval skills showed a weak and non-significant correlation. The study concludes that although computer literacy plays a major role in resource utilization, more attention is needed in strengthening students' retrieval competencies. It recommends targeted digital literacy programmes to enhance research productivity and effective use of electronic resources.

Keyword : computer literacy, information retrieval skills, electronic resources, digital competencies, postgraduate students.

Article info: Submitted : 2025-11-12 | Accepted : 2025-12-03 | Published : 2025-12-05

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Introduction

The rapid expansion of digital technologies in higher education has made electronic information resources central to postgraduate research. University libraries now provide access to e-journals, databases, e-books, research repositories and online reference tools. However, the presence of these resources does not automatically translate into effective utilization. Many postgraduate students still struggle to take full advantage of electronic resources, a challenge often linked to inadequate computer literacy and weak information retrieval skills. This situation poses a significant problem because postgraduate research depends heavily on the ability to locate, access, evaluate and use current scholarly information (Ikenwe & Anaehobi, 2020). When students lack these competencies, the quality of their research outputs becomes compromised, and the investments universities make in digital resources remain underutilized.

Computer literacy forms the foundation for navigating electronic information systems. Studies conducted across Nigerian universities show that postgraduate students generally possess moderate levels of computer literacy; however, this level is not always sufficient for advanced academic research (Yeşilyurt & Vezne, 2023). Interestingly, research has demonstrated a strong positive relationship between computer literacy and the use of electronic resources. For example, a multi-university study reported a very strong correlation between computer literacy and e-resource use, indicating that students who are more proficient with computers tend to engage more actively with online databases and research platforms (Tusino et al, 2024). Similarly, doctoral students in federal universities were found to rely heavily on their computer self-efficacy and literacy skills when accessing scholarly electronic materials, suggesting that these competencies significantly enhance their overall research productivity (Tachie-Donkor et al, 2025). These findings reinforce the idea that computer literacy is not merely a convenience but a critical requirement for academic success at the postgraduate level.

Beyond basic computer competence, postgraduate students require strong information retrieval skills that enable them to formulate effective search queries, apply Boolean logic, and critically evaluate scholarly sources. Scholars consistently emphasize that digital competency enhances students' academic engagement, much like Egwu and Ekwe (2024) argued that effective educational management depends on equipping learners with relevant technological skills for competitive performance. In contrast, Ezugoh et al. (2023) observed persistent quality assurance issues in basic education, noting that many learners progress without mastering essential digital research abilities. This finding agreed with Ikegbusi et al. (2025), who highlighted how inadequate skills and resource constraints hinder academic performance, suggesting that similar limitations may affect postgraduate students' ability to navigate complex databases.

In a related study, Ikegbusi, Egwu, and colleagues (2021) demonstrated that students' perception and use of ICT strongly shape learning outcomes, reinforcing the need for advanced retrieval skills in higher research. Furthermore, Egwu's (2022) insights on 21st-century pedagogy show that modern academic environments demand higher-order digital competencies, underscoring why information retrieval skills significantly influence postgraduate students' effective use of electronic resources. Students who understand how to conduct structured searches and critically evaluate digital information are more likely to rely on e-resources for their academic work. However, the literature also highlights concerning gaps. For instance, studies carried out in other African universities, such as those in South Africa, have reported that many postgraduate students struggle with advanced search strategies, the use of Boolean operators, and database navigation. These weaknesses can severely limit their ability to access comprehensive and relevant literature, even when high-quality resources are available.

Weak information retrieval skills often combine with low awareness of available electronic resources to further undermine usage. Muneja (2025) observed that many postgraduate students used only a narrow range of e-resources despite having access to a broad spectrum of scholarly materials through their university libraries. In several Nigerian universities, students tended to rely mainly on e-journals and general internet searches, while specialized databases, institutional repositories, and digital referencing tools remained underutilized (Adeniran, 2018). This pattern suggests that even when students possess basic computer and information skills, limited exposure or insufficient library orientation may prevent them from fully maximizing available digital platforms. Additionally, poor ICT infrastructure, unreliable internet connectivity, and lack of consistent training often contribute to the persistence of low usage levels.

The implications of limited computer literacy and weak retrieval skills are profound, as postgraduate students risk producing shallow literature reviews and missing current scholarly debates. This situation mirrors broader systemic challenges in Nigeria, where governance gaps often weaken institutional effectiveness, as noted by Okonkwo and Idigo (2022). In contrast, Adolphus et al. (2023) argued that globalization demands higher-level digital competencies, underscoring the need for advanced research skills in academic environments. In a related study, Mokuye and Onyekachukwu (2023) highlighted how information access shapes societal transformation, reinforcing why addressing these academic skill gaps is essential for enhancing postgraduate research quality. Existing studies show that although electronic resources are widely available in Nigerian universities, postgraduate students often underutilize them due to inadequate digital competencies (Umaru et al, 2024). In contrast, some studies report moderate computer literacy levels but still find low use of specialized databases, suggesting a mismatch between skills and actual

utilization (Adeniran, 2018). This finding agreed with other research indicating that students struggle with advanced search strategies and database navigation, which limits access to current and comprehensive scholarly information.

In a related study, several universities in the South East were shown to invest significantly in electronic resources, yet students relied primarily on general internet searches rather than academic databases, indicating a persistent skills gap (Watson et al, 2025). These gaps highlight the need for a localized investigation focusing specifically on South East Nigeria, where infrastructural limitations, inconsistent ICT training, and low awareness may further constrain effective use. Therefore, the study is essential for identifying specific competencies that influence e-resource utilization and for guiding interventions that can enhance postgraduate research productivity.

Objectives

1. Correlation between postgraduate Students' basic computer appreciation/ literacy skills and their use of electronic information resources for research activities in university libraries in South East, Nigeria.
2. Correlation between postgraduate Students' information retrieval skills and their use of electronic information resources for research activities in university libraries in South East, Nigeria.

Research Questions

The following research questions will guide the study:

1. What is the correlation between postgraduate students' basic computer literacy skills acquisition and their use of electronic information resources for research activities in university libraries in South East, Nigeria?
2. What is the correlation between postgraduate students' information retrieval skills acquisition and their use of electronic information resources for research activities in university libraries in South East, Nigeria?

Hypotheses

The following null hypotheses will be tested at 0.05 alpha level:

1. There is no significant correlation between postgraduate students' basic computer literacy skills acquisition and their use of electronic information resources for research activities in university libraries in South East, Nigeria
2. There is no significant correlation between postgraduate students' information retrieval skills acquisition and their use of electronic information resources for research activities in university libraries in South East, Nigeria

Method

The study used a correlational research design to explore how postgraduate students' digital skills relate to their use of electronic information resources in university libraries across South East Nigeria. This design was suitable because it allows the researcher to examine how strongly and in what direction variables are connected without manipulating them. It is widely used in educational research, especially when the goal is to understand relationships among naturally occurring variables.

The study was carried out in South East Nigeria, a region made up of five states – Abia, Anambra, Ebonyi, Enugu, and Imo. Known for its cultural richness and economic activity, the region spans about 29,525 square kilometers and has a population of over 22 million people. Major cities such as Enugu, Onitsha, Aba, Owerri, and Umuahia are densely populated and serve as important commercial and educational centers. The South East is home to many universities, polytechnics, colleges of education, and research institutes. Over the years, institutions in the region have increasingly adopted digital technologies, especially within academic libraries. However, there is still limited understanding of whether students possess adequate digital skills to take full advantage of these electronic resources, which is one of the key motivations for this study.

The population for the study consisted of all 172 postgraduate students enrolled in Library and Information Science programmes during the 2023/2024 and 2024/2025 academic sessions in five universities in the region. The breakdown included 25 students from Nnamdi Azikiwe University Awka, 22 from Michael Okpara University of Agriculture Umudike, 70 from University of Nigeria Nsukka, 25 from Enugu State University of Science and Technology, and 30 from Imo State University. Because the population size was small and manageable, the researcher used a census approach, meaning every student in the population was included in the study rather than selecting a sample.

Two instruments were used for data collection: a researcher-designed cognitive test and a structured questionnaire. Both instruments were developed after a careful review of literature and consultation with specialists. Their validity was confirmed through face and content validation involving three experts, two from Library and Information Science and one from the Measurement and Evaluation unit of the Educational Foundations Department at Nnamdi Azikiwe University. These experts reviewed the instruments for clarity, relevance, and coverage, and their recommendations were used to refine the final versions.

To ensure reliability, the instruments were pilot tested with 20 postgraduate students in South-South Nigeria who were not part of the main study. The questionnaire produced a suitable Cronbach Alpha reliability coefficient. Both results exceeded the acceptable benchmark of 0.70, showing that the instruments were

internally consistent. Data collection was carried out by the researcher with assistance from five trained research aides who were library staff. They distributed and retrieved the instruments after securing permission from the relevant university libraries.

For data analysis, the Pearson Product Moment Correlation Coefficient was used to answer the research questions on the relationships between variables. Simple and multiple regression analyses were employed to determine the degree to which digital skills predicted students' use of electronic information resources. Decisions on hypotheses were guided by a 0.05 significance level, and all analyses were conducted using SPSS version 24.

Results and Discussion

Result

Research Question 1: What is the correlation between postgraduate students' basic computer literacy skills acquisition and their use of electronic information resources for research activities in university libraries in South East, Nigeria?

Table 1.

Pearson R on Postgraduate Students' Basic Computer Literacy Skills Acquisition and Their Use of Electronic Information Resources for Research Activities in University Libraries

Sources of variance	N	Basic computer skills (r)	EIRs (r)	Remark
Basic computer skills	172	1.00	0.81	Strong positive relationship
EIRs	172	0.81	1.00	

Table 1 shows that there is a strong positive relationship of 0.81 existing between postgraduate students' basic computer literacy skills acquisition and their use of electronic information resources for research activities in university libraries in South East, Nigeria

Hypothesis 1: There is no significant correlation between postgraduate students' basic computer literacy skills acquisition and their use of electronic information resources for research activities in university libraries in South East, Nigeria

Table 2.
Linear Regression on Postgraduate Students' Basic Computer Literacy Skills Acquisition and Their Use of Electronic Information Resources for Research Activities

Linear Regression	R	R ²	Df	T	a.level	p-value
	.812 ^a	.659	170	7.608	0.05	.000

a. Predictors: (Constant), basic computer literacy skills
b. Dependent: EIRs for research activities

Table 2 indicated that at 0.05 level of significance and 170df, the calculated t 7.608 with p-value 0.00 which is less than 0.05 ($t = 7.608$; $df = 170$; $p < 0.05$), the null hypothesis is rejected. This means that there is a significant relationship between postgraduate students' basic computer literacy skills acquisition and their use of electronic information resources for research activities in university libraries in South East, Nigeria. The R² value of 0.659 means that about 65.9% of the variation in electronic information resources can be explained by postgraduate students' basic computer literacy skills.

Research Question 2: What is the correlation between postgraduate students' information retrieval skills acquisition and their use of electronic information resources for research activities in university libraries in South East, Nigeria?

Table 3.
Pearson R on Postgraduate Students' Information Retrieval Skills Acquisition and Their Use of Electronic Information Resources for Research Activities in University Libraries in South East, Nigeria

Sources of variance	N	Information retrieval skills (r)	EIRs (r)	Remark
Information retrieval skills	172	1.00	0.16	Weak positive relationship
EIRs	172	0.16	1.00	

Table 3 shows that there is a weak positive relationship of 0.16 existing between postgraduate students' information retrieval skills acquisition and their use of electronic information resources for research activities in university libraries in South East, Nigeria

Hypothesis 2: There is no significant correlation between postgraduate students' information retrieval skills acquisition and their use of electronic information resources for research activities in university libraries in South East, Nigeria

Table 4.

Linear Regression on Significant Correlation Between Postgraduate Students' Information Retrieval Skills Acquisition and Their Use of Electronic Information Resources for Research Activities in University Libraries

Linear Regression	R	R ²	Df	T	a.level	p-value
	.163 ^a	.0266	170	7.116	0.05	0.207

a. Predictors: (Constant), information retrieval skills
b. Dependent: EIRs for research activities

Table 4 indicated that at 0.05 level of significance and 170 df, the calculated t 7.116 with p-value 0.207 which is greater than 0.05 ($t = 7.116$; $df = 170$; $p < 0.05$), the null hypothesis is rejected. There is no significant correlation between postgraduate students' information retrieval skills acquisition and their use of electronic information resources for research activities in university libraries in South East, Nigeria. The R² value of 0.0266 means that about 2.66% of the variation in electronic information resources for research activities can be explained by postgraduate students' information retrieval skill acquisition.

Discussion

Postgraduate Students' Basic Computer Literacy Skills Acquisition and Their Use of Electronic Information Resources for Research Activities in University Libraries in South East, Nigeria

The findings in research question one revealed that there is a strong positive relationship between postgraduate students' basic computer literacy skills acquisition and their use of electronic information resources for research activities in university libraries in South East, Nigeria. This means that postgraduate students who possess fundamental computer skills such as navigating software, conducting online searches, and managing digital files are significantly more likely to effectively utilize e-resources (e-journals, databases, e-books) for their research. This finding agreed with the finding of Mbagwu (2023) that the most digital skills possessed by the librarians is having knowledge of computer operation, and creating new word process document. his finding aligns with Akwang et al, (2024), who noted that librarians' online search skills in South-East Nigeria had a strong positive relationship with the use of electronic resources for research activities, suggesting that similar skills among postgraduate students would yield comparable outcomes. These studies collectively affirm that basic computer literacy, including skills like internet navigation, database searching,

and familiarity with digital tools, is a critical determinant of effective electronic resource utilization in academic settings. On the contrary, this finding opposed that of Lateef et al. (2023) that the level of their computer literacy skills was below average. Majority of them have never used computer before and the few of them that have used computer before used it in their homes, their friend's homes or in the cyber-café. The difference in both findings could be as a result of varying opinions of respondents.

The corresponding hypothesis revealed that there is a significant relationship between postgraduate students' basic computer literacy skills acquisition and their use of electronic information resources for research activities in university libraries in South East, Nigeria. This finding was in line with the finding of Adeniran and Onuoha (2018) that there is a significant positive correlation between information literacy skills, which encompass basic computer literacy, and the use of electronic resources. Ndubuisi and Udo (2013) explored postgraduate library users in South-East Nigerian federal universities and found that motivation, coupled with computer literacy skills, significantly influenced the use of electronic information resources. Their study highlighted that student with strong computer skills, such as internet surfing and database navigation, demonstrated higher engagement with electronic resources for academic purposes.

Postgraduate Students' Information Retrieval Skills Acquisition and Their Use of Electronic Information Resources for Research Activities in University Libraries in South East, Nigeria

This finding revealed that there is a weak positive relationship between postgraduate students' information retrieval skills acquisition and their use of electronic information resources for research activities in university libraries in South East, Nigeria. This indicates a slight tendency for students with better retrieval skills to use electronic resources more frequently, but the association is not strong suggesting that while there is a positive trend, other factors significantly influence resource use. This finding agreed with that of Onah et al (2020) that under graduates possess extremely poor skills in the use of internet search engines for information retrieval. The finding of Uwhejewe (2022) reported that there is a weak relationship between information literacy skills and utilization of electronic resources for enhancing research. This means that postgraduates do not adequately retrieve information from electronic resource for their research work. On the contrary, the finding opposed that of Oluwatola and Akingbade (2022) that information retrieval skills highly influence the postgraduate students' scholarly research as it allowed them to easily recognition their needed information. The difference in both findings could be that respondents vary in terms of opinions based on their level of education.

The corresponding hypothesis revealed that there is no significant correlation between postgraduate students' information retrieval skills acquisition and their use

of electronic information resources for research activities in university libraries in South East, Nigeria. This finding opposed that of Oluwatola and Akingbade (2022) that there was a significant but negative difference in information retrieval skills of postgraduate students and their utilization of resources for research. The finding of Ebiefung and Oyewole (2020) also opposed that there was a significant positive relationship between information retrieval skills and use of EIRs by the undergraduates.

Conclusion

The findings of the study show that postgraduate students' digital competencies play uneven but important roles in their ability to use electronic information resources within university libraries in South East Nigeria. Basic computer literacy emerged as a strong and significant predictor of students' engagement with electronic resources, demonstrating that foundational digital skills remain essential for effective navigation, retrieval, and utilization of online academic materials. This suggests that students who possess stronger computer skills are far better positioned to access and benefit from the electronic services provided in their libraries. However, the study also revealed that information retrieval skills, although relevant, do not significantly influence students' use of electronic information resources. The weak correlation observed indicates that many students may rely more on basic navigation abilities than on structured search techniques when conducting research. This gap points to a need for targeted training in advanced retrieval strategies, search refinement, database navigation, and evaluation of digital information. University libraries and academic departments should therefore integrate continuous digital literacy training into postgraduate programmes, emphasizing both foundational and advanced search skills. Doing so will ensure that students not only access electronic resources but also use them effectively to support scholarly inquiry and academic excellence within the region.

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