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SEARCH ENGINES, INFORMATION LITERACY COMPETENCIES AND KNOWLEDGE SHARING CAPACITY OF POSTGRADUATE STUDENTS IN PUBLIC UNIVERSITIES IN SOUTH-EAST NIGERIA

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Abstract

The study assessed the impact of competencies in the use of various search engines on knowledge sharing capacity of postgraduate students of public Universities in South-east Nigeria. In achieving the purpose, two research questions were answered while two hypotheses were tested. The study adopted correlational survey research design. The population for the study was 13,654 postgraduate students from the ten public Universities across the five South-East Nigerian states. Taro Yamane method was adopted in sampling 400 postgraduate students as respondents across the ten public universities. The instrument for data collection is a structured questionnaire developed by the researcher. Data were collected with the help of research assistants. Out of the 400 copies of the questionnaire administered, 386 copies were retrieved and completely filled representing 96.5% return rate. Data collected were analysed using mean values for all research questions while correlation statistics based on the Pearson Product Moment Correlation (PPMC) at 0.05 level of significance was used for testing the hypotheses. The results of the study showed that competencies in the use of search engines and information literacy competencies have significant relationships with knowledge sharing among postgraduate students in public universities in South-East Nigeria. The study among others therefore recommends that University libraries and postgraduate schools should organize regular training programmes, workshops, and seminars on advanced search engine use and information literacy competencies to equip postgraduate students with the skills required to effectively locate, evaluate, retrieve, and ethically use scholarly information. Such training should emphasize advanced search techniques, the use of academic search engines and databases, critical evaluation of information sources, and responsible information sharing to enhance collaborative research and knowledge exchange.

Keywords: Competencies, search engines, knowledge sharing, capacity, postgraduate

Introduction

Information and knowledge acquisition through the electronic and printed library resources is key to educational advancement, global knowledge growth and development. Information literacy forms a set of skills, without which a 21st century citizen may find it difficult to understand the surrounding world (Feris, 2017). According to UNESCO (2015) Information Literacy is a set of skills that equip learners to access, retrieve, comprehend, appraise and utilize information and media contents using a variety of tools and platforms such as the internet to participate and engage in personal, professional and societal activities. Martins (2022) note that there is a close tie between information literacy and library science.

Information literacy has the potential to increase the capacity of individual to understand media contents decisively and to converse messages effectively. National Open University of Nigeria (2019) stated that information age is one in which information and its management is critical in understanding an increasingly changing, complex and dynamic world. Effectiveness of the users of media contents and information requires competencies. Competency is a set of skills possessed by an individual to properly perform a specific job. Competency is the knowledge, skills, attitude and judgment generally required by an individual for the successful performance of a task. To be competent, the individual should acquire the knowledge, skills, attitude and judgment which he requires in order to perform successfully at a specified proficiency level in a given work (Olaitan, 2003). The competency areas in information literacy include: the use of various search engines for accessing information, searching information and media contents, evaluating authenticity of information and media contents, creating new information and media contents, disseminating information and media contents online and observing ethical procedure in media and information contents that influence knowledge sharing capacity.

Knowledge sharing, according to Ryan (2021) refers to the process of exchanging information between people, teams, or organizations. Mohammad and Bhaskar (2016) described knowledge sharing as one of the most crucial yet overlooked aspects of workplace and academic progress. Knowledge sharing means the exchange of knowledge, skills, and experiences which ensures that required knowledge and information is available for others that need it for intellectual and purpose of improving productivity.

Media and information literacy such as effective use of various search engines is at the heart of knowledge acquisition and information sharing because it allows learners irrespective of

qualification to comprehend the roles of the media and other information providers (UNESCO, 2020). Therefore, empowering students through media and information literacy through effective use of search engines is essential for enhancing access to vital information and knowledge sharing within the academic community. It is based on this background that this study assessed the impact of competencies in the use of various search engines on knowledge sharing capacity of postgraduate students of public universities in South-east Nigeria.

Objectives of the Study

The broad objective of the study was to assess the impact of competencies in the use of various search engines on knowledge sharing capacity of postgraduate students of public universities in South-east Nigeria. Specifically, the study:

1. examined relationship between competencies in the use of various search engines and knowledge sharing among postgraduate students of public universities in South-East Nigeria.
2. ascertained the relationship between information literacy competencies and knowledge sharing among postgraduate students of public universities in South-East Nigeria.

Research Questions

In line with the specific purposes, the study answered the

1. What is the relationship between competencies in the use of search engines and knowledge sharing among postgraduate students of public universities in South-East Nigeria?
2. What is the relationship between information literacy competencies and knowledge sharing among postgraduate students of public universities in South-East Nigeria?

Hypotheses

The following null hypotheses were developed and tested at 0.05 level of significance:

$H0_1$: There is no significant relationship between competencies in the use of search engines and knowledge sharing among postgraduate students of public universities in South-East Nigeria.

$H0_2$: There is no significant relationship between information literacy competencies and knowledge sharing among postgraduate students of public universities in South-East Nigeria.

Literature Review

Search engines are web-based information retrieval systems that enable users to locate and access information from the internet through keyword-based searches. In academic environments, search engines such as Google Scholar, Scopus, Web of Science, Semantic Scholar, and BASE have become indispensable tools for postgraduate students because they facilitate access to scholarly articles, books, theses, conference proceedings, and other research materials. Effective use of these search engines enhances literature searching, supports evidence-based research, and improves academic productivity. However, obtaining relevant and credible information depends largely on users' search competencies, including the ability to formulate appropriate search queries, apply advanced search techniques, and critically evaluate retrieved information (Nicholas et al., 2020; UNESCO, 2021).

Competencies in the use of various search engines refer to the knowledge and skills required to effectively identify information needs, select appropriate search platforms, construct search strategies using Boolean operators and filters, evaluate information sources, retrieve relevant documents, and manage search results for academic purposes. These competencies are increasingly important because postgraduate research requires access to current, authoritative, and peer-reviewed information. Students who possess strong search engine competencies are more likely to retrieve high-quality information efficiently, avoid information overload, and support their research with credible evidence (Head et al., 2022; ACRL, 2016).

Information literacy competencies encompass a broader set of abilities that enable individuals to recognize when information is needed and to locate, evaluate, organize, use, and communicate information ethically and effectively. The concept extends beyond searching for information to include critical thinking, ethical use of information, proper citation practices, and effective communication of research findings. The Association of College and Research Libraries (ACRL) identifies information literacy as a foundational competency for lifelong learning and scholarly engagement. For postgraduate students, these competencies facilitate independent learning, improve research quality, and enhance participation in collaborative academic activities (ACRL, 2016; UNESCO, 2021).

Knowledge sharing refers to the intentional exchange of information, ideas, experiences, and expertise among individuals to promote learning, innovation, and problem-solving. In universities, knowledge sharing occurs through seminars, collaborative research, conferences, classroom interactions, online discussion platforms, institutional repositories, and scholarly publications. Knowledge sharing capacity, therefore, refers to an individual's ability to acquire, organize, communicate, and disseminate knowledge effectively using both interpersonal and digital channels. Students with strong knowledge sharing capacity actively contribute to academic discussions, collaborate on research projects, and disseminate research outputs through appropriate scholarly platforms (Al-Kurdi et al., 2020).

Search engine competencies, information literacy competencies, and knowledge sharing capacity are conceptually interconnected. Search engines provide access to scholarly information, while information literacy competencies enable students to retrieve, evaluate, synthesize, and ethically use that information. These competencies subsequently enhance students' capacity to share knowledge through academic writing, presentations, collaborative research, and digital communication platforms (Omehia et al., 2021). Consequently, postgraduate students who possess high levels of search engine and information literacy competencies are better positioned to contribute meaningfully to knowledge creation and knowledge sharing within the university community.

Research Methods

The study adopted correlational survey research design. Correlational research refers to a non-experimental research method which studies the relationship between two variables after data collection through descriptive survey. According to Devi, *et al* (2022), correlational design is a research design for examining the relationships between or among two or more variables in a single group, which can occur at several levels without the researcher controlling or manipulating any of them. The population of the study was 13,654 postgraduate students from the ten public Universities in the five southeast states (Abia, Anambra, Ebonyi, Enugu and Imo). All the ten public universities have established postgraduate programmes with students. The sample for the study is 400 postgraduate students used as respondents. In determining the sample size for the study, Taro Yamane (1967) method was adopted since the actual population of

postgraduate students in the public universities can be ascertained from records obtained from postgraduate school of the concerned universities. Yamane (1967) provides a simplified formula to calculate sample sizes. A 95% confidence level and level of maximum variability (p = 0.05) was assumed. This formula was used to calculate the sample size for this study as shown below:

The instrument for data collection is a structured questionnaire and interview schedule developed by the researcher. The response options in the questionnaire is 4-point rating scale of Strongly Agreed (SA), Agreed (A), Disagreed (D) and Strongly Disagreed (SD) with corresponding values of 4, 3, 2 and 1 respectively. Data collected were analysed using mean values for all research questions and correlation statistics based on the Pearson Product Moment Correlation (PPMC) at 0.05 level of significance. For the mean values, each table of analysis produce a grand mean with which the contents of that table were analysed. As a result, any item in each table with a mean value of up to or greater than the ground mean was deemed to have a positive or significant relationship. At the same time, any item in each table with mean value of less than the grand mean was deemed to have negative or insignificant relationship with knowledge sharing. The hypothesis of no significant difference was rejected when the p-value (sig.) is less than 0.05 level of significance. The hypothesis of no significant difference was accepted when the p-value (sig.) is greater than 0.05.

RESULTS AND DISCUSSIONS

Research Question One

What is the relationship between competencies in the use of search engines and knowledge sharing among postgraduate students of public universities in South-East Nigeria?

Table 1: Mean Ratings on the relationship Competencies in the Use of Search Engines and Knowledge Sharing among Postgraduate Students

Item	$\bar{X}$	SD	Decision
My ability to simultaneously engage the use of multiple search engines enables me engage more effectively in knowledge sharing.	3.64	0.50	**Agreed**
My ability to locate the right academic information sources using various search engines makes my knowledge sharing effective.	3.67	0.65	Agreed
My ability to efficiently utilize advanced searchers to generate pool of academic materials encourage me to	3.69	0.47	Agreed

engage in knowledge sharing .			
My ability to interpret extension of web address is a motivator for me to share knowledge	3.68	0.51	Agreed
My ability to locate the virtual spaces where the right information and media contents could be found motivates my knowledge sharing	3.38	0.48	Agreed
My web navigation ability using various search engines makes my engagement in knowledge sharing more productive	3.53	0.52	Agreed
My knowledge of how to break down a web address or paste to address of a website on the search bar gives impetus to my knowledge sharing activities	3.62	0.49	Agreed
I possess a good knowledge of popular web search engines for downloading relevant information, a factor that motivates my engagement in sharing knowledge	3.52	0.49	Agreed
Average Mean Score	**3.59**		**Agreed**

Note: $\overline{X}$ **=** Mean; **SD =** Standard Deviation; **Sig. =** Significant; **Not Sig** = Not Significant.

The results presented in the table indicate that postgraduate students agreed that competencies in the use of search engines enhance their knowledge sharing. This is evidenced by the mean scores of all the items, which ranged from 3.38 to 3.69, exceeding the criterion mean of 2.50. The relatively low standard deviation values (0.47–0.65) further indicate that respondents had similar opinions regarding the influence of search engine competencies on knowledge sharing. Specifically, respondents agreed that their ability to efficiently utilize advanced search techniques to generate a pool of academic materials encourages them to engage in knowledge sharing (M = 3.69, SD = 0.47), making it the highest-rated competency. This was closely followed by their ability to interpret web address extensions, which motivates them to share knowledge (M = 3.68, SD = 0.51), and their ability to locate the right academic information sources using various search engines, which makes their knowledge sharing effective (M = 3.67, SD = 0.65).

The respondents also agreed that their ability to simultaneously use multiple search engines enables them to engage more effectively in knowledge sharing (M = 3.64, SD = 0.50), while their knowledge of how to break down a web address or paste a website address into a search bar gives impetus to their knowledge sharing activities (M = 3.62, SD = 0.49). Similarly, their web navigation ability using various search engines makes their engagement in knowledge sharing

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more productive (M = 3.53, SD = 0.52), and their knowledge of popular web search engines for downloading relevant information motivates their engagement in sharing knowledge (M = 3.52, SD = 0.49). Further, the respondents agreed that their ability to locate virtual spaces where the right information and media contents could be found motivates their knowledge sharing (M = 3.38, SD = 0.48), indicating that this competency also contributes positively to knowledge sharing among postgraduate students.

Table 2 : Summary of Pearson Product Moment Correlation on the relationship between Competencies in the Use of Search Engines and Knowledge Sharing among Postgraduate Students.

Variables		Competencies in the Use of Search Engines	Knowledge Sharing among Postgraduate Students.
Competencies in the Use of Search Engines	Pearson Correlation	1	. 534**
	Sig. (2-tailed)		.000
	N	386	386
Knowledge Sharing among Postgraduate Students.	Pearson Correlation	.534**	1
	Sig. (2-tailed)	.000	
	N	386	386

***Correlation is significant*

Discussion of the Findings

The result presented in the table revealed that there is a moderate positive and statistically significant relationship between competencies in the use of search engines and knowledge sharing among postgraduate students in public universities. The Pearson Product Moment Correlation coefficient of r = .534 indicates that as postgraduate students' competencies in using search engines improve, their level of knowledge sharing also tends to increase. The positive coefficient signifies that the two variables move in the same direction, implying that students who possess better search engine competencies are more likely to engage actively in sharing academic knowledge with their peers. Furthermore, the probability value of p = .000, which is less than the 0.05 level of significance, indicates that the observed relationship is statistically

significant and did not occur by chance. Therefore, the null hypothesis stating that there is no significant relationship between competencies in the use of search engines and knowledge sharing among postgraduate students is rejected, while the alternative hypothesis is accepted.

Research Question Two

What is the joint relationship between information literacy competencies and knowledge sharing among postgraduate students of public universities in South-East Nigeria?

Data for answering research question seven are presented in Table 3.

Table 3: Mean Ratings of the Responses of the Respondents on Joint Relationship between Information Literacy Competencies and Knowledge Sharing among Postgraduate Students.

Media and information literacy competencies for knowledge sharing:	$\overline{X}$	SD	Decision
My ability of media and information literacy competencies boost ability for communication and knowledge sharing.	3.75	0.46	Agreed
My ability of media and information literacy competencies enhance the scope of connectivity and knowledge sharing within academic community.	3.33	0.68	Agreed
My ability to share research opinions and outputs are better enhanced by media and information literacy and knowledge sharing	3.63	0.52	Agreed
My ability to share quality academic information is further promoted by acquisition of media and information literacy and knowledge sharing	3.65	0.52	Agreed
My ability to evaluate information before sharing is ensured through media and information literacy competencies and knowledge sharing	3.50	0.56	Agreed
My ability to efficiently utilize advanced searchers to generate pool of academic materials encourage me to engage in knowledge sharing	3.73	0.47	Agreed
I am able to access and use databases that archive contents from newspapers, magazines and dissertations which factor motivates my knowledge sharing	3.45	0.60	Agreed
My ability to distinguish formats of information and media resources has further boosted my knowledge sharing potentials	3.59	0.54	Agreed
Average Mean Score	**3.58**		Agreed

The results presented in the table indicate that postgraduate students agreed that media and information literacy competencies enhance their knowledge sharing. This is evident from the mean scores of all the items, which ranged from 3.33 to 3.75, all exceeding the criterion mean of 2.50. The standard deviation values, ranging from 0.46 to 0.68, suggest a relatively low dispersion of responses, indicating that respondents shared similar opinions regarding the role of media and information literacy competencies in promoting knowledge sharing. Specifically, respondents agreed that their media and information literacy competencies boost their ability to communicate and share knowledge (M = 3.75, SD = 0.46), making it the highest-rated item. This was closely followed by the view that their ability to efficiently utilize advanced search techniques to generate a pool of academic materials encourages them to engage in knowledge sharing (M = 3.73, SD = 0.47). These findings suggest that communication skills and effective

information retrieval are the most prominent ways through which media and information literacy competencies facilitate knowledge sharing among postgraduate students. The respondents also agreed that their ability to share quality academic information is promoted by the acquisition of media and information literacy competencies (M = 3.65, SD = 0.52), while their ability to share research opinions and outputs is enhanced through media and information literacy and knowledge sharing (M = 3.63, SD = 0.52). Furthermore, they agreed that their ability to distinguish different formats of information and media resources has boosted their knowledge sharing potential (M = 3.59, SD = 0.54) and that their ability to evaluate information before sharing is ensured through media and information literacy competencies (M = 3.50, SD = 0.56). These findings underscore the importance of critical evaluation and effective communication in ensuring that only credible and relevant information is shared within the academic community. Similarly, respondents agreed that their ability to access and use databases containing newspapers, magazines, and dissertations motivates their knowledge sharing (M = 3.45, SD = 0.60). The ability of media and information literacy competencies to enhance the scope of connectivity and knowledge sharing within the academic community (M = 3.33, SD = 0.68), nevertheless remained above the acceptance threshold, suggesting that respondents generally recognized its contribution despite relatively less agreement than the other competencies.

Hypothesis Two: There is no significant joint relationship between information literacy competencies and knowledge sharing among postgraduate students of public universities in South-East Nigeria.

Table 4 : Summary of Pearson Product Moment Correlation on the Relationship Between Information Literacy Competencies and Knowledge Sharing among Postgraduate Students.

Variables		Information literacy competencies	Knowledge Sharing among Postgraduate Students**.**
Information literacy competencies	Pearson Correlation	1	. 557**
	Sig. (2-tailed)		.000
	N	386	386
Knowledge Sharing	Pearson Correlation	.557**	1
	Sig. (2-tailed)	.000	

among Postgraduate Students.	N	386	386

***Correlation is significant*

Note: Sig* = Significant at 0.05.

The findings presented in the table indicate that there is a moderate positive and statistically significant relationship between information literacy competencies and knowledge sharing among postgraduate students in public universities. The Pearson Product Moment Correlation coefficient of r = .557 shows that as postgraduate students' information literacy competencies increase, their capacity and willingness to share knowledge also increase. The positive correlation suggests that students who possess stronger information literacy skills are more likely to engage in effective academic communication, collaborative learning, and the dissemination of knowledge within their institutions. Furthermore, the significance value of p = .000, which is less than the 0.05 level of significance, indicates that the observed relationship is statistically significant. This implies that the relationship between information literacy competencies and knowledge sharing did not occur by chance. Consequently, the null hypothesis stating that there is no significant relationship between information literacy competencies and knowledge sharing among postgraduate students is rejected, while the alternative hypothesis is accepted.

Discussion of Findings

The findings of research question one indicates that postgraduate students possess a high level of competencies in the use of search engines and perceive these competencies as important drivers of effective knowledge sharing. This implies that proficiency in searching, navigating, retrieving, and evaluating online information enhances students' ability to exchange academic information, collaborate with peers, and contribute meaningfully to scholarly discourse. The result of the corresponding hypothesis revealed that there is a moderate positive and statistically significant relationship between competencies in the use of search engines and knowledge sharing among postgraduate students in public universities. The Pearson Product Moment Correlation coefficient of r = .534 indicates that as postgraduate students' competencies in using search engines improve, their level of knowledge sharing also tends to increase. The positive coefficient signifies that the two variables move in the same direction, implying that students who possess

better search engine competencies are more likely to engage actively in sharing academic knowledge with their peers. Furthermore, the probability value of p = .000, which is less than the 0.05 level of significance, indicates that the observed relationship is statistically significant and did not occur by chance. Therefore, the null hypothesis stating that there is no significant relationship between competencies in the use of search engines and knowledge sharing among postgraduate students is rejected, while the alternative hypothesis is accepted.

The finding can be attributed to the fact that competent users of search engines are better equipped to locate, retrieve, evaluate, and synthesize scholarly information from credible online sources such as Google Scholar, Scopus, Web of Science, Semantic Scholar, and institutional repositories. These competencies enhance students' confidence in participating in academic discussions, collaborative research, seminars, online learning communities, and scholarly communication. Consequently, students who are proficient in using search engines have greater opportunities to exchange ideas, share research findings, recommend relevant literature, and contribute meaningfully to knowledge creation within the university environment.

This finding supports the view that search engine competencies are an important component of digital and information literacy, both of which facilitate effective communication and collaboration in higher education. As postgraduate students become more skilled in identifying relevant information and evaluating its credibility, they are better positioned to disseminate accurate and reliable knowledge through both face-to-face interactions and digital platforms.

The finding is consistent with studies by Head et al., (2022), who reported that students with stronger information-search competencies demonstrated higher levels of academic collaboration and information exchange. Similarly, Nicholas et al. (2020) found that researchers with advanced online information retrieval skills were more likely to engage in collaborative research and scholarly communication. The finding also aligns with Al-Kurdi et al., (2020), who concluded that effective knowledge sharing among academics and students depends largely on individuals' ability to acquire, evaluate, and communicate relevant information through digital technologies. Collectively, these studies reinforce the present finding that competencies in the use of search engines significantly contribute to enhancing knowledge sharing among postgraduate students.

The findings of research question two indicate that postgraduate students perceive information literacy competencies as fundamental to effective knowledge sharing. It implies that competencies such as communication, information retrieval, information evaluation, database utilization, and the ability to identify different information formats significantly strengthen students' capacity to exchange scholarly information, collaborate with peers, and contribute meaningfully to academic discourse. The corresponding hypothesis indicate that there is a moderate positive and statistically significant relationship between information literacy competencies and knowledge sharing among postgraduate students in public universities. The Pearson Product Moment Correlation coefficient of r = .557 shows that as postgraduate students' information literacy competencies increase, their capacity and willingness to share knowledge also increase. The positive correlation suggests that students who possess stronger information literacy skills are more likely to engage in effective academic communication, collaborative learning, and the dissemination of knowledge within their institutions. Furthermore, the significance value of p = .000, which is less than the 0.05 level of significance, indicates that the observed relationship is statistically significant. This implies that the relationship between information literacy competencies and knowledge sharing did not occur by chance. Consequently, the null hypothesis stating that there is no significant relationship between information literacy competencies and knowledge sharing among postgraduate students is rejected, while the alternative hypothesis is accepted. The finding may be attributed to the fact that information literacy competencies equip postgraduate students with the ability to recognize their information needs, identify relevant information sources, retrieve information efficiently, critically evaluate the credibility and relevance of information, organize information effectively, and use and communicate information ethically. These competencies enhance students' confidence in discussing academic issues, collaborating with peers, sharing research findings, participating in seminars and conferences, contributing to scholarly publications, and engaging in online academic communities. Students who are information literate are therefore better positioned to transform information into knowledge and share it meaningfully with others, thereby enriching collaborative learning and research.

The present finding is consistent with the Association of College and Research Libraries (ACRL, 2016), which emphasizes that information literacy empowers learners to discover, evaluate,

create, and share information responsibly, thereby promoting scholarly communication and lifelong learning. The finding also agrees with UNESCO (2021), which asserts that information and media literacy competencies enable individuals to access, evaluate, produce, and disseminate information effectively in digital learning environments. Similarly, Al-Kurdi, El-Haddadeh, and Eldabi (2020) found that effective knowledge sharing in higher education is significantly influenced by individuals' competencies in acquiring, evaluating, and communicating information. Although the correlation coefficient of r = .557 indicates a meaningful positive relationship, it also suggests that information literacy competencies are not the sole determinant of knowledge sharing among postgraduate students. Other factors, including digital literacy, communication skills, technological infrastructure, institutional support, motivation, collaborative learning culture, and access to digital information resources, may also influence students' knowledge-sharing behaviour.

Conclusion

The study concluded that competencies in the use of search engines and information literacy competencies are significant determinants of knowledge sharing among postgraduate students in public universities in South-East Nigeria. The findings revealed that postgraduate students possess high levels of competencies in the use of various search engines and media and information literacy skills, which positively influence their ability to locate, evaluate, organize, and disseminate scholarly information. These competencies enhance students' participation in academic discussions, collaborative research, and the sharing of research outputs within the university community. The study further established a moderate, positive, and statistically significant relationship between competencies in the use of search engines and knowledge sharing, as well as between information literacy competencies and knowledge sharing. This implies that improvements in students' search engine and information literacy competencies are associated with corresponding improvements in their knowledge-sharing capacity. Students who are proficient in searching for, evaluating, and ethically using information are more likely to communicate research findings effectively, collaborate with peers, and contribute to knowledge creation. The study underscores the importance of strengthening search engine competencies and information literacy programmes in public universities. Enhancing these competencies through library instruction, information literacy training, digital skills workshops, and improved access to

scholarly information resources will foster a stronger culture of knowledge sharing, promote collaborative learning, and ultimately improve the quality of postgraduate research and scholarly productivity in public universities in South-East Nigeria.

Recommendations

Based on the findings, the following recommendations were made:

1. University libraries and postgraduate schools should organize regular training programmes, workshops, and seminars on advanced search engine use and information literacy competencies to equip postgraduate students with the skills required to effectively locate, evaluate, retrieve, and ethically use scholarly information. Such training should emphasize advanced search techniques, the use of academic search engines and databases, critical evaluation of information sources, and responsible information sharing to enhance collaborative research and knowledge exchange.
2. University management should strengthen digital information infrastructure and promote knowledge-sharing platforms within the academic community by providing reliable internet connectivity, access to scholarly databases, institutional repositories, and collaborative digital platforms. This will enable postgraduate students to effectively utilize their search engine and information literacy competencies in sharing research outputs, exchanging academic ideas, and participating in collaborative scholarly activities, thereby improving research productivity and innovation

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