

UTILIZATION OF DIGITAL SKILLS BY LIBRARIANS FOR ENHANCED RESEARCH IN PUBLIC UNIVERSITIES IN SOUTH-WEST, NIGERIA.

Nihinlolawa Fauziyah Adenekan
adenekan0127@pgbabcock.edu.ng

Kehinde Mariam Alawiye
mariam.alawiye10@gmail.com

Fesojaiye Morolayo Ladele
LadeleM@babcock.edu.ng

Abstract

The modern academic landscape is characterized by a rapid proliferation of digital resources and tools, necessitating a paradigm shift in the skill sets of librarians, particularly in public universities in South-West Nigeria. As the digital landscape continues to expand, embracing digital skills by academic librarians to enhance their research and contribute positively to the academic community cannot be overemphasized. The emergence of digital technologies presents both opportunities and challenges for academic librarians. While digital tools have the potential to enhance information retrieval, automate routine tasks, and personalize user experiences, there is a growing concern regarding the preparedness of academic librarians to harness these technologies effectively. Digital skills could ensure that librarians stay updated with the latest trends and developments in their profession. A search on the EBSCOhost database revealed that there are only a few research articles on digital skills and research engagement. However, the link between digital skills and research engagement is a gap worth investigating by the researcher. Findings shows that the level of digital skills on research engagement among academic librarians in South-West, Nigeria was very high level ($\bar{x} = 3.34$) and digital skills had a significant influence on research engagement of academic librarians ($\text{Adj.}R^2 = 0.52$, $F(6, 201) = 38.67$, $p < 0.05$) in public universities in South-West, Nigeria. Recommendations were made for library management to establish structured research incentives for innovative research contributions and introduce targeted training programs to enhance digital skills of academic librarians in public universities in South-West, Nigeria.

Keywords: Academic librarians, Digital skills, Research engagements, Public Universities, Nigeria.

Word Count: 247

Introduction

In today's rapidly evolving digital world, Librarians need to possess a range of digital competencies to effectively engage in their research. Academic librarians with advanced digital skills are more likely to engage deeply with their research, as they can leverage digital tools to enhance the efficiency, scope, and impact of their research. Librarians can use digital skill to find and use information on the Internet to communicate socially and professionally using email, social media and messaging. Globally, academic librarians have been recognized to engage in teaching, learning and research which require their being skilled and knowledgeable in various fields of human endeavour (Adenekan, et al., 2023).

Digital skills refer to the ability of the librarians to use digital devices, communication applications, and networks to access and manage information, solve problems and collaborate efficiently. Digital skill is essential for librarians to navigate the complicated modern information landscapes. In recent years, the concept of digital skills has expanded to encompass a wide range of competencies, from basic IT digital skills to advanced capabilities in data analysis, cyber security, and digital content creation. Basic digital skills, which involves the ability to use digital tools such as computers, smartphones, and software applications, remains fundamental. However, recent studies have emphasized that digital skills now include more complex competencies such as problem-solving in digital environments, the ability to evaluate digital content critically, and the capacity for creativity in using digital tools (Harnani, et al., 2021).

Librarians with strong digital skills are better equipped to keep up with recent trends and developments, which can increase their research engagement by allowing them to incorporate cutting-edge knowledge and techniques into their work. However, Librarians with limited digital skills may face challenges in engaging with their work. Librarians who are not proficient in using digital tools or platforms may struggle to conduct thorough research, collaborate with colleagues, or disseminate their findings. This digital divide can lead to frustration, decreased motivation, and ultimately disengagement from the research process. As digital technology continues to evolve, it is essential for librarians to continually update their digital skills in order to remain engaged and productive.

The importance of digital skills in academic librarianship cannot be overemphasized, as these skills are directly tied to the academic librarian's ability to manage digital resources, facilitate access to scholarly materials, and contribute to the research process. According to a study by Sahabi & Ootobo, (2021), academic librarians in Nigerian universities face a growing demand to acquire and apply digital skills to support both teaching and research. In many cases, the integration of digital skills into librarians' workflows has enhanced their capacity to provide relevant and timely research support services. For instance, the ability to navigate online databases, digital archives, and open access resources allows librarians to assist researchers in accessing necessary materials more efficiently. This, in turn, increases the research engagement of librarians, as they become key partners in the research ecosystem, assisting in data curation, management, and dissemination (Efe, 2023).

Thus, research engagement is essential for advancing and developing a vibrant research ecosystem. It enhances the relevance, quality, and applicability of research findings by ensuring that the research process is informed by real-world perspectives. Moreover, it fosters collaboration, accountability, capacity building, and inclusion, all of which are necessary for creating research that benefits society as a whole. As research becomes increasingly interdisciplinary and collaborative, engagement with stakeholders will continue to be a cornerstone of effective research practice. Research engagement is described as the step taken to participate in various activities relating to research, such as developing research ideas, identifying gaps that need to be filled, generating hypothesis for trials, conducting research, discussing the results and finally presenting results to solve a perceived problem.

The constant learning and adaptation to new technological skills will enable librarians to take an active part in changing the research environment, ensuring that researchers have access to digital tools and services that support data-driven, creative, and effective research engagement. Research by Li (2022) indicates that by 2025, approximately 50% of all employees will need to reskill, with digital skills being a key area of focus. Digital skills in this context are not limited to technical knowledge but also include social and emotional skills, such as effective online communication and digital collaboration Wiatkowska, and Wiśniewska-Nogaj (2022).

Digital skill is therefore essential to enhance research engagement among academic librarians. A search on the EBSCOhost database from 2010 - 2024 revealed that there are only a few research

articles on digital skills and research engagement, ranging from developing countries in Africa (Ghana and South Africa) to Asia (Saudi Arabia and India). However, the link between digital skills and research engagement is a gap worth investigating by the researcher. The indicators for digital skills on research engagement according to this research are communication, collaboration skills, digital data analysis skills, digital security awareness skills, internet navigation digital skills, and problem-solving.

Statement of the Problem

Academic libraries serve as pivotal centres for knowledge dissemination and research support within universities. The emergence of digital technologies presents both opportunities and challenges for academic librarians. While digital tools have the potential to enhance information retrieval, automate routine tasks, and personalize user experiences, there is a growing concern regarding the preparedness of academic librarians to harness these technologies effectively. Studies have indicated that many librarians face challenges such as limited technical knowledge, inadequate funding for technology acquisition, and insufficient organizational support. Furthermore, there is a dearth of empirical research focusing on how these factors collectively influence the research engagement of academic librarians in public universities in South-West Nigeria. Addressing this gap is crucial to ensure that academic librarians remain relevant and continue to provide high-quality services in the digital age.

Objective of the Study

The main objective of this study is to investigate the utilization of digital skills by librarians for enhanced research in public universities in South-West, Nigeria.

The specific objectives are to:

1. find out the level of digital skills on research engagement among academic librarians in public universities in South-West, Nigeria;
2. examine the influence of digital skills on research engagement of academic librarians in public universities in South-West, Nigeria.

Research question

What is the level of digital skills on research engagement among academic librarians in public universities in South-West, Nigeria?

Hypothesis

The null hypotheses were tested in the study at 0.05 level of significance:

H₀₁: Digital skills have no significant influence on research engagement of academic librarians in public universities in South-West, Nigeria

Literature Review

The contemporary academic landscape is characterized by a rapid proliferation of digital resources and tools, necessitating a paradigm shift in the skill sets of librarians, particularly in public universities in South-West Nigeria (Yusuf and Endouware 2021). The ability of librarians to effectively navigate and utilize digital tools is a fundamental requirement for enhancing their research and supporting the academic community. Academic Librarians who possess strong digital skills can perform more complex analyses, handle larger datasets, and access a wider range of academic resources, which could increase their capacity to engage in more sophisticated and innovative research projects (Paulus, 2023).

Librarian's workload leaves little time for conducting in-depth research or publishing findings in reputable journals. The pressure to meet teaching and administrative responsibilities often forces librarians to prioritize these tasks over research activities, leading to low research engagement (Rafiq, 2024). Institutional policies and lack of incentives could further discourage research engagement among academic staff. Some institutions do not have clear policies that support research engagement, and in cases where policies exist, they are often not effectively implemented (Nguyen & Dao, 2021). Sambo et al., (2022) affirmed that the majority of academic librarians acquire digital skills by sponsoring themselves for digital skills programme, while some acquire digital skills through information sharing. This confirms the status of digital skills among academic librarians in Nigeria.

Librarians with strong digital communication skills can engage in virtual collaborations, attend webinars, and participate in online conferences, which could increase their research engagement (Salawu & Ajani, 2022). Digital skills could facilitate interdisciplinary research by enabling librarians to connect with specialists from other fields, share data seamlessly, and co-author papers with greater ease. In addition, librarians with advanced digital skills could effectively engage with the broader public by disseminating their research findings through digital platforms like social media, blogs, and online academic repositories, which provide researchers with new avenues to share their work, engage with diverse audiences, and receive feedback from peers and the public.

Deeken et al. (2020) asserted that digital dissemination tools do not only increase the visibility of research but also create opportunities for greater research engagement within the academic community and the general public. Librarians who excel in digital platforms tend to stay more engaged in their work, experiencing the immediate benefits and influence of their research. Moreover, digital skills allow researchers to stay updated with the latest trends and developments in their field. Through digital platforms, such as Google Scholar alerts, online journals, and academic social networks like Research Gate, researchers can stay informed about new publications, funding opportunities, and conferences (López et al., 2020).

Methodology

The survey research design was used in this study to obtain data on the influence of digital skills, on research engagement of academic librarians and lecturers in library schools in selected Universities in South-West, Nigeria. This in line with definition of survey research design as the structuring of an investigation aimed at identifying variables and their relationship to one another and used to obtain data that will enable the researcher to test hypotheses and answer research questions. Two hundred and eighty-one (281) academic librarians in public universities in South-West, Nigeria was the population of the study (researcher, 2025). Total enumeration was used. Therefore, there was no sampling involved. Taherdoost (2016) asserted that total enumeration is used when the researcher chooses to examine the entire population that has a particular set of characteristics

The questionnaire covered the level of digital skills of academic librarians in public universities in South-West, Nigeria. It comprised a total of 21 items, measured on a Four (4) point Likert -type of: Very High Level (VHL) = 4 High Level (HL) = 3 Low Level (LL) = 2 Very Low Level (VLL) = 1

Analysis and Results

The data collected were analyzed using descriptive statistics (such as frequency count, percentages, mean, and standard deviation) for the research questions and Multiple Linear Regression analysis to test hypothesis at 0.05 level of significance

Table 1.0 Method of Data Analysis

S/N	Research Analysis	Statistical Tools
1.	Research Questions	Frequency count, percentages, mean, and standard deviation.
2.	Hypothesis	Multiple Linear Regression analysis

Source: Researcher 2024

Two hundred and eight (208) copies of Questionnaire were retrieved giving a response rate of 74.02%. Fowler (2013) stated that a response rate of 60% is representative enough to carry out a research.

Table 2.0

Questionnaire Response Rate

Response	Number of Participants
Administered	281
Returned	208
Unreturned	73
Percentage Returned	74.02%.

Source: Field Survey 2025

Research Question : What is the level of digital skills of academic librarians in public universities in South-West, Nigeria

Table 3.0

Level of digital skills on research engagement among academic librarians in South-West Nigeria

Digital skills of academic librarians	Very High Level (4) Freq. (%)	High Level (3) Freq.(%)	Low Level (2) Freq.(%)	Very Low Level (1) Freq. (%)	Mean	Std.
Collaboration					3.44	0.59
I am able to collaborate with colleagues online by e-mail, SMS, instant messaging, Skype, WhatsApp, Messenger, and other social networks	116 (55.8%)	88 (42.3%)	2 (1.0%)	2 (1.0%)	3.53	0.57
I have the ability to collaborate with colleagues through the use of collaboration tools	93 (44.7%)	106 (51.0%)	7 (3.4%)	2 (1.0%)	3.39	0.61
I collaborate with colleagues by engaging exploring, sharing and exchanging new ideas	90 (43.3%)	110 (52.9%)	7 (3.4%)	1 (0.5%)	3.39	0.58
Problem-solving					3.41	0.65
I have the ability to store and retrieve data in the computer system	110 (52.9%)	91 (43.8%)	6 (2.9%)	1 (0.5%)	3.49	0.58
I have the ability to use Word processors and spreadsheets in my research	101 (48.6%)	90 (43.3%)	14 (6.7%)	3 (1.4%)	3.39	0.68
I have the ability to provide instructions, revise and integrate information to computer system	96 (46.2%)	99 (47.6%)	11 (5.3%)	2 (1.0%)	3.39	0.64
I have the ability to trouble shoot the computer	96 (46.2%)	92 (44.2%)	18 (8.7%)	2 (1.0%)	3.36	0.68
Communication					3.41	0.62
I transmit information across to colleague virtually (Contextual Communication)	104 (50.0%)	93 (44.7%)	10 (4.8%)	1 (0.5%)	3.44	0.61
I interact with colleagues orally (Oral Communication)	99 (47.6%)	99 (47.6%)	6 (2.9%)	4 (1.9%)	3.41	0.65
I communicate with	93	106	7	2	3.39	0.61

colleagues in written format (Written Communication)	(44.7%)	(51.0%)	(3.4%)	(1.0%)		
Digital security awareness skills					3.37	0.63
I have the ability to ensure that information in digital content, data, and devices are protected using passwords	98 (47.1%)	95 (45.7%)	14 (6.7%)	1 (0.5%)	3.39	0.64
I have the ability to make backups and recover in my research engagement.	93 (44.7%)	104 (50.0%)	9 (4.3%)	2 (1.0%)	3.38	0.62
I have the ability to learn emerging digital online tools and resources for my research engagement	88 (42.3%)	105 (50.5%)	14 (6.7%)	1 (0.5%)	3.35	0.63
Internet navigation digital skill					3.32	0.65
I have the ability to use the internet for various tasks to manage information resources effectively in my research engagement	103 (49.5%)	97 (46.6%)	6 (2.9%)	2 (1.0%)	3.45	0.60
I have the ability to edit documents or files created and shared by colleagues online through One Drive, Google Drive or Dropbox	94 (45.2%)	104 (50.0%)	8 (3.8%)	2 (1.0%)	3.39	0.62
I have the ability to utilize emerging digital online tools for my research engagement	88 (42.3%)	110 (52.9%)	8 (3.8%)	2 (1.0%)	3.37	0.61
I can bookmark websites by downloading and uploading files	90 (43.3%)	97 (46.6%)	19 (9.1%)	2 (1.0%)	3.32	0.68
I have the ability to use project management software to manage research projects	59 (28.4%)	110 (52.9%)	35 (16.8%)	4 (1.9%)	3.08	0.73
Digital data analysis skills					3.09	0.82
I have the ability to input and present data content for my research	80 (38.5%)	100 (48.1%)	22 (10.6%)	6 (2.9%)	3.22	0.75
I have the ability to interpret and retrieve data using digital software in my research	72 (34.6%)	97 (46.6%)	28 (13.5%)	11 (5.3%)	3.11	0.83
I have the ability to use data	64	81	51	12	2.95	0.89

analysis software	(30.8%)	(38.9%)	(24.5%)	(5.8%)		
Average Overall Mean					3.34	0.66

Source: Researcher's Field Survey, 2025; **Freq. = Frequency**

Decision rule: 1 – 1.74 = Very low Level, 1.75 – 2.49 = Low Level, 2.50 – 3.24 = High Level, 3.25 – 4 = Very high Level

Table 2.0 shows that the overall mean of level of digital skills on research engagement among academic librarians in South-West, Nigeria was very high level ($\bar{x} = 3.34$). The analysis of each indicators showed that collaboration was the highest ($\bar{x} = 3.44$), followed by problem-solving ($\bar{x} = 3.41$), communication ($\bar{x} = 3.41$), digital security awareness skills ($\bar{x} = 3.37$) and internet navigation digital skill ($\bar{x} = 3.32$). The analysis from the category of collaboration shows that the ability to collaborate with colleagues online by e-mail, SMS, etc is rated very high ($\bar{x} = 3.53$), ability to collaborate with colleagues through collaboration tools is also very high ($\bar{x} = 3.39$) and collaborating with colleagues sharing and exchanging new ideas also on a very high level ($\bar{x} = 3.39$). The analysis of the category of problem-solving rated the following parameters to be very high level: ability to store and retrieve data in the computer system ($\bar{x} = 3.49$), ability to use Word processors in research ($\bar{x} = 3.39$), ability to integrate information to a computer system ($\bar{x} = 3.39$) respectively.

The analysis of the category of communication rated the following parameters to be very high level: in terms of: contextual communication ($\bar{x} = 3.44$), oral communication ($\bar{x} = 3.41$) and written communication ($\bar{x} = 3.39$). The analysis of the category of internet navigation digital skill was very high level in terms of ability to use the internet for various tasks ($\bar{x} = 3.345$), ability to edit or create documents online ($\bar{x} = 3.39$), ability to utilize digital online tools ($\bar{x} = 3.37$) and downloading and uploading files ($\bar{x} = 3.32$). Finally, the analysis of the category of the level of digital data analysis skills was high in terms of the ability to input and present data content for research ($\bar{x} = 3.22$).

Test of Hypotheses

Hypotheses was carefully analyzed and tested using multiple linear regression analysis. The results were presented in Table 1.0 below:

Hypothesis: Digital skills have no significant influence on research engagement of academic librarians in public universities in South-West, Nigeria.

Table 3.0

Influence of Digital Skills on research engagement of academic librarians

Predictors	B	Std. Error	B eta (β)	T	P	Adj. R ²	F	ANOVA (Sig.)
(Constant)	.994	.170		5.851	.000	0.522	38.669	0.000
Communication	.239	.057	.284	4.180	.000			
Collaboration	-.032	.063	-.036	-.510	.610			
Digital data analysis skills	.221	.038	.370	5.784	.000			
Digital security awareness skill	.085	.062	.108	1.367	.173			
Internet navigation digital skill	-.008	.078	-.010	-.106	.916			
Problem solving	.145	.062	.179	2.356	.019			
Dependent Variable: Research engagement $df(\text{residual}) = 6(201)$ $\text{Adj. } R^2 = 0.522$ $F(6, 201) = 38.669$, $p < 0.05$								

Source: Field Survey Results, 2025, *Note β = Standardized Coefficient at 0.05*

Decision Rule

The following rules guided the application of multiple linear regression for this study. If the p-value, which is the probability value, was less or equal to 0.05, the null hypothesis was rejected; if p-value was greater than 0.05, the null hypothesis was accepted.

Table 4.10 indicates that digital skill has a significant influence on research engagement of academic librarians in public universities in South-West, Nigeria ($\text{Adj. } R^2 = 0.52$, $F(6, 201) = 38.67$, $p < 0.05$). This suggests that the linear combination of the indicators of digital skills would improve research

engagement of academic librarians in public universities in South-West, Nigeria. Consequently, the null hypothesis which states that digital skill has no significant influence on research engagement of academic librarians in public universities in South-West, Nigeria was rejected. From the individual perspective, communication parameter ($\beta = 0.284$, $t(201) = 4.180$, $p < 0.05$), digital data analysis skills ($\beta = 0.370$, $t(201) = 5.784$, $p < 0.05$) and problem-solving skill parameter ($\beta = 0.179$, $t(201) = 2.356$, $p < 0.05$) had significant influence on research engagement of academic librarians in public universities. These three predictors significantly influence research engagement, with digital data analysis skills having the strongest positive effect

Discussion of Findings

This analysis showed that the level of digital skills of academic librarians in public universities in South-West, Nigeria was very high. Indicators of digital skills on research engagement among academic librarians specify that collaboration was the highest, followed by problem-solving, communication, digital security awareness skills, and internet navigation skill. The findings of this present study are in agreement with Yusuf and Endouware (2021) study on the level of digital skills possessed by academic librarians in Nigerian Universities. Their research highlighted that librarians possessing high levels of ICT skills are better equipped to navigate digital resources, thereby enhancing their research capabilities.

The findings of this study is also in agreement with Holm's (2024) findings that showed a positive relationship between digital skills and academic success. This implies that continuous training and development programs are essential for academic librarians' research engagement. The findings also align with the study of Sambo et al. (2022), which evaluated digital skills among certified librarians in Nigerian libraries. Their research findings indicated that librarians in Nigeria exhibit a high level of ICT proficiency, particularly in collaborative tools and problem-solving applications.

The study by Magida (2024) also supports this finding, which shows that researchers are proficient in using ICT for communication and collaboration purposes, thereby enhancing their ability to share knowledge effectively. This supports the current study's observation of high collaboration and communication skills among academic librarians. Conversely, the findings of Iqbal and Khan (2017)

explained the rationale behind librarians competency in basic ICT tasks, and noted that there was a visible gap and slightly lower proficiency in advanced skills such as data analysis which is attributed to limited training opportunities and resources.

The findings on hypothesis demonstrated that digital skills significantly influence the research engagement of academic librarians in public universities in South-West, Nigeria. This finding aligns with study of Idubor, et al., (2024), which highlighted the critical role of digital competencies in enhancing research activities among librarians. This also corroborates with a Madukoma, et al. (2023) on the influence of information communication technology (ICT) skills on academic research output revealed that librarians with higher ICT proficiency tend to have increased research output, underscoring the importance of digital skills in academic settings.

In summary, the significant influence of digital skills on the research engagement of academic librarians, as demonstrated in the current study, is consistent with existing literature. These findings collectively suggest that enhancing digital competencies among librarians is pivotal for fostering robust research activities within academic institutions.

Conclusion

The study focused on the utilization of digital skills by librarians for enhanced research in public universities in South-West, Nigeria. The findings revealed that academic librarians in public universities in South-West, Nigeria possess a very high level of digital skills. Among the various competencies assessed, collaboration skills ranked highest, followed by problem-solving, communication, and digital security awareness skills. Internet navigation skills were also notable, while digital data analysis skills were slightly lower. This further implies that by engaging in research, academic librarians contribute significantly to enhancing both their professional growth and their university's research output and rankings

Recommendations

The following recommendations were made based on the findings

1. The library management in higher institution of learning should establish structured research incentives beyond promotion requirements to further encourage research engagement among academic librarians in public universities in South-West, Nigeria, These could include awards and recognition programs for innovative research contributions.

2. The library management should introduce targeted training programs, particularly focusing on digital data analysis skills, which had the lowest rating to further enhance the digital skills of academic librarians in public universities in South-West, Nigeria, the university management should also provide hands-on workshops on data analytics tools, research data management and visualization techniques.

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