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AN ASSESSMENT OF AI LITERACY SKILLS AMONGST ACADEMIC LIBRARIANS IN NIGERIA

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Abstract

This study investigates the level of artificial intelligence (AI) literacy among academic librarians in Nigeria, emphasizing their familiarity with AI tools, perceived usefulness, ease of use, and attitudes toward AI integration in library services. Utilizing a descriptive survey design guided by an integrated Technology Acceptance Model (TAM) framework, the study collected 73 valid responses via an online questionnaire distributed through professional platforms. Findings reveal that while many librarians are moderately or very familiar with basic AI tools such as AI-powered search engines and plagiarism detection systems, their awareness of advanced AI applications such as recommender systems, predictive analytics, and AI-based cataloging is significantly low. The study found a strong positive correlation (r = 0.713) between perceived usefulness and attitude toward AI literacy, and a weak but positive correlation (r = 0.183) between perceived ease of use and attitude. These results affirm that perceived usefulness is a key driver of AI adoption. The study concludes that although librarians have a favorable disposition towards AI, there exists a critical need for structured training, institutional support, and policy-driven frameworks to enhance AI literacy competencies in academic libraries across Nigeria. The study recommends systematic training for librarians by their professional body to equip them with AI knowledge, skills, and expose them to advanced AI applications beyond common tools.

Keywords: Artificial Intelligence, AI Literacy, Academic Librarians, Nigeria Libraries, Perceived Usefulness, Perceived Ease of Use

Introduction

The emergence of artificial intelligence (AI) technologies is reshaping how information is created, discovered, organized, and consumed. As these technologies become more infused in research, teaching, and learning there is a growing recognition that AI literacy is not only a technical skill but a foundational competency for navigating the emerging digital information ecosystem. Librarians, therefore must transform from gatekeepers of information to guides, offering digital resources, training, and expert support that empower individuals to navigate the changing information ecosystem. According to Andersdotter (2023), librarians have a twofold challenge acquiring appropriate knowledge and skills for AI applications in library operations as well as AI skills and knowledge to effectively teach their users AI literacy. Lo (2023) notes that for librarians, AI literacy could involve understanding how AI tools work, how they can be used to enhance library services and how to navigate potential ethical issues related to AI. Beyond this, scholars have argued that librarians acquire knowledge to effectively teach AI literacy. Traditionally librarians have been at the forefront of advocating and promoting information, digital, and media literacy, hence expected to also do the same for AI Literacy. Librarians already possess the foundational skills in evaluation, ethical use and understanding of information landscapes that are essential for AI literacy. Supporting this assertion, Andersdotter (2023), Ridley and Pawlick-Potts (2021) posit that librarians are well-positioned to teach AI literacy due to their expertise in information literacy and digital skills. Wanjiku (2024) asserts that some libraries in the United States are demonstrating that libraries can deliver basic AI literacy to higher education learners.

Artificial Intelligence (AI) is a subfield of computer science that focuses on building systems that can carry out tasks that normally require human intelligence. There is currently no universally accepted definition of artificial intelligence (Hervieux and Wheatley, 2021; Cox and Mazumdar, 2022), some common pattern that emerged in many of the definitions is the concept that AI systems can perform tasks that humans normally do. The author aligns with the definition of Pawar (2024) which states that AI has systems that perform tasks requiring human intelligence, such as learning, reasoning, problem-solving, comprehension of spoken language, perception, and even creativity are some of these tasks.

Overview of AI Literacy

AI has transformed how information is created, retrieved, disseminated, and used, hence equipping librarians with the knowledge and skills to effectively integrate AI tools into library services and operations will enhance information services. AI literacy involves the application of information literacy skills to critically assess the sources, data, and underlying assumptions that shape AI models. Long and Magerko (2020) defined AI literacy as "a set of competencies that enables individuals to critically evaluate AI technologies, communicate and collaborate effectively with AI, use AI as a tool online, at home and in the workplace." Understanding the fundamental workings of AI and critically evaluating its applications in teaching, scholarship, and daily life are also key aspects of AI literacy. AI literacy equips individuals with the knowledge and skills to interact with AI responsibly and effectively, enabling informed decision-making regarding AI technologies and their implications. Supporting this assertion Lo (2025) posited that AI literacy goes beyond understanding AI tools; it equips individuals to critically evaluate, ethically navigate, and practically apply AI in real-world scenarios. AI

is also described as a set of competencies that enables individuals to critically assess AI technologies, communicate and collaborate effectively with AI, and employ AI as a tool across various settings. According to IFLA's AI statement, AI literacy entails:

- A basic understanding of how AI and ML work, their underlying logic and their limitations;
- Understanding the potential societal impacts of AI, especially in the area of human rights;
- Personal data management skills;
- Media and Information Literacy.

AI literacy therefore will empower users to understand how AI systems influence what they see, read, believe, and use AI tools responsibly in academic and creative contexts.

Statement of Problem

The infusion of AI in every facet of human endeavor has significantly transformed the information ecosystem, particularly in information generation, organization, retrieval, and dissemination. Studies have shown that many academic libraries are already using AI in their workflow thereby improving the quality of their library services (Wheatley & Hervieux, 2019; Nawaz and Saldeen, 2020; Akinola, 2023; Chandrasekar et al., 2023; Lo, 2024; Akpukpu & Osawele, 2025). These emerging technology requires a new set of competencies particularly AI literacy, which encompasses the knowledge, skills, and attitudes required to understand, evaluate, and responsibly use AI tools. There is a critical gap in understanding the existing levels of AI literacy among academic librarians in Nigeria. Hence it is unclear whether these librarians possess the foundational understanding, practical skills, and awareness of AI applications necessary to effectively navigate, implement, and utilize AI technologies, or to guide their patrons to responsible use of AI in an increasingly AI-driven information ecosystem. This study therefore seeks to fill this critical knowledge gap by assessing the level of AI literacy among academic librarians in Nigeria and recommending strategies to enhance their preparedness for integrating AI literacy in the library. To achieve this the following objectives were set for this study.

1. To identify if academic librarians sampled had any formal training, familiarity with AI and awareness of specific AI library application
2. To identify academic librarians' attitudes and behaviors towards AI Literacy

Hypothesis

1. There is no significant relationship between Academic librarians' perceived usefulness and perceived ease of use of Artificial Intelligence and their attitude toward AI Literacy.
2. There is no significant relationship between Academic librarian's familiarity and perception of AI with their attitude toward AI Literacy

Literature Review

Level of familiarity and perception of AI among academic librarians in Nigeria

The level of familiarity and perception of AI among academic librarians is a foundational step in the enhancement of user experiences in academic institutions. Studies have explored academic librarians' familiarity and perceptions of artificial intelligence (AI) in libraries. Lund et. Al. (2020) examined how AI is perceived within the library and information science field and how these perceptions can influence the adoption and integration of AI technologies in academic libraries and concluded that Academic librarians are generally receptive to integrating AI into library operations. Furthermore, many studies across different countries, including the United States, Canada, India, and the Philippines, reveal varying high levels of AI awareness and positive perception in academic libraries (Yoon et al., 2021; Abayomi et al., 2021; Leon et al., 2024; Kalbande et.al.(2024). Ajani et. al.(2022) examined the perspectives of librarians in Nigeria on the awareness and readiness of academic libraries to integrate artificial intelligence (AI) for library operations and services. The finding revealed that Nigerian academic librarians are aware of AI integration in libraries and perceive that AI integration could improve efficiency by reducing human errors, but also worry that it might replace their job roles. Eiriemiokhale and Sulyman's (2023) study on the awareness and perception of Artificial Intelligence among Librarians in University Libraries in Kwara State revealed that while librarians were moderately aware of AI technology they perceived AI as a positive development, capable of enhancing library services by providing personalized recommendations, automating repetitive tasks, and facilitating knowledge discovery. The level of familiarity beyond the surface provides a better understanding of how AI works and why AI behaves the way it does. With this understanding, librarians can adopt and use AI with greater confidence.

Factors that influence librarians' attitudes toward adopting AI in academic libraries

The attitudes of librarians toward the adoption of AI in academic libraries will no doubt have a profound impact on its utilization in the library. Librarians positive attitude is essential to the successful adoption and use of AI in library workflow. Many studies examined factors influencing librarians's attitudes toward AI adoption in academic libraries. Huang (2022) explores factors influencing academic librarians' attitudes toward adopting AI in their libraries including key factors, impediments, and the relationship to their knowledge activities. The study found that individual and organizational knowledge activities positively correlate with attitudes toward AI implementation (Huang, 2022). Molaudzi and Marutha (2024), investigated librarians' attitudes towards the adoption of artificial intelligence (AI) technology in the public academic libraries in South Africa. The study revealed that academic libraries in South Africa generally have a positive attitude towards the adoption of AI technology, with only a few having a negative attitude. Furthermore, they identify some contributory factors to attitudes towards the adoption of AI including self-perception of AI knowledge, optimism and enthusiasm about AI and concerns about job security. Kalbande et. al (2024) conducted a study in Indian library and information science (LIS) professionals' perspectives on the integration of artificial intelligence (AI) in academic libraries in India. They found that librarians in India generally have a positive perception of integrating AI in academic libraries and are willing to learn about it.

Perceptions of Usefulness and ease of Use of AI Technology by librarians

Perceived usefulness and ease of use significantly influence behavioral intentions to use AI, both directly and indirectly through attitudes. Farmani et.al. (2012) investigated the

relationships between ease of technology use, innovation tendency, perceived usefulness, and intention to use technology among librarians. Their study revealed that, there is a positive significant relationship between ease of use and perceived usefulness with intention to use technology. The findings of Leon et al. (2024) indicate that librarians view AI technology as beneficial and capable of significantly improving library operations and overall user experience. Geddam et al. (2024) examined how perceived usefulness, perceived ease of use, and user attitudes influence the adoption of AI tools. The study concluded that both perceived usefulness and perceived ease of use of AI tools directly and indirectly influence behavioral intention to use the AI tools.

Theoretical Framework

The Technology Acceptance Model (TAM) as proposed by Davis (1989) posits that two primary factors; **perceived usefulness (PU)** and **perceived ease of use (PEOU)** determine users' attitudes toward technology adoption and subsequently influence their behavioral intentions. TAM has been widely used to explain the intention to use technology in various fields such as intelligent healthcare systems, internet-based intelligent systems web, Barrón Estrada, M.L., Hernández, F.G., Bustillos, R.O., & García, C.A. (2017). An effective and Web 3.0 learning environments, intelligent advertising systems, and intelligent robots (Liang and Lee, 2017; Chen et al., 2017; Mugo et al.,2017; Aguilar and Garcia, 2018; Cabada et al., 2017 and Changchit et al., 2011). The Technology Acceptance Model (TAM) serves as an appropriate framework for understanding the adoption of technology. This paper adopts the TAM framework to assess how factors such as perceived usefulness (PU), ease of use (PEOU), and attitude towards usage impact the willingness of academic librarians to integrate AI into library workflow to enhance user experience. Davis (1989), asserts that Technology Acceptance Model (TAM) suggests that perceived usefulness (PU) and perceived ease of use (PEOU) are key determinants of technology adoption. Chen et al.(2011) further argued that perceived usefulness (PU) and perceived ease of use (PEOU) positively affect the attitudes toward usage (ATU) of a technology. If Nigerian academic librarians perceive AI as difficult to use or irrelevant to their work, adoption will be minimal. This framework was utilized in this study to examine the readiness of academic librarians in Nigeria to adopt and teach AI tools and literacy skills.

Methodology

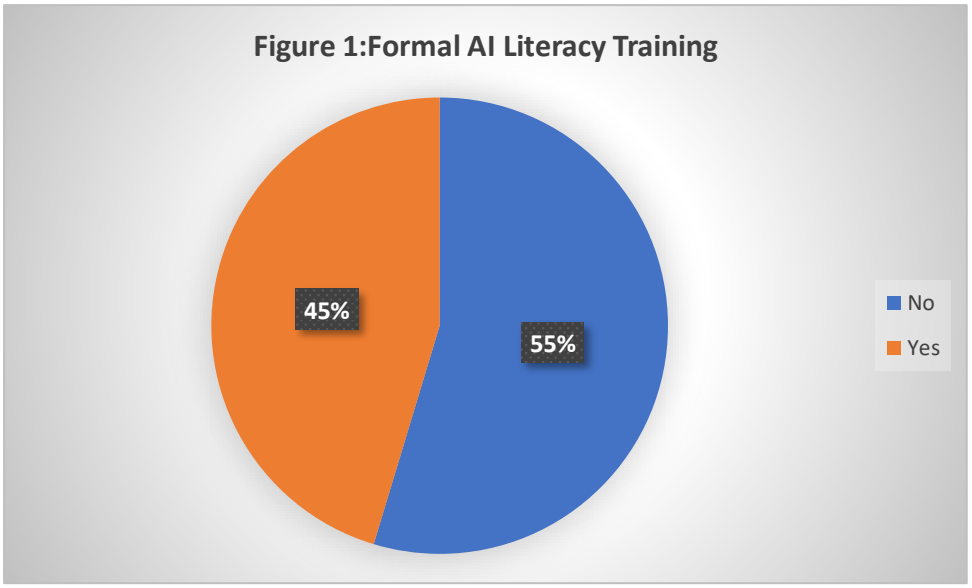
The target population comprised academic librarians working in Nigerian tertiary institutions, including universities, colleges of education, and polytechnics. Due to the geographically dispersed nature of the population and accessibility constraints, a convenience sampling technique was adopted. An online questionnaire was created using Google and the survey link was distributed through professional platforms such as the Nigerian Library Association (NLA) WhatsApp groups and institutional mailing lists. A total of 73 valid responses were received, forming the sample size for analysis.

This study adopted a descriptive survey design to assess the level of AI literacy among academic librarians in Nigeria. The study utilized a quantitative approach, guided by an integrated Technology Acceptance Model (TAM) framework as the foundation for understanding librarians' AI literacy.

Findings and Discussion

AI literacy among academic librarians in Nigeria can be assessed by examining their formal training, familiarity with AI, and awareness of specific AI applications.

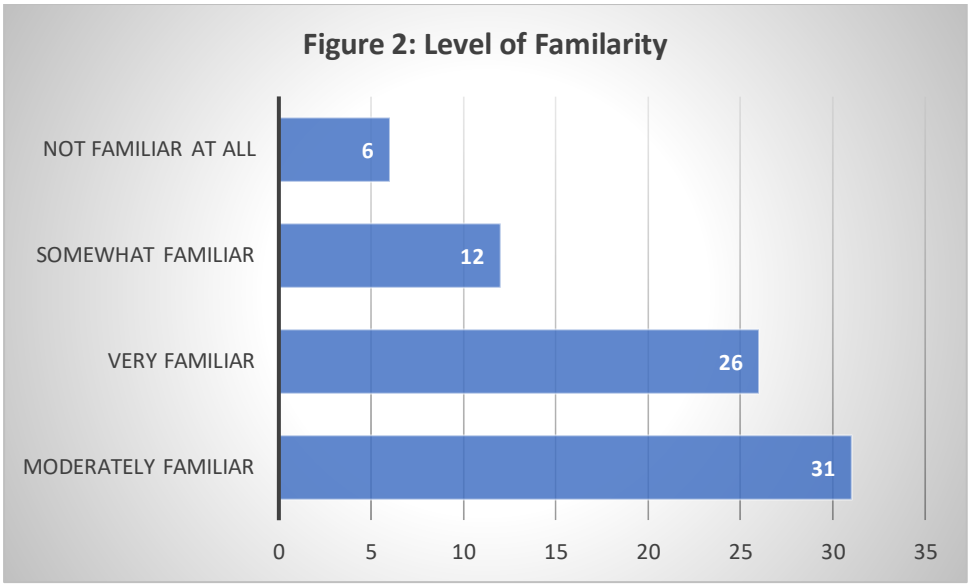
Figure 1: Formal AI Training



The data shows that a majority of librarians sampled (55%) have not received any formal training in AI applications for libraries, while (45%) have. This indicates a gap in systematic training opportunities for librarians to develop AI skills. This finding is supported by Andersdotter (2023), Ajani et al (2022) and Wanjiku(2024) who highlighted very few institution offer structured AI training for librarians.

Familiarity with AI

The data collected revealed that 41% of librarians sampled consider themselves "moderately familiar" with AI and its application in academic libraries, followed by (34.67%) who are "very familiar." A smaller percentage (16%) are "somewhat familiar," and (8%) are "not familiar at all." While a significant portion demonstrates some level of familiarity, the presence of those with limited or no familiarity highlights a need for foundational AI education. This finding aligns with the findings of Eirirmiokhale and Sulyman (2023), Ajani et al. (2022) and Lun et al.(2020) who posited that librarians are generally receptive to AI, though familiarity varies.



Awareness of AI Applications

From the data collected as shown in Table 1, librarians are most aware of AI-powered search engines as indicated by 78.67% of the sampled population and 65.33% of Plagiarism detection tools. Awareness drops significantly for more specialized AI applications like AI tools for Automated indexing and Abstracting, AI-driven recommender systems and Predictive analytics for user behavior as indicated by 14.67%, 12%, and 6.67% respectively. The lower awareness of advanced AI tools suggests a need to broaden librarians' understanding of the diverse potential of AI in library services.

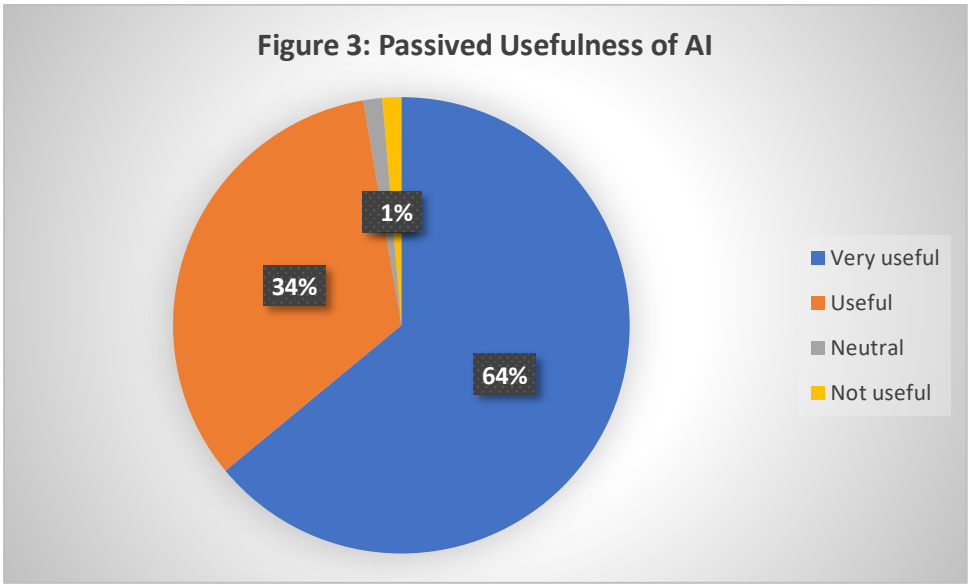
Table 1: Awareness of AI Application

AI Application	**Freq.**	**Percentage**
AI-powered search engines (e.g., Google Scholar, EBSCO, Scopus)	59	78.67
Plagiarism detection tools (e.g., Turnitin)	49	65.33
Chatbots and virtual assistants	34	45.33
AI-driven Automated cataloging and classification systems	25	33.33
Optical Character Recognition (OCR) for digitization	22	29.33
AI-tools for Automated indexing and Abstracting	11	14.67
AI-driven recommender systems (e.g., personalized book suggestions)	9	12
Predictive analytics for user behavior	5	6.67

Research driven AI tools	1	1.33

The researchers also sought to find out areas which they have used AI in their work, 41.7% indicated they have used AI tool for Research support (e.g., AI-powered literature review tools), while 37.5% revealed they had used AI tools for Information retrieval and discover. However, only 13.7% respondents indicated they had not use any of the AI tool listed for their work. Nawaz and Saldeen (2020) in their studies also agreed that there is a growing awareness of chatbots but noted that there is a very little awareness of advanced AI tools. Chandrasekar et al.(2023) in a comparative study concluded that advanced AI tools were more widely adopted in UK libraries than in developing countries.

The perceived usefulness of AI for library and information services was first considered. The data collected strongly indicates a high perceived usefulness of AI among librarians with 64% of the sampled librarians indicating that AI is very useful and 33.33% indicating AI was useful. Only a small fraction (1.33% each) considers it Neutral or Not useful as shown in figure 3 below



This high perceived usefulness is a critical factor driving the potential desire for AI literacy. Librarians largely recognize the benefits AI can bring to their work and services. Scholars including Farmani et al. (2012) , Leon et al. (2024), Kalbande et al. (2024), and Lo (2025) all established the important role of perceived usefulness in driving AI adoption among librarians. This aligns with TAM's definition of PU as the degree to which a person believes that using a particular system would enhance his or her job performance.
Perceived ease of use was another critical factor in determine academic librarians' attitudes and behaviors toward AI Literacy.

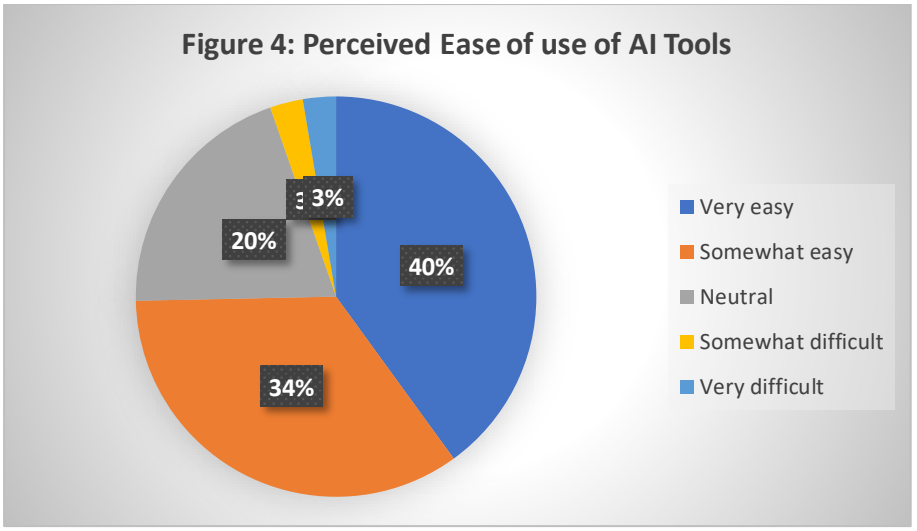


Figure 4 shows that the majority 74.67% perceive AI tools to be easy to use, suggesting that usability is not a major barrier for most academic librarians. This finding aligns with Farmani et al. (2012) finding that ease of use correlates with higher intention to adopt technology. However, the (20%) neutral responses and the small percentage of perceived difficulty indicate that some librarians might face challenges which could be addressed through better training and user-friendly interfaces. This also agrees with the finding of Lund et al,(2020) who stated that perceived difficulty limits adoption in an under-resourced context.
The high percentage (88%) of the sampled librarians showed a positive attitude toward AI adoption while only 12% remain neutral. This high percentage positive attitude is a strong indicator of willingness to embrace AI Literacy.

Data Interpretation Using the Theoretical framework
To analyze the influence of **PU** and **PEOU** on **Attitude Toward AI Literacy**, a correlation analysis was conducted. The results are presented in Table 2

Table 2: Correlation Matrix of Perceived Usefulness, Perceived Ease of Use, and Attitude Toward AI Literacy

Variables	**Perceived Usefulness (PU)**	**Perceived Ease of Use (PEOU)**	**Attitude Toward AI Literacy (ATU)**
Perceived Usefulness (PU)	1.000	0.117	**0.713**
Perceived Ease of Use (PEOU)	0.117	1.000	0.183
Attitude Toward AI Literacy	**0.713**	0.183	1.000

Table 2 shows that **Perceived Usefulness** had a strong positive correlation (r = 0.713) with attitude toward AI literacy. Hence, librarians perceive that AI can significantly improve library services such as research support, information retrieval, and cataloguing, reinforcing the belief that AI will enhance service delivery and relevance in the digital age. This positive

perception can be use as motivation to promote AI literacy in professional development programs to reinforce librarians' motivation to adopt AI tools.

Similarly, table 2 revealed that the correlation coefficient between PEOU and ATU is 0.183, indicating a weak but positive relationship. This supports the TAM assumption that when users perceive a system as easy to use, they are more likely to form a positive attitude toward its adoption. This is directly aligned with the Technology Acceptance Model (TAM), which posits that PEOU is one of the key predictors of ATU and also with Chen et al. (2011), who argued that although perceived usefulness often has a stronger influence on ATU, ease of use is a foundational is a stronger factor

Finding of Hypothesis

Hypothesis 1:There is no significant relationship between Academic librarians familiarity and perception of AI with their attitude toward AI Literacy. To address this hypothesis the correlations between familiarity, perceived usefulness, perceived ease of use, and attitude toward AI literacy were determined

Table 3: Correlation Matrix for Familiarity, Perceived Usefulness, Perceived Ease of Use, and Attitude Toward AI Literacy

	Familiarity	**Usefulness**	**Ease of Use**	**AI Literacy**
Familiarity	1	0.174916	0.387669	0.198813
Usefulness	0.174916	1	0.116648	0.712525
Ease of Use	0.387669	0.116648	1	0.183355
AI Literacy	0.198813	0.712525	0.183355	1

Table 3 shows the correlation coefficient between familiarity with AI and attitude toward AI literacy is 0.199, which is an indication of a weak positive correlation. Similarly, the correlation coefficient between perceived ease of use and attitude towards AI Literacy is a weak positive correlation (0.183). The table 3 also showed a positive correlation coefficient of 0.713 between perceived usefulness and attitude towards AI Literacy. This is a highly significant relationship, suggesting that as librarians perceive AI to be more useful, their attitude towards its adoption becomes more positive. Based on this findings, the hypothesis "there is no significant relationship between Academic librarians familiarity and perception of AI with their attitude toward AI Literacy" is rejected. Therefore, the data indicates that perceived usefulness is a major driver of a positive attitude towards AI literacy among librarians, while familiarity and perceived ease of use also play an insignificant role.

Hypothesis 2: There is no significant relationship between Academic librarians' perceived usefulness and perceived ease of use of AI and their attitude toward AI Literacy

Table 4: Correlation Matrix for Perceived Usefulness, Perceived Ease of Use, and Attitude Toward AI Adoption

	Usefulness	Ease of Use	AI Literacy
Usefulness	1	0.116648	0.712525
Ease of Use	0.116648	1	0.183355

AI Literacy	0.712525	0.183355	1

Table 4 shows that there is a strong positive correlation 0.713 between perceived usefulness and attitude toward AI adoption. This suggest that as librarians perceive AI to be more useful, their attitude towards its adoption becomes more positive. While the correlation coefficient between perceived easy of use and attitude towards AI adoption is 0.183 indicating a weak positive correlation. This suggests that while finding AI easy to use contributes to a positive attitude, its influence is not as profound as the perceived usefulness of AI.

Based on this findings, the hypothesis "there is no significant relationship between Academic librarians' perceived usefulness and perceived ease of use of Artificial Intelligence and their attitude toward AI Literacy" is rejected. Therefore, the data clearly indicates significant positive relationships, particularly a strong one from perceived usefulness, contradicting the null hypothesis of no significant relationship. This aligns with the findings of Davis (1989), Chen et al. (2011) and Geddam et al. (2024) and also with the core tenets of the Technology Acceptance Model (TAM), where both perceived usefulness and perceived ease of use are expected to influence attitude, with perceived usefulness often having a stronger impact.

Discussion

While many are moderately or very familiar with AI concepts and aware of widely used applications like AI-powered search engines and plagiarism detection software are the most recognized and likely used. This reflects common library tasks aligned with information retrieval and academic integrity. Applications such as chatbots, OCR, and automated cataloging show a growing awareness but are not yet mainstream. Advanced tools like recommender systems, predictive analytics, and research-driven AI platforms have very low awareness which is an indication to potential gaps in both training and exposure

Conclusion

The study established that AI literacy is not merely a technical skill but a foundational competency for navigating the complex digital information ecosystem. The findings indicate a foundational low level of AI literacy among academic librarians in Nigeria and also revealed that Nigerian academic librarians demonstrate a positive attitude toward the adoption of artificial intelligence in library operations. This positive attitude, despite the low foundational literacy, suggests a strong motivation for librarians to acquire AI literacy skills if adequate training and exposure are provided. The data interpreted through the Technology Acceptance Model, also reveals a high level of perceived usefulness and a positive perceived ease of use of AI which in-turns contribute to a favorable attitude towards AI literacy adoption leading to a significant rate of implementation.

Recommendation

Based on the findings of this study and guided by the two research objectives, the following recommendations were made:

1. Academic libraries and professional bodies like LRCN and NLA should implement structured AI literacy training programs tailored to librarians' roles. This should include both foundational and advanced AI applications such as recommender systems, predictive analytics, and intelligent cataloguing.

2. Library management should formulate and implement strategic policies that embed AI literacy into librarians' responsibilities. This policies should ensure that AI tools are integrated into regular workflows and aligned with enhancing library and information service delivery

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