



BRIDGING THE DIGITAL GAP: AN INVESTIGATION INTO COMPUTER LITERACY AND ONLINE RESOURCE UTILIZATION AMONG POSTGRADUATE STUDENTS AT THE FEDERAL UNIVERSITY OF LAFIA

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Abstract

This study investigates the critical nexus between computer literacy skills and the effective utilization of online information resources among postgraduate students at the Federal University of Lafia, Nigeria. Operating from the thesis that advanced digital literacy is a foundational, non-negotiable competency for postgraduate research efficacy and scholarly communication, the research employed a descriptive survey design. Data was collected from 108 postgraduate students in the Faculty of Social Sciences using a researcher-developed instrument, the Influence of Computer Skills and Use of Online Resources Questionnaire (ICOSUORQ). Findings indicate that while students possess basic computer skills (e.g., Microsoft Word, web browsing), their proficiency levels are predominantly low to moderate, insufficient for advanced academic tasks. Consequently, their engagement with specialized online academic databases is limited and often infrequent (monthly rather than weekly). The study identifies key barriers, including inadequate targeted training, unreliable institutional infrastructure (power and internet), and a lack of awareness of available digital library resources. It argues compellingly that the postgraduate cohort represents a critical focus for such intervention due to their mandated role as independent knowledge producers and contributors to scholarly discourse. The article concludes by proposing a multi-faceted intervention strategy. This includes integrating mandatory, credit-bearing digital literacy and information fluency modules into postgraduate curricula, enhancing library-led user education programs focused on database navigation and critical evaluation, and a fundamental upgrade of the university's ICT infrastructure to ensure reliable access. These recommendations are framed as essential investments in research capacity, directly impacting the quality of academic output, the global competitiveness of graduates, and the university's research profile.

Keywords: *Computer Literacy, Digital Skills, Online Information Resources, Postgraduate Students, Scholarly Communication.*

Introduction

The landscape of global higher education and academic research has undergone a

seismic shift in the past two decades, irrevocably transitioning into a digital paradigm. Within this environment, the success of a postgraduate scholar is increasingly contingent not only on intellectual rigor and methodological soundness but on a suite of digital competencies that facilitate every stage of the research lifecycle. This study positions itself at the intersection of two pivotal constructs in contemporary academia: computer literacy which is conceptualized by Anunobi and Edeka (2019) as the advanced, application-specific skills required for scholarly work and the utilization of online information resources the vast, dynamic digital collections that constitute the primary repository of current knowledge.

The core thesis of this investigation is that advanced computer literacy is no longer a supplementary or optional skill for postgraduate students; it is a fundamental academic competency. A deficit in these skills directly constrains a researcher's ability to harness the full potential of online information resources, thereby impeding research efficacy, limiting engagement with global scholarly conversations, and ultimately compromising the quality and impact of academic output (Anunobi, & Edeka, 2019)

Statement of the Problem

In the Nigerian context, and particularly within institutions like the Federal University of Lafia, digital transition presents both immense opportunity and significant challenge. While universities increasingly subscribe to premium digital libraries and journal databases (e.g., JSTOR, Science Direct, HINARI), the return on this substantial investment is mediated by the digital readiness of the end-user the (student researcher).

Preliminary observations and interactions at the Federal University of Lafia suggest a troubling disconnect: a significant proportion of postgraduate students lack the requisite, higher-order computer skills necessary to navigate, evaluate, and synthesize information from these sophisticated platforms effectively. This skills gap results in the underutilization of subscribed resources, a reliance on less credible, openly available web sources (like generic Google searches), and ultimately, research that may not be built upon the most current or comprehensive foundation of existing literature.

This study, therefore, seeks to move beyond generic assessments of "computer use" to conduct a targeted diagnosis of the specific digital skill levels prevalent among postgraduate students and to relate this with their patterns of online resource utilization. Furthermore, the study deliberately focuses on the postgraduate student body. This cohort is singled out because their academic mandate differs qualitatively from that of undergraduates.

Objectives of the Study

The following objectives shall be used to guide this study

1. Determine the level of computer skill of Postgraduate students in federal university of Lafia.
2. Determine the perceived impact of computer skills on research efficacy
3. Identify barriers to effective use of Online Information resources by Postgraduate students'

Research Questions

Three research question guides this study

1. What is the level of computer skills of Postgraduate students in Federal University of Lafia?
2. What is the perceived impact of computer skills on research efficacy of post graduate



students?

3. What are the barriers to effective use of Online resources by Postgraduate?

Literature Review

Computer Literacy for the Postgraduate Scholar

The term computer literacy has evolved significantly since its inception. Early definitions often equated it with basic operational knowledge like turning on a computer, using word processing software, or sending an email. For the postgraduate researcher, such a definition is wholly inadequate. In the context of advanced academic work, computer literacy must be re-conceptualized as Academic Digital Fluency (ADF). According to Austin, Mole, and Nelson (2020) ADF encompasses the integrated set of cognitive, technical, and ethical skills required to effectively and critically use digital tools and networks for the purposes of research, learning, and scholarly communication.

This fluency in the use of computer can be deconstructed into several core competencies including Advanced Information Retrieval Proficiency in using disciplinary databases, employing sophisticated search strategies (Boolean operators, subject headings, citation searching), and managing search results, Digital Content Management: Skill in using reference management software (e.g., Zotero, Mendeley, EndNote) to organize literature, generate citations, and create bibliographies and research Data Literacy. Others according to Sambo and Akanwa (2019) are the ability to organize, clean, visualize, and preliminarily analyze research data using tools like SPSS, R, Python, or even advanced Excel functions, Scholarly Writing and Composition like mastery of word processors for large document structuring (using styles, tables of contents), collaboration features (track changes, comments), and preparing manuscripts for publication.

Another level is the possession of Critical Digital Evaluation which is the ability to assess the credibility, authority, relevance, and potential bias of digital sources, distinguishing between predatory journals, reputable pre-print servers, and peer-reviewed articles, Digital Communication and Identity which entails understanding how to use academic profiling platforms such as Research Gate, Google Scholar, ORCID), engage in professional online networks, and navigate the ethics of digital authorship and copyright (Hussain,& Rahman, (2019).

The possession of ADF is not a passive state but an active enabler. As Atanda, Kikiri, and Mohammed (2022) argue, digital competence is a strong predictor of research productivity among early-career academics, as it reduces the technical friction in the research process, allowing more cognitive energy to be focused on analysis and synthesis.

Online Information Resources: The Digital Lifeblood of Modern Research

Online information resources (OIRs) constitute the primary ecosystem for contemporary scholarly communication. They extend far beyond simple websites to as posited by Anunobi and Edoka (2010) to include: Subscription-based Academic Databases and aggregators like Scopus, Web of Science, and discipline-specific databases (e.g., PubMed, PsycINFO, IEEE Xplore). Electronic Journals and E-books: These are digital versions of scholarly publications, often accessed via publisher platforms or library link resolvers. Others online OIRs include Institutional and Subject repositories: Open-access archives housing theses, dissertations, preprints, and research data; academic Search Engines and Indexing Services like Google Scholar, which provides a broad but less curated search of scholarly literature and

Research Data Repositories Platforms like Figshare or Dryad for storing and sharing research datasets (Kwafoa, Anwhere, & Manu, 2021).

The paramount advantage of OIRs is their capacity for rapid, global dissemination of knowledge. For a postgraduate student in Lafia, they provide a virtual portal to the latest research from Cambridge, Cape Town, or Canberra, effectively democratizing access to information that was previously confined to well-funded, Global North libraries (Kwafoa, Anwhere, & Manu, 2021). However, this "democratization" is contingent on the user's ability to successfully navigate this often-complex digital landscape. Without the skills delineated under ADF, the sheer volume and complexity of OIRs can become overwhelming, leading to what is termed "information anxiety" or a retreat to simpler, less reliable sources.

Skills as a Gateway to Resources

The relationship between computer literacy (ADF) and the use of OIRs is symbiotic and causal relying on skills. Skills act as the essential gateway that transforms resource availability into resource utility. Several studies underscore this link: Hussain and Saddiqa (2019) found that a lack of advanced search and evaluation skills often leads researchers to settle for the most readily available information online, rather than conducting systematic, comprehensive reviews. This compromises the depth and rigor of the literature review, a cornerstone of postgraduate research. While Mole, and Edewor (2020) emphasize that digital skills directly enhance a scholar's confidence in engaging with online scholarly systems—from submitting articles to complex databases to participating in digital peer review. This confidence is crucial for active participation in the global academic community.

The ability to use reference management software, a key component of ADF, has been directly linked to more efficient and organized research processes, reducing time spent on manual formatting and increasing time for critical reading and writing (Ashaver, Igyuve & Olajide, 2023).). Hence, the investment in OIRs by a university is only fully realized when coupled with a parallel investment in developing the ADF of its user community. One without the other leads to suboptimal outcomes: expensive resources lie underused, and students remain ill-equipped for modern scholarship.

The Postgraduate Imperative: Why This Cohort Demands Special Focus

To Justify why the specific focus on postgraduate students will require an understanding of their unique position in the academic ecosystem and the imperatives of modern world. One of these imperatives is the shift from knowledge consumption to knowledge production: Undergraduate education primarily focuses on assimilating established knowledge. Postgraduate study, particularly at the Master's and PhD levels, requires the creation of new knowledge or novel syntheses. This generative process as opined by Udofot and Enenche (2023) is intensely information-dependent, requiring not just finding information, but tracing intellectual lineages, identifying gaps, and positioning one's work within a live, global conversation. This demands a far higher level of information fluency than is required for coursework. Also these set of learners have a great level of autonomy and complexity: Postgraduate research is largely self-directed. Supervisors provide guidance, but the onus is on the student to design and execute a literature search, manage data, and write up findings. This autonomy makes the possession of ADF as pointed out by Rowlands, Et al (2021) not just beneficial but mandatory for success and timely completion.

Furthermore, Rowlands, Et al (2021) posits that there is the issue of scholarly socialization and career development: The postgraduate phase is a period of professional



socialization into the world of academia. Proficiency in using OIRs and related digital tools is how one "listens" to this world as a visible digital scholarly identity maintained through profiles and publications is increasingly critical for securing postdoctoral positions, research grants, and academic employment. Hence when a postgraduate student deficit in these skills at the stage can have long-term career repercussions.

Postgraduate students are not merely consumers of knowledge; they are expected to be contributors to this very important and useful commodity need for national development. Their work through theses, dissertations, and publications must engage with, critique, and extend the boundaries of their disciplines (Federal University of Lafia, 2021; University of Jos 2019). This role as asserted by Bumkeng, Mngutyo and Iornongo (2023) demands a level of information autonomy, critical evaluation, and scholarly communication prowess that is fundamentally dependent on advanced digital fluency. Studying this group provides critical insights into the health of the university's research engine and its future scholarly impact.

The Nigerian and Institutional Context

Research within the Nigerian higher education context often highlights infrastructure challenges such as unstable power supply and limited internet bandwidth are some of the primary barriers to digital scholarship (Olatokun, 2020). While these are critical material constraints, this study argues that an exclusive focus on infrastructure obscures an equally critical "soft" barrier: the skill deficit. Even when connectivity is available, can students use it effectively? Studies like that of Sambo and Akawan (2021) on undergraduates in Delta State point to significant gaps in digital skills, suggesting these issues permeate the educational pipeline and arrive with students at the postgraduate level. This study builds on this work by applying a specific lens to the postgraduate context at Federal University of Lafia, examining how these skill gaps manifest at this advanced level and their direct impact on research behaviour.

Methodology

This study employed a descriptive survey research design. This design was deemed most appropriate as it allows for the collection of quantitative data from a sample of a population to describe phenomena, attitudes, or behaviors Creswell, (2014) and in this case, the computer skill levels and online resource use patterns of postgraduate students. It facilitates the generalization of findings from the sample to the broader population of postgraduate students within the institution.

The target population for this study consisted of all postgraduate students (Master's and PhD) in the Faculty of Social Sciences at the Federal University of Lafia during the 2024/2025 academic session. The total population, as obtained from the Postgraduate School registry, was 109 students. Given the manageable size of the population and the desire for a high level of precision, a census approach was adopted. All 109 students were targeted for inclusion in the study. Data was collected using a structured questionnaire titled the "Influence of Computer Skills and Use of Online Resources Questionnaire (ICOSUORQ)", developed by the researchers. The ICOSUORQ was divided into four sections A total of 108 completed questionnaires were successfully retrieved and found usable for analysis, yielding a very high response rate of 99.1%. This near-complete coverage of the population strengthens the validity and representativeness of the findings for this specific faculty. Descriptive statistics of simple frequency was used to summarize the data and address the research questions.

Data Presentation and Analysis

Data gotten from the field for the study are presented and analyzed in this section. It is arranged based on research questions.

Research question 1: What is the level of computer skills of Postgraduate students in Federal University of Lafia?

Table 1: The level of computer skill of Postgraduate students in Federal University of Lafia

Skill Item	Very High Proficiency	High Proficiency	Moderate Proficiency	Low Proficiency
1 Using advanced search functions in academic databases (e.g., Boolean operators, filters, subject headings)	11	8	18	50
2 Using reference management software (e.g., Zotero, Mendeley, EndNote).	11	6	48	52
3 Critically evaluating the credibility and relevance of online academic sources	11	8	38	57
4 Using software for basic data analysis and visualization (e.g., SPSS, Excel charts, R)	8	6	41	55
5 Navigating and effectively using the University's institutional repository/digital library portal.	10	8	39	57

Source: Field Data

Table 1 reports the response on level of computer skill of Postgraduate students in Federal University of Lafia. Eleven (11) respondents responded that they have very high proficiency skilled on Using advanced search functions in academic databases (e.g., Boolean operators, filters, subject headings) while eight (8) respondents said they have high proficiency skill while eighteen (18) respondents said they have moderate skills and fifty (50) low proficiency experts.

On using reference management software (e.g., Zotero, Mendeley, EndNote), eleven (11) of the respondents are highly proficient and eight (8) are highly proficient. Forty-eight (48) respondents said they have moderate proficiency and fifty-two (52) respondents have low proficiency. Eleven (11) respondents have very high proficiency in Critically evaluating the credibility and relevance of online academic sources, eight (8) have high proficiency. Thirty-eight respondents have moderate proficiency while fifty-seven have low proficiency. Of the respondents eleven (8) have very high proficiency in Using software for basic data analysis and visualization (e.g., SPSS, Excel charts, R) and six (6) have high proficiency while forty—one has moderate proficiency and fifty-seven have low proficiency. Ten respondents (10) have very high proficiency in Navigating and effectively using the University's institutional repository/digital library portal, eight (8) respondents are has high proficiency and thirty-nine (39) are moderately proficient and fifty-seven have low proficiency. This implies that the respondents have low to moderate level of proficiency on the use of advanced search functions in academic databases (e.g., Boolean operators, filters, subject headings), Critically evaluating the credibility and relevance of online academic sources, using software



for basic data analysis and visualization (e.g., SPSS, Excel charts, R), Navigating and effectively using the University's institutional repository/digital library portal and using reference management software (e.g., Zotero, Mendeley, EndNote).

Research Question 2: *What is the perceived impact of computer skills on research efficacy by Postgraduate student in the Federal University of Lafia?*

Table 2: To what extent do you agree that the following statements describe your research experience?

Skill Item	S A	A	D	SA
1 My level of computer/digital skills significantly affects the quality of my literature review	32	51	17	7
2 I feel confident in my ability to find the most relevant and authoritative sources for my research topic.	18	10	48	31
3 My current digital skills save me time during the research and writing process.	24	3	47	33
4 Lack of specific digital skills has been a barrier to completing a research task	54	29	13	11
5 Improving my academic digital skills would directly improve the quality of my thesis/dissertation	38	58	5	6

Data on table 2 is response on the perceived impact of computer skills on the efficacy of research by post graduate students of the federal university of Lafia. Thirty-two (32) of the respondents strongly agree that the level of computer/digital skills significantly affects the quality of my literature review and fifty-one (51) respondents agree. Seventeen (17) respondents disagree while seven (7) respondents strongly disagree. Eighteen (18) respondents strongly agree while ten (10) agree that they feel confident in their ability to find the most relevant and authoritative sources for their research topic while forty-eight (48) disagree (31) and strongly disagree. On the item of my current digital skills save me time during the research and writing process, twenty-four (24) respondents strongly agree and three (3) agree while forty-seven (47) disagree and with thirty-three (33) strongly disagree to this assertion. Another item queried is lack of specific digital skills has been a barrier to completing a research task as perceived impact of computer skill by post-graduate student. Fifty-four strongly agree, twenty-nine (29) respondents agree and thirteen (13) disagree while eleven respondents strongly disagree. Thirty-eight (38) strongly agree that improving my academic digital skills would directly improve the quality of my thesis/dissertation have very high impact on research efficacy of post-graduate students and fifty-eight (58) agree while five (5) respondents disagree and six (6) strongly disagree. This infers that the level of computer/digital skills significantly affects the quality of literature review by postgraduate student and lack of specific digital skills is a barrier to completing research. Post graduate students also did not feel confident in their ability to find the most relevant and authoritative sources for their research topic and their current digital skills do not save time during the research and writing process. Improving academic digital skills would directly improve the quality of my thesis/dissertation for post graduate students in Federal University of Lafia.

Research question 3: What are the barriers to effective use of Online resources by Postgraduate?

Table 3: The following are barriers to effective use of Online Information Resources by Postgraduate students

	Barrier item	SA	A	D	SDA
1	Unreliable or slow internet connectivity within the University	32	51	17	7
2	Unstable power supply/electricity	48	31	14	10
3	Lack of awareness of what specific online resources the library provides	42	33	24	3
4	Lack of adequate training on how to use specialized library databases and research tools	54	29	13	11
5	Preference for simpler, familiar tools (like Google) over more complex library systems	6	5	58	38

Table 3 is data showing the response on barriers to effective use of Online Information Resource by Postgraduate students. Thirty-two of the respondents strongly agree while fifty-one (51) agree that unreliable or slow internet connectivity within the University is a barrier to effective while seventeen (17) disagree and seven (7) strongly disagree. Forty-eight respondents strongly agree that unstable power supply/electricity is a barrier and thirty-one (31) agree. On their side fourteen (14) respondents disagree and ten strongly disagree to this notion. Lack of awareness of what specific online resources the library provides was strongly agree by forty-two (42) respondents as a barrier and thirty-three (33) agree while twenty-four (24) respondents disagree and three (3) strongly disagree. Fifty-four respondents strongly agree that lack of training on how to use specialized library databases and research tool is a barrier and twenty-nine (29) agree. Thirteen (13) respondents disagree and eleven strongly disagree.

On the item preference for simpler, familiar tools (like Google) over more complex library systems as a barrier, six (6) respondents strongly agree and five (5) respondents agree while fifty-eight disagree while thirty-eight (38) disagree. This shows that Unreliable or slow internet connectivity within the University, Unstable power supply/electricity, Lack of awareness of what specific online resources the library provides, Lack of adequate training on how to use specialized library databases and research tools are all barriers to postgraduate students' effective use of Online Information Resource.

Discussion

This study was conducted to investigate computer literacy and Online utilization of information resources by postgraduate students. The study shows that post graduate student have low to moderate level of proficiency on the use of advanced search functions in academic databases (e.g., Boolean operators, filters, subject headings), Critically evaluating the credibility and relevance of online academic sources, using software for basic data analysis and visualization (e.g., SPSS, Excel charts, R), Navigating and effectively using the University's institutional repository/digital library portal and using reference management software (e.g., Zotero, Mendeley, EndNote) as majority of the response to the question on level of proficiency indicated. Although there are some responses that shows some level of proficiencies but this few could be taken as outliers like postgraduate student from statistic, computer science and other information related knowledge area.

In addition, this study posits that the level of computer/digital skills significantly possessed by PG students affects the quality of their literature review as lack of specific digital



skills is a barrier to completing a research process. Post graduate students did not feel confident in their ability to find the most relevant and authoritative sources for their research topic as their current digital skills do not save time during the research and writing process. Improving academic digital skills would directly improve the quality of my thesis/dissertation for post graduate students in Federal University of Lafia.

Furthermore, unreliable or slow internet connectivity within the university, unstable power supply/electricity and lack of awareness of what specific online resources the library provides are some of the barriers to the effective use of Online Information Resource. The study also identified lack of adequate training on how to use specialized library databases and research tools are all barriers to postgraduate students' effective use of Online Information Resource.

Summary, Conclusion and Recommendations

Summary

This study was conducted in federal University of Lafia among Postgraduate students and aimed to investigate computer literacy and use of Online Information Resource by postgraduate students with the hope of bridging identified gaps. The study uses a descriptive survey and questionnaire was administered to one hundred and seven respondents of PG students in the 2024/2025 academic session. The data collected were analyzed using simple frequency distribution. The study used three research questions to investigate its objective.

Conclusion

From the study, the following conclusions are drawn

1. Postgraduate have low to moderate level of proficiency on the use of advanced search functions in academic databases (e.g., Boolean operators, filters, subject headings), Critically evaluating the credibility and relevance of online academic sources, using software for basic data analysis and visualization (e.g., SPSS, Excel charts, R), Navigating and effectively using the University's institutional repository/digital library portal and using reference management software (e.g., Zotero, Mendeley, EndNote).
2. The perceived impact of computer of research efficacy on PG students are that computer/digital skills significantly affects the quality of literature review by postgraduate student and lack of specific digital skills is a barrier to completing research. Post graduate students also did not feel confident in their ability to find the most relevant and authoritative sources for their research topic and their current digital skills do not save time during the research and writing process. Improving academic digital skills would directly improve the quality of my thesis/dissertation for post graduate students in Federal University of Lafia.
3. Barriers to the use of computer are unreliable or slow internet connectivity within the University, unstable power supply/electricity, lack of awareness of what specific online resources the library provides, lack of adequate training on how to use specialized library databases and research tools are all barriers to postgraduate students' effective use of Online Information Resource.

Recommendation

Based on this study, it is recommended that;

1. Stable power supply should be provided for use in the library
2. Training and intensive orientation program should be provided use Post student on available library Online Information Resource and how to use them.
3. There should be provision of reliable and fast internet in the library especially as many of the specialize database will need to be use in the library or around the university.

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