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IMPACT OF DIGITAL SKILLS ON THE USE OF AI TOOLS FOR RESEARCH AMONG LIBRARY AND INFORMATION SCIENCE UNDERGRADUATE STUDENTS IN IGNATIUS AJURU UNIVERSITY OF EDUCATION, PORT HARCOURT

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Abstract
This study examined digital skills and use of AI tools for research: A study of Library and Information Science Students in Ignatius Ajuru University of Education. Three objectives and three research questions were formulated to guide the study. The study adopted a descriptive research survey design. The population of the study was 455 students in the Department of Library and Information Science in the Faculty of Education, Ignatius Ajuru University of Education, in the 2024/2025 academic session. This study adopted a census sampling technique and therefore had no sample size. Questionnaire was used to gather the data and analysed using mean and standard deviation. The study discovered that the digital skills possessed by library and information science LIS undergraduate students are Internet browsing skills, basic computer literacy skills, Information retrieval skills, digital communication skills and AI prompts. The AI tools used for research are ChatGPT and Quillbot. The study concludes that digital skills enhance the use of AI tools for research among LIS undergraduates. The findings of the study recommended that LIS undergraduates at Ignatius Ajuru University of Education, Port Harcourt, should leverage AI tools for research.
Keywords: Digital skills, Artificial Intelligence Tools, Research, LIS, undergraduates

Introduction

The rise of digital technologies, particularly artificial intelligence (AI), has transformed research for academic and non-academic purposes. In an academic environment, the integration of AI tools has become inevitable. The AI tools that comprise ChatGPT, Quibot Gemini, Grammarly, ResearchRabbit, Writesonic, and MATLAB facilitate undergraduate students to undertake crucial research work. These tools help student access diverse information resources and their respective formats, and converse with these students and provide them with suggestions for felt thoughts during the research process. AI tools are recognized for their importance in LIS education because the field is saddled with the responsibility of producing digitally proficient graduates who should qualify as educators and professionals. AI, presents transformative potential, enabling automated literature reviews, predictive data analysis, and sophisticated data visualization (Fundira et al., 2024).

The integration of technology into academic research like the LIS has created a new imperative for the students to acquire digital competencies that enable them perform tasks such as effective information searching, analysis, and dissemination of research.

Research is a systematic way of investigating into sources, information to establish facts, and draw conclusion. Undergraduate students are required to conduct research in the course of their programmes. This could come in form of assignments, presentations and project writing. However, Diseiye et al. (2024) aptly notes, the increasing reliance on technology in academic research necessitates that student develop robust digital skills to remain competitive. The digital revolution has introduced a plethora of tools and

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technologies designed to streamline research activities. From advanced search engines to data management software to statistical analysis tools and collaborative platforms, these innovations offer unprecedented capabilities for enhancing research efficiency and accuracy (Martin 2019).

Digital skills encompass a broad range of competencies that enable individuals to effectively use digital devices, applications, and platforms to access, manage, analyze, and create information (Nsirim & Okeke, 2024). Despite the evident advantages of digital technologies, there is growing concern that students may not be adequately prepared to leverage these tools effectively. This gap in digital literacy can impede students' ability to conduct high-quality research, manage data efficiently, and collaborate effectively in digital spaces.

The integration of AI tools would have a snowballing influence during schooling and after the LIS student graduates and is gainfully employed with public, private of self-employed. The impact of such skills can be described as a transformative force because it will change the perception of those whom these students facilitate and can utilise these tools. Therefore, to keep pace with these changes caused by technological advancement, digital skills are highly requisite (Combes, 2016). It is obvious that as the field of LIS continues to evolve, the ability of undergraduates to adapt and excel in a technology-rich environment distinguishes them as researchers and information professionals. Therefore, this study aims to investigate the digital skills and AI tools usage among LIS undergraduates to identify areas of improvement and inform strategies that foster digital literacy and AI tool proficiency.

Statement of Problem

The rapid evolution of digital technologies will continue to necessitate that LIS students continue to retool, one of such areas is ~~and~~ understanding and proficient with artificial intelligence (AI) tools because it has transformed the academic research landscape, causing a corresponding shift in the skill sets of Library and Information Science (LIS) students. Despite the clear benefits of digital skills and AI tools, it is observed by the researcher observes that students of Ignatius Ajuru University of Education are lagging. There is growing concern that LIS undergraduates of the University will become educators are professionals with little or no impact in the field when the necessary steps are not taken to adequately prepared them to leverage on these technologies effectively. This gap presents a significant problem. It is therefore imperative to underscore the impact of digital skills on the use of AI tools for research among undergraduates of library and information science students in Ignatius Ajuru University of Education, Port Harcourt.

Objectives of the Study

The main aim of this study is to determine impact of digital skills on the use of AI tools for research among undergraduates of library and information science students in Ignatius Ajuru University of Education, Port Harcourt. The specific objectives are to:

1. Determine the common digital skills possessed by undergraduate LIS students to enable them utilize AI tools effectively for research work in Ignatius Ajuru University of Education

2. Identify the AI tools used by undergraduate LIS students for research in Ignatius Ajuru University of Education

3. Determine the impact of undergraduate LIS students possessing digital skills on the use of AI tools for research in Ignatius Ajuru University of Education

Literature Review

Common digital skills possessed by students to utilize AI tools

Digital skills, according to Adewole (2020) are the ability to use digital technologies effectively and efficiently to locate, evaluate, create, and communicate information. Babalola (2019) defined digital skills as the ability to effectively and critically navigate, evaluate, and create information using a range of digital technologies. Warschauer, (2010) refers to digital skills as the ability to use digital technology, communication tools, or networks to locate, evaluate, use, and

create information. It encompasses a range of skills, from basic computer skills such as typing and using software programs to more advanced skills such as coding, digital marketing, and online collaboration (Omehia et al., 2021). Digitally literate students are better equipped to navigate the digital landscape, access information, and communicate with others Adewole (2020).

Digital skills can be categorized into various types based on their application and complexity. These skills range from basic to advanced levels and are essential for participating in the digital economy and society. (Coşkunserçe & Aydoğdu, 2022). However, the digital skills needed by students to utilize AI tools for research include Internet browsing skills, basic computer skills, information retrieval skills, digital communication skills and AI prompts skills. The skills are necessary to harness the potential of Artificial Intelligence tools for research.

AI tools used by students for research

Artificial Intelligence (AI) tools refer to software applications, platforms, and systems that utilize AI technologies to perform tasks that typically require human intelligence. These tasks include learning, reasoning, problem-solving, understanding natural language, perception, and making decisions. AI tools are designed to automate processes, enhance decision-making, and improve efficiency across various industries. AI tools are instrumental in automating complex processes, enhancing data analysis, and facilitating decision-making across various industries such as healthcare, finance, manufacturing, and customer service (Coker, 2022). Artificial Intelligence (AI) tools have become increasingly vital to the research landscape, offering transformative capabilities that enhance the quality, efficiency, and scope of scholarly investigations. As the volume of data and complexity of problems grow, AI tools provide researchers with powerful means to analyze information, derive insights, and explore new frontiers of knowledge (Ashraf & Khan, 2020).

AI tools significantly improve the efficiency of research processes, from data collection to publication. Automated systems powered by AI can streamline repetitive and time-consuming tasks, allowing researchers to focus on more critical aspects of their work. For example, AI-powered literature review tools can scan and summarize vast amounts of academic publications, helping researchers stay updated with the latest developments in their field without manually sifting through numerous papers (Borgman, 2015). AI tools have become indispensable to modern research, offering numerous benefits that enhance data analysis, facilitate discovery, promote interdisciplinary collaboration, improve efficiency, and enable personalized approaches. As AI technologies continue to evolve, their impact on research will only grow, driving further advancements and innovations across all fields of study (Chatti, & Muslim, 2020).

Embracing AI tools in research not only augments the capabilities of researchers but also paves the way for a more dynamic, efficient, and collaborative research ecosystem, ultimately contributing to the betterment of society through scientific and technological progress. Some of the AI tools used for research are ChatGpT, Quilbot**,** ResearchRabbit, Grammarly, MATLAB. According to Coker (2022), ChatGPT serves as a versatile research tool that can enhance various aspects of the research process, from idea generation to writing, data analysis, and ethical considerations. While it cannot replace the critical thinking and expertise of a human researcher, it provides valuable support, making the research process more efficient, accessible, and productive. ChatGPT offers a wide range of capabilities that can greatly enhance the research process, from ideation and writing to data interpretation and ethical consideration. Quillbot is an AI paraphrasing tool that enable people to understand complex research by rephrasing text in different ways. This is a great way for researchers to gain perspective on their research by finding simpler ways to word it. It also enables researchers to rephrase sentences to avoid unintentional plagiarism if you're summarizing source material in your research. It serves as a powerful tool for researchers, offering capabilities that enhance writing quality, improve efficiency, and aid in the comprehension and

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synthesis of information. By using QuillBot effectively, researchers can produce clearer, more concise, and well-organized work while also reducing the time and effort involved in the writing and editing process. However, like all AI tools, QuillBot should be used thoughtfully and in conjunction with human judgment to ensure the integrity and quality of research.

ResearchRabbit is an AI-powered research tool designed to help researchers discover and organize academic literature more efficiently. It functions as a personalized research assistant, offering various features that streamline the literature review process, track research developments, and foster collaboration among researchers. ResearchRabbit is a powerful tool for researchers looking to streamline their literature discovery, organization, and analysis processes. Its AI-driven recommendations, visual network mapping, and collaborative features make it an essential tool for students, academics, and professionals who want to stay ahead in their research fields. (Bao, 2019). ResearchRabbit recommends relevant research papers based on the user's interests, previous readings, and specific topics. It uses AI to analyze patterns and connections between papers, helping researchers discover literature they might not have found through traditional search methods.

Oladokun et al. (2024) noted that researchers can use Gemini to aid in topic development and initial source discovery. Gemini, as an AI research tool, represents a significant advancement in how researchers can interact with and utilize artificial intelligence in their work. However, the use of the identified AI tools requires digital skills. This is because digital skills play a crucial role in the effective use of AI tools for research by students and professionals. The impact of digital skills on the use of AI tools for research by students and professionals is substantial. Digital proficiency enhances data management, improves information retrieval, boosts research productivity, and ensures the quality and ethical use of AI tools. As digital skills continue to evolve, their integration with AI tools will further empower students and researchers, driving innovation and excellence in the field of research (Adewole, 2020).

Impact of Digital Skills on the Use of AI Tools for Research

The development of digital skills has significantly enhanced researchers' ability to utilize artificial intelligence (AI) tools effectively. Digital literacy, including the capacity to navigate digital platforms, manage data, and engage with analytical software, forms the foundation for leveraging AI in academic research. Researchers with strong digital competencies are better equipped to use AI tools for tasks such as data mining, literature reviews, and predictive modeling, ultimately improving the efficiency and quality of their work (Henderson et al., 2020). Furthermore, the integration of digital skills facilitates critical engagement with AI outputs, enabling researchers to assess the validity, bias, and ethical implications of AI-generated results.

Moreover, digital skills play a pivotal role in democratizing access to AI tools across disciplines. As AI technologies become more embedded in research workflows, those without adequate digital proficiency risk being excluded from emerging academic opportunities (Omehia et al. 2021, Daniels et al., 2023). Institutions that prioritize digital skill development empower their researchers to stay competitive and innovative, especially in fields where AI is rapidly transforming methodologies. Thus, fostering digital competencies is not only essential for individual academic success but also for advancing collective knowledge production in the era of AI-driven research.

Methodology

The study adopted a descriptive research survey design. The population of the study comprised of all four hundred and fifty-five (455) students in the Department of Library and Information Science in Faculty of Education, Ignatius Ajuru University of Education, from year 1 to year 4 in the 2024/2025 academic session. This study adopted census sampling technique. In this regard, all four hundred and fifty-five (455) students in the Department of Library and Information Science were used as sample of the study. Questionnaire was used for data collection. A total of 402 copies of the questionnaire were found valid for analysis. The data collected from

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the respondents were properly organized in tables, coded and analysed using mean and standard deviation. The decision to accept or reject was based on the criterion mean of 2.5, which implies that any item with a mean of 2.5 and above was accepted, and rejected otherwise.

Results and Discussion

The results are presented and discussed based on the specific objectives.

Table 1: Common digital skills possessed by undergraduate LIS students to enable them utilize AI tools effective for research work in Ignatius Ajuru University of Education

S/N	Items	Mean	Sd	Decision
1	Basic computer literacy skill	2.7	2.4	Accept
2	Natural Language Processing	2.1	2.2	Reject
3	Information retrieval skill	2.6	2.5	Reject
4	Data literacy	2.4	2.4	Reject
5	digital communication skill	2.6	2.5	Accept
6	AI prompts	2.5	2.5	Accept
7	Internet browsing skill	3.0	2.9	Accept
8	Data Analysis skill	2.4	2.3	Reject
	Weighted Mean	**2.5**	**2.4**	**Accept**

The result from table 1 discovered that the digital skills possessed by library and information science LIS undergraduate students are Internet browsing skills, Basic computer literacy skills, Information retrieval skills, digital communication skills, and AI prompts. On the other hand, Natural Language Processing, data literacy and Data Analysis skills were not possessed by the undergraduate students. This study corroborates with that of Oladokun et al. (2024) who noted that skills such as information retrieval skills, internet fundamentals, and basic computer skills are necessary to harness the potential of AI.

Table 2: -AI tools used by undergraduate LIS students for research in Ignatius Ajuru University of Education.

S/N	ITEMS	Mean	SD	Decision
1.	Gemini	2.1	2.0	Reject
2.	ChatGPT	3.5	3.4	Accept
3.	Quillbot	2.6	2.5	Accept
4.	Grammarly	2.2	2.3	Reject
5.	ResearchRabbit	2.0	2.0	Reject
6	Writesonic	1.7	1.5	Reject
7.	MATLAB	1.5	1.3	Reject
	Weighted Mean	**2.2**	**2.1**	**Reject**

The result from table 2 indicates that the AI tools used for research are ChatGPT, and Quillbot. On the other hand, Gemini, Grammarly, ResearchRabbit, Writesonic, MATLAB were not used for research. The weighted mean of 2.2 indicates that AI tools were not used by LIS undergraduates for research.

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This finding supports Oyetola et al. (2023) who found that AI tools such as ChatGPT and Gemini significantly improve the efficiency of research processes,

Table 3: Impact of undergraduate LIS students possessed digital skills on the use of AI tools for research in Ignatius Ajuru University of Education

S/N	ITEMS	Mean	Sd	Decision
1.	Facilitates research	3.0	2.9	Accept
2.	Improves the quality of research	2.6	2.7	Accept
3.	Enhances information retrieval	3.1	3.0	Accept
4.	Encourages research	3.5	3.5	Accept
5.	Encourages research collaborations	2.6	2.5	Accept
	Weighted Mean	**2.9**	**2.9**	**Accept**

The result from Table 3 indicates that digital skills encourage research, enhance information retrieval, facilitate research, improve the quality of research and encourage research collaborations. The weighted mean of 2.9 indicates that digital skills have a positive impact on the use of AI tools for research among LIS undergraduates. These findings support Adewole (2020), who stated that the impact of digital skills on the use of AI tools for research by students and professionals is substantial.

Conclusion

The advancement of digital technologies and artificial intelligence (AI) tools has reshaped academic research, requiring Library and Information Science (LIS) students to adapt their skill sets accordingly. However, despite the evident advantages of digital skills and AI tools, there is increasing concern that LIS undergraduates may not be sufficiently equipped to utilize these technologies effectively. Thus, this study highlights the significance of digital literacy and AI proficiency in modern academic research. The finding reveals that while the students demonstrate confidence in their digital skills, there is poor usage of AI tools for research. Yet, digital skills were found to enhance the use of AI tools for research among LIS undergraduates.

Recommendations

Based on the findings the following recommendations were made;

1. Based on the findings that LIS undergraduates possessed the skills to utilize AI tools for research, it was recommended that they should continue to update their digital skills to respond to any change in the adoption of AI tools for research.
2. Based on the findings that AI tools such as ResearchRabbit, Grammarly, and MATLAB were not utilized for research by LIS undergraduate students, it was recommended that these tools should be leveraged to enhance research.
3. LIS departments should organize capacity building training for LIS students on the use of AI tools for research.

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