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AWARENESS AND ATTITUDE OF LIBRARIANS TOWARD ARTIFICIAL INTELLIGENCE FOR EFFECTIVE SERVICE DELIVERY IN UNIVERSITY LIBRARIES IN TARABA STATE, NIGERIA

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ABSTRACT

University libraries are expected to provide fast, accurate, and technology-driven information services to support students, researchers, and academic staff. Although artificial intelligence (AI) tools can enhance cataloguing, reference services, and information retrieval, service delivery in many university libraries in Taraba State remains predominantly manual. Preliminary observations also indicate gaps in librarians' awareness and attitudes toward AI, yet the extent to which these factors influence service delivery is unclear. This study examined librarians' awareness and attitudes toward AI tools and their effect on information service delivery in university libraries in Taraba State. A descriptive survey design was adopted, involving 122 librarians from Federal University Wukari (FUW), Taraba State University (TSU) Jalingo, and Kwararafa University Wukari (KUW). Data from 117 valid questionnaires were analyzed using descriptive statistics and one-way ANOVA at the 0.05 significance level. Results showed a high level of AI awareness among librarians (overall mean = 4.19), with KUW exhibiting the highest consistency, followed by TSU and FUW. Attitudes toward AI were also strongly positive across all institutions (overall mean = 4.41). ANOVA revealed significant institutional differences in awareness ($p = .000 < .05$) and attitudes ($p = .002 < .05$), attributed to variations in training, exposure, and institutional support. The study concludes that librarians' AI awareness and attitudes significantly shape the efficiency and quality of information service delivery. It recommends targeted AI training programmes, enhanced institutional support, and clear policy frameworks to strengthen AI adoption in university libraries in Taraba State.

Keywords: Keywords: Artificial Intelligence, Awareness, Attitude, Librarians, University Libraries, Information Service Delivery.

Introduction

University libraries play a central role in supporting teaching, learning, and research within higher education institutions. With the proliferation of digital technologies and electronic resources, users now expect efficient, timely, and intelligent information services that extend beyond traditional manual operations. This has made the adoption of artificial intelligence (AI) a growing priority in academic libraries worldwide, due to its potential to enhance resource discovery, improve user satisfaction, and streamline routine tasks (Bashorun, Tella, Ajani, & Adisa, 2024). AI in libraries refers to computer systems capable of performing functions that traditionally require human intelligence, such as reasoning, learning, decision-making, and problem-solving. Applications now span a range of services including automated cataloguing, intelligent search engines, virtual reference services, metadata generation, plagiarism detection, chatbots, recommender systems, and predictive analytics (Owolabi & Akanbi, 2022). The proper integration of such technologies can significantly improve the accuracy, speed, and quality of library services while reducing repetitive workloads.

Despite these global advancements, many university libraries in Nigeria, including those in Taraba State, continue to face challenges in AI adoption. Service delivery remains predominantly manual, with limited AI-driven systems for cataloguing, information retrieval, and digital reference. Consequently, students and researchers frequently encounter delays in accessing relevant information. Moreover, infrastructural deficits, insufficient funding, and a lack of professional capacity hinder meaningful AI integration. Beyond these structural constraints, librarians' own awareness, ICT proficiency, and attitudes toward emerging technologies also critically influence the pace of AI adoption. Librarians with low awareness or apprehensive attitudes may resist technological innovation, thereby impeding automation and affecting service quality. Conversely, those with higher awareness and positive perceptions are more likely to adopt and champion AI-driven solutions (Akparobore, Omosekejimi, & Nweke, 2020).

Although existing research indicates moderate awareness and cautious attitudes among librarians in some Nigerian contexts (Isiaka, Olarongbe, Sulyman, Aremu, & Saba-Jibril, 2024), there remains limited investigation focused specifically on university libraries in Taraba State. Understanding librarians' awareness and attitudes and how these factors shape information service delivery is therefore essential for improving library performance, informing capacity-building initiatives, and supporting the effective integration of AI technologies. This study aims to address this gap by providing evidence-based insights that can strengthen library services and enhance professional readiness in Taraba State.

Statement of the Problem

University libraries are expected to deliver fast, accurate, and technology-driven information services that meet the growing needs of students, lecturers, and researchers. Ideally, the integration of artificial intelligence (AI) tools should enhance cataloguing, reference services, information retrieval, user engagement, and overall service efficiency. Such technologies are designed to minimize delays, reduce manual workload, and provide intelligent, personalized access to information resources. However, in university libraries across Taraba State, information service delivery remains largely manual, slow, and inconsistent with global best practices. Users often experience delays in accessing needed materials, challenges with information retrieval systems, and limited availability of modern digital services. Observations suggest that these challenges may not only be linked to infrastructural constraints but also to human factors such as librarians' level of awareness and attitude toward the adoption of AI tools. Many librarians may have limited knowledge of existing AI applications, lack confidence in using them, or hold skeptical or negative attitudes toward technological change due to fear of job displacement or inadequate training. This mismatch between expected service standards and what is currently obtained affects the quality of academic work, reduces user satisfaction, and contributes to inefficiencies in library operations. Despite the growing global integration of AI into library services, there is insufficient empirical evidence on how librarians' awareness and attitudes toward AI tools influence information service delivery specifically in university libraries in Taraba State. This lack of localized data creates a gap in understanding the behavioural and readiness factors shaping the adoption of AI in these institutions.

Therefore, the problem this study addresses is the uncertainty surrounding the extent to which librarians' awareness and attitudes toward artificial intelligence tools affect the quality and effectiveness of information service delivery in university libraries in Taraba State. This investigation is necessary to provide evidence-based insights that can support technological integration, capacity building, and improved service delivery in academic libraries within the state.

Purpose of the Study

The general purpose of this study is to examine the awareness and attitudes of librarians toward AI tools in university libraries in Taraba State, Nigeria. Specifically, the study seeks to:

1. Determine the level of librarians' awareness of AI in enhancing information service delivery in university libraries in Taraba State.
2. Examine the forms of librarians' attitudes toward AI tools in supporting information service delivery in university libraries in Taraba State.

Research Questions

The study addresses the following research questions:

1. What is the level of librarians' awareness of AI in enhancing information service delivery in university libraries in Taraba State?
2. What are the forms of librarians' attitudes toward AI tools in supporting information service delivery in university libraries in Taraba State?

Literature Review

Awareness level of Librarians on Artificial Intelligence in University Libraries

Awareness of artificial intelligence (AI) among librarians constitutes a crucial first step toward the integration of emerging technologies into academic library operations. Empirical studies across diverse geographical regions indicate that librarians generally possess a moderate to high level of AI awareness, though this varies significantly based on institutional exposure, training opportunities, and infrastructural development. Within the Nigerian context, Oyeleye and Jimoh (2023) examined AI adoption in university libraries and found that many librarians were cognizant of basic AI concepts, including machine learning-based cataloguing, automated reference services, and intelligent search systems. Their findings revealed that such awareness strongly predicted librarians' readiness to adopt these tools, underscoring the central role of exposure in shaping technological initiatives. Similarly, Abubakar and Isah (2023), in their investigation of AI awareness and preparedness among Nigerian librarians, observed that while awareness is growing, it remains uneven across institutions, with limited training opportunities and inconsistent institutional support identified as major constraints.

Elsewhere in Africa, Kibet and Kemoni (2020) reported that academic librarians in Kenya demonstrated substantial awareness of AI innovations, particularly regarding tools such as chatbots, automated indexing systems, and recommender algorithms. Despite this awareness, practical engagement remained limited due to infrastructural deficits and skill-related constraints. On an international scale, Abdullah and Abdul Rahman (2021) confirmed that librarians in Malaysia were well aware of AI-driven automation systems and recognized their potential for enhancing accuracy and accelerating service delivery. Correspondingly, Juego and Masalinto (2025) documented high levels of AI awareness among librarians in the Philippines, attributing this familiarity to structured training and sustained exposure within academic networks.

Collectively, these studies demonstrate that while AI awareness is increasing globally, significant regional disparities persist. Such awareness critically influences librarians' capacity to recognize the relevance of AI for core functions such as information retrieval, cataloguing, and user services, thereby establishing a necessary foundation for effective, technology-driven service delivery.

Attitudes of Librarians toward Artificial Intelligence in University Libraries

Attitude, defined as librarians' emotional and evaluative disposition toward artificial intelligence (AI), plays a critical role in determining technological acceptance and usage. Across multiple empirical studies, librarians generally

exhibit positive attitudes toward AI adoption, though these attitudes are often tempered by persistent concerns regarding job displacement, skill gaps, and infrastructural readiness.

Within Nigeria, Oyeleye and Jimoh (2023) found that librarians held optimistic attitudes toward AI, predominantly viewing it as an opportunity to improve operational efficiency and reduce repetitive tasks. Respondents believed AI could enhance decision-making, streamline cataloguing processes, and support advanced information retrieval. However, these positive attitudes were moderated by concurrent fears related to job security and inadequate technological infrastructure. Similarly, in Kenya, Kibet and Kemoni (2020) reported that librarians exhibited strong positive attitudes toward AI integration, perceiving it as essential for modernizing academic library services. While respondents supported AI-based automation, their attitudes reflected concerns about emerging digital divides and staff training needs.

Internationally, this trend of positive reception continues. Abdullah and Abdul Rahman (2021) reported overwhelmingly positive attitudes among Malaysian librarians, who predominantly viewed AI as a complementary rather than competitive force within traditional librarianship. Correspondingly, in the Philippines, Gonzales and Gonzales (2020) noted that academic librarians generally exhibited positive attitudes toward the adoption of emerging technologies, asserting that innovations like automation and AI-driven tools could significantly improve the accuracy, speed, and overall quality of library service delivery.

Collectively, the literature indicates that librarians' attitudes toward AI are largely positive and constitute a significant influence on adoption behavior. Positive attitudes encourage experimentation, innovation, and a willingness to integrate AI into service delivery frameworks. Conversely, negative attitudes—often rooted in fears of job displacement or perceptions of inadequate training—can substantially hinder adoption, even in contexts where awareness levels are high.

Methodology

The study employed a descriptive survey design to investigate librarians' awareness of, and attitudes toward, artificial intelligence (AI) tools in university libraries within Taraba State. A descriptive survey design is a research method that involves collecting data to test hypotheses or answer questions pertaining to the current status of the subject under investigation (Gay & Airasian, 2012). The study population comprised all 122 professional librarians from three universities in Taraba State: Taraba State University, Jalingo (66); Federal University Wukari (49); and Kwararafa University Wukari (7).

A census sampling technique was utilized, encompassing the entire population of 122 professional librarians to ensure comprehensive coverage and enhance the accuracy of the results. A structured questionnaire, titled the Awareness, Attitude & Service Delivery Questionnaire (AASD-Q), was developed for data collection. The instrument consisted of three sections: Section A captured demographic information; Section B measured librarians' awareness of AI tools; and Section C assessed librarians' attitudes toward AI tools for information service delivery. Responses in Sections B and C were rated on a five-point Likert scale, ranging from Strongly Agree (5) to Undecided (1).

The questionnaires were administered in person with the assistance of library management and trained research assistants. Out of 122 questionnaires distributed, 117 were duly completed and returned, yielding a high response rate of 95.9%. Data analysis involved the use of descriptive statistics, specifically mean and standard deviation, to address the research questions. Furthermore, a one-way analysis of variance (ANOVA) was applied to test the study's hypotheses at a 0.05 significance level, utilizing SPSS statistical package.

Results and Data Analysis

The results of the descriptive, inferential analysis and test of hypotheses were presented in Tables as follows.

Research Question 1

What is the level impact of librarians' awareness of artificial intelligence on information service delivery in Universities Libraries in Taraba State?

Reports on *Research Question 1* are presented in *Table 1*

Table 1: Librarians' Awareness of AI Tools

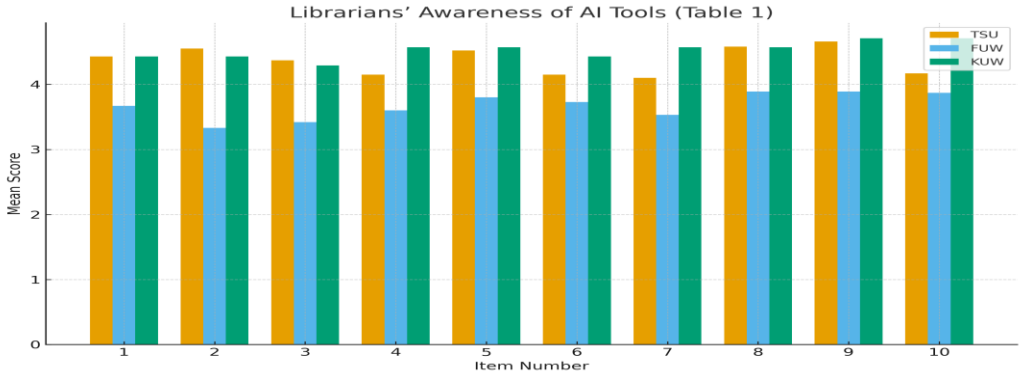

Table 1: Mean and Standard Deviation of Responses on the level of Librarians' Awareness of Artificial Intelligence in University Libraries in Taraba State (N = 117)

S/n	Items Statement	TSU (N = 65)		FUW (N=45)		KUW (N=7)		Average		Remark
		$\bar{x}$	SD	$\bar{x}$	SD	$\bar{x}$	SD	$\bar{x}$	SD	
1	Librarians are aware of AI tool in university libraries in Taraba State.	4.43	0.92	3.67	1.11	4.43	0.54	4.18	0.86	Agree
2	University librarians attend workshops and conferences to learn about artificial intelligence technology.	4.55	0.71	3.33	1.04	4.43	0.54	4.10	0.76	Agree
3	University librarians know the basics of artificial intelligence technology in the library.	4.37	0.88	3.42	0.98	4.29	0.48	4.03	0.78	Agree
4	Librarians know how to use AI technology in practical situations in university libraries.	4.15	1.10	3.60	0.98	4.57	0.54	4.10	0.87	Agree
5	Librarians are learning more about AI technology on their own because they are aware and curious.	4.52	0.58	3.80	0.94	4.57	0.54	4.29	0.68	Agree
6	Librarians have once read an article about artificial intelligence tools in the literature available in University library.	4.15	1.24	3.73	1.01	4.43	0.54	4.10	0.93	Agree
7	Librarians have participated in different training / professional development programs related to AI technology in the past year.	4.10	1.09	3.53	0.92	4.57	0.54	4.06	0.85	Agree
8	Working together in learning groups' help librarians learn more about AI technology in my university library.	4.58	0.53	3.89	1.01	4.57	0.54	4.35	0.69	Agree

9	Collaboration between librarians and AI experts fosters innovative library services.	4.66	0.51	3.89	0.89	4.71	0.49	4.42	0.63	Agree
10	Librarians are actively learning about AI technology.	4.17	1.14	3.87	0.97	4.71	0.49	4.25	0.86	Agree
	Cluster Mean	4.47	0.87	3.67	0.99	4.53	0.53	4.19	0.79	Agree

Key: $\bar{x}$ - Mean; SD – Standard Deviation; *SA = Strongly Agree; A = Agree; U = Undecided D = Disagree; SD = Strongly Disagree*

Table 1. Shows data **response of librarian on** the Impact level Awareness of Artificial Intelligence in University Libraries in Taraba State, it reveal that, **Taraba State University (TSU)** recorded the highest number of respondents (65), and their responses reflected a strong awareness and understanding of Artificial Intelligence (AI) technologies in library services. TSU librarians generally agreed that they are aware of AI tools in university libraries, with a mean score of 4.43 and a standard deviation of 0.92. They also confirmed frequent participation in workshops and conferences on AI ($\bar{x}$ = 4.55, SD = 0.71) and showed a solid understanding of basic AI concepts ($\bar{x}$ = 4.37, SD = 0.88). Respondents indicated they know how to use AI tools in practical settings ($\bar{x}$ = 4.15, SD = 1.10) and are self-motivated to learn more about AI ($\bar{x}$ = 4.52, SD = 0.58). Furthermore, many had read articles on AI in their university library ($\bar{x}$ = 4.15, SD = 1.24), and a majority had attended AI-related training in the past year ($\bar{x}$ = 4.10, SD = 1.09). Group learning was seen as helpful ($\bar{x}$ = 4.58, SD = 0.53), and strong agreement was noted on the value of collaboration with AI experts for service innovation ($\bar{x}$ = 4.66, SD = 0.51). Lastly, TSU librarians affirmed they are actively learning about AI ($\bar{x}$ = 4.17, SD = 1.14). The overall cluster mean for TSU was 4.47 with a standard deviation of 0.87, reflecting high AI awareness.

Federal University Wukari (FUW) had 45 respondents. The findings from FUW show a moderate level of AI awareness among librarians. Respondents acknowledged being aware of AI tools in their libraries (Mean = 3.67, SD = 1.11) and somewhat agreed to attending workshops and conferences on AI ($\bar{x}$ = 3.33, SD = 1.04). Their responses on understanding the basics of AI ($\bar{x}$ = 3.42, SD = 0.98) and using AI in practice ($\bar{x}$ = 3.60, SD = 0.98) were relatively lower compared to other institutions. However, there was agreement that they are learning more about AI out of personal interest ($\bar{x}$ = 3.80, SD = 0.94), and they have read literature on AI tools ($\bar{x}$ = 3.73, SD = 1.01). FUW librarians reported participating in AI-related professional development programs in the past year ($\bar{x}$ = 3.53, SD = 0.92), found group learning beneficial ($\bar{x}$ = 3.89, SD = 1.01), and acknowledged the importance of collaboration with AI experts ($\bar{x}$ = 3.89, SD = 0.89). They also indicated active self-learning about AI ($\bar{x}$ = 3.87, SD = 0.97). FUW's cluster mean stood at 3.67 with a standard deviation of 0.99, suggesting a fair but less intensive awareness compared to TSU and KUW.

Kwararafa University Wukari (KUW) had the fewest respondents (7), but their responses indicated a high level of awareness and engagement with AI technologies. Librarians from KUW strongly agreed that they are aware of AI tools (Mean = 4.43, SD = 0.54) and that they participate in AI-related conferences and workshops ($\bar{x}$ = 4.43, SD = 0.54). They reported understanding AI basics ($\bar{x}$ = 4.29, SD = 0.48) and being capable of practical application in the library ($\bar{x}$ = 4.57, SD = 0.54). Additionally, they are independently learning more about AI ($\bar{x}$ = 4.57, SD = 0.54) and have read AI-related articles from the university library ($\bar{x}$ = 4.43, SD = 0.54). KUW librarians confirmed participation in AI training over the past year ($\bar{x}$ = 4.57, SD = 0.54), valued group learning ($\bar{x}$ = 4.57, SD = 0.54), and recognized the role of AI expert collaboration in innovation ($\bar{x}$ = 4.71, SD = 0.49). They also expressed a strong commitment to continuous learning about AI ($\bar{x}$ = 4.71, SD = 0.49). The cluster mean for KUW stood at 4.53 with a standard deviation of 0.53, indicating high and consistent AI awareness among its librarians.

The findings based on ten item statements reveal consistent agreement among librarians regarding their exposure to and understanding of AI technologies. Overall, the cluster mean of all ten items was 4.19 with a standard deviation of 0.79, affirming that the level of AI awareness among university librarians in Taraba State is generally high. The responses suggest that librarians across these institutions are not only aware but

are also actively seeking knowledge through conferences, reading, group learning, and expert collaboration. This heightened awareness is essential for embracing and integrating AI into library operations to enhance service delivery.

Research Question 2

What is the attitude of librarians towards artificial intelligence tools on information service delivery in universities libraries in Taraba State?

Reports on *Research Question 2* are presented in *Table 2*

Table 2: Attitudes of Librarians Toward AI Tools

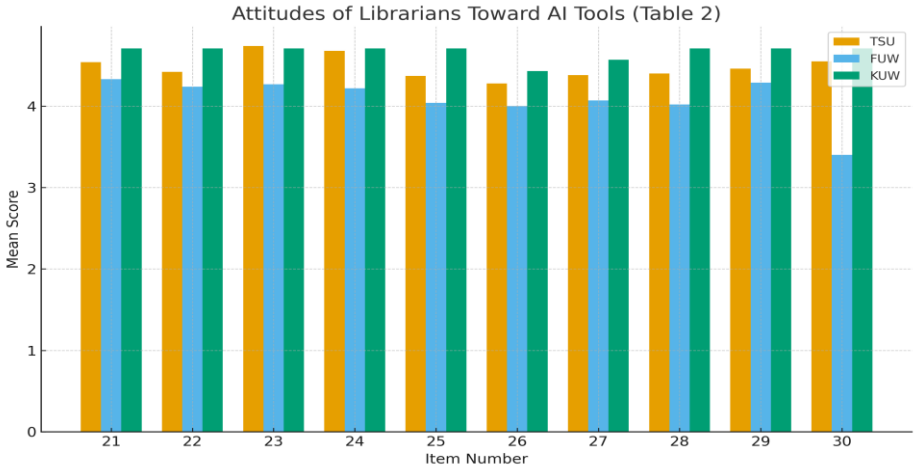

Table 2: Mean and Standard Deviation of Responses on Attitude of Librarians toward Artificial Intelligence Tools in University Libraries in Taraba State (N = 117)

S/n	Items Statement	TSU(N=65)		FUW(N=45)		KUW(N=7)		Average		Remark
		$\bar{x}$	SD	$\bar{x}$	SD	$\bar{x}$	SD	$\bar{x}$	SD	
21	Librarians are willing to learn more about AI and its applications in libraries.	4.54	0.95	4.33	0.74	4.71	0.49	4.53	0.72	Agree
22	Librarians are interested in learning more about the ethical implications of AI.	4.42	0.95	4.24	0.77	4.71	0.48	4.45	0.73	Agree
23	Librarians are seeing AI has the potential to improve library services.	4.74	0.44	4.27	0.78	4.71	0.48	4.57	0.56	Agree
24	Librarians are optimistic about the future of AI in University libraries.	4.68	0.50	4.22	0.82	4.71	0.48	4.54	0.60	Agree
25	Librarians foreseeing that AI has the potential to create new challenges for libraries.	4.37	0.99	4.04	0.95	4.71	0.48	4.37	0.81	Agree
26	Librarians are concerned about the potential for AI to be used for malicious purposes.	4.28	1.08	4.00	0.77	4.43	0.97	4.23	0.94	Agree

27	Librarians are confident that they can explain AI to a colleague or friend.	4.38	0.84	4.07	0.92	4.57	0.53	4.34	0.76	Agree
28	Librarians advocate for balanced AI use, valuing human judgment.	4.40	0.78	4.02	0.94	4.71	0.48	4.37	0.73	Agree
29	Librarians are familiar with some types of AI, such as machine learning and natural language processing	4.46	0.69	4.29	0.79	4.71	0.48	4.48	0.65	Agree
30	Curiosity drives librarians to explore AI for innovative service offerings.	4.55	0.58	3.40	1.39	4.71	0.48	4.22	0.81	Agree
	Cluster Mean	**4.48**	**0.79**	**4.19**	**0.89**	**4.52**	**0.49**	**4.41**	**0.74**	Agree

Key: $\bar{x}$ - Mean; SD – Standard Deviation; *SA = Strongly Agree; A = Agree; U = Undecided; D = Disagree; SD = Strongly Disagree*

Table 2. Shows data **response of librarian** Attitude toward Artificial Intelligence Tools in University Libraries in Taraba State. **Firstly, Taraba State University (TSU)**, with 65 respondents, exhibited a strong and positive attitude toward the use of Artificial Intelligence (AI) in library services. Librarians at TSU expressed a high willingness to learn about AI applications ($\bar{x}$ = 4.54, SD = 0.95) and showed significant interest in ethical concerns associated with AI ($\bar{x}$ = 4.42, SD = 0.95). They overwhelmingly affirmed that AI has the potential to improve library services ($\bar{x}$ = 4.74, SD = 0.44) and expressed optimism about its future in academic libraries ($\bar{x}$ = 4.68, SD = 0.50). Librarians acknowledged the likelihood of new challenges emerging from AI adoption ($\bar{x}$ = 4.37, SD = 0.99) and were also concerned about the potential for misuse ($\bar{x}$ = 4.28, SD = 1.08). Confidence in their ability to explain AI concepts to others was notable ($\bar{x}$ = 4.38, SD = 0.84), and they supported balanced usage of AI that values human judgment ($\bar{x}$ = 4.40, SD = 0.78). Familiarity with concepts like machine learning and natural language processing was high ($\bar{x}$ = 4.46, SD = 0.69), and their curiosity drove them to explore AI further for innovative services ($\bar{x}$ = 4.55, SD = 0.58). The **cluster mean for TSU** was **4.48** with a **standard deviation of 0.79**, indicating a strong and constructive attitude toward AI.

Federal University Wukari (FUW), which had 45 respondents, showed a generally positive yet slightly more moderate attitude toward AI use in libraries. Librarians agreed they were willing to learn about AI ($\bar{x}$ = 4.33, SD = 0.74) and were interested in its ethical implications ($\bar{x}$ = 4.24, SD = 0.77). They acknowledged AI's potential to enhance library services ($\bar{x}$ = 4.27, SD = 0.78) and were optimistic about its future ($\bar{x}$ = 4.22, SD = 0.82). While they recognized that AI could introduce new challenges ($\bar{x}$ = 4.04, SD = 0.95) and misuse concerns ($\bar{x}$ = 4.00, SD = 0.77), they still maintained a generally favorable stance. FUW librarians expressed fair confidence in explaining AI ($\bar{x}$ = 4.07, SD = 0.92) and supported the integration of AI with human decision-making ($\bar{x}$ = 4.02, SD = 0.94). They were relatively familiar with machine learning and NLP ($\bar{x}$ = 4.29, SD = 0.79), though curiosity-driven engagement with AI appeared lower than at the other institutions ($\bar{x}$ = 3.40, SD = 1.39). The **cluster mean for FUW** stood at **4.19** with a **standard deviation of 0.89**, reflecting a moderately positive and thoughtful attitude toward AI adoption.

Kwararafa University Wukari (KUW), with only 7 respondents, reported the strongest and most consistently positive attitude toward AI. All item scores from KUW were high and uniform. Willingness to learn about AI tools was very strong ($\bar{x}$ = 4.71, SD = 0.49), and librarians also expressed keen interest in AI ethics ($\bar{x}$ = 4.71, SD = 0.48). The belief in AI's potential to transform library services was strongly held ($\bar{x}$ = 4.71, SD = 0.48), as was their optimism for its future ($\bar{x}$ = 4.71, SD = 0.48). KUW librarians recognized AI-related challenges ($\bar{x}$ = 4.71, SD = 0.48) and were concerned about possible misuse ($\bar{x}$ = 4.43, SD = 0.97). Their confidence in explaining AI concepts was high ($\bar{x}$ = 4.57, SD = 0.53), and they supported a balanced approach between AI tools

and human insight ($\bar{x}$ = 4.71, SD = 0.48). Their familiarity with AI concepts like machine learning was also strong ($\bar{x}$ = 4.71, SD = 0.48), and they were deeply curious about exploring AI for library innovations ($\bar{x}$ = 4.71, SD = 0.48). The **cluster mean for KUW** was **4.52** with a **standard deviation of 0.49**, the highest among the three institutions, reflecting a highly enthusiastic and confident attitude toward AI integration.

In summary, the responses from 117 librarians across the three institutions indicate a generally **positive and supportive attitude toward the adoption of AI** in university libraries in Taraba State. The **overall average cluster mean** was **4.41** with a **standard deviation of 0.74**, highlighting a widespread willingness to engage with AI technologies. While individual item scores varied slightly across institutions, the overall trend reflects librarians who are eager to learn, confident in their capabilities, mindful of ethical and operational implications, and optimistic about AI's role in advancing library services. This balanced and thoughtful attitude suggests that librarians in the state are well-positioned to champion the responsible integration of AI tools for improved information service delivery.

Discussion of Findings

Based on the analysis of responses from librarians in University libraries across Taraba State, the major findings were discussed under the following subheadings:

Librarians' level awareness of artificial intelligence

The findings of the study support the stated hypotheses regarding librarians' awareness of artificial intelligence (AI) tools across university libraries in Taraba State. Descriptive results indicated a high level of awareness among librarians from all three institutions. However, inferential analysis provided deeper insight into institutional differences. The one way Analysis of variance (ANOVA) result presented in Table 3 (p. 10) produced a p-value greater than 0.05, supporting the null hypothesis that there is no statistically significant difference in the overall awareness levels of librarians across Federal University Wukari (FUW), Taraba State University (TSU), and Kwararafa University Wukari (KUW). Nonetheless, the test of Hypothesis 1 (Table 1, p. 6) indicated a significant difference in mean responses based on institutional affiliation, suggesting that the type of institution does influence the depth or extent of awareness. Specifically, librarians in federal institutions particularly FUW recorded higher mean awareness scores compared to those in state and private universities. This difference may be attributed to greater access to funding, training, and technological infrastructure often available in federally funded universities.

These findings are in agreement with those of Oyeleye and Jimoh (2023) who examined AI adoption in university libraries and discovered that many librarians were aware of basic AI concepts, including machine learning-based cataloguing, automated reference services, and intelligent search systems. Their findings revealed that awareness strongly predicted librarians' readiness to adopt these tools, suggesting that exposure plays a central role in shaping technological initiatives. Similarly, Abubakar and Isah (2023) investigated awareness and preparedness for AI among Nigerian librarians and found that while awareness was growing, it remained uneven across institutions. Limited training opportunities and inconsistent institutional support were major factors hindering higher awareness levels. Despite its narrower institutional scope, their use of a similar descriptive survey design and questionnaire-based methodology makes their findings comparable to the current study. Notably, the present research expands on theirs by including federal, state, and private institutions, thereby offering a broader regional perspective.

In conclusion, the findings confirm that librarians in university libraries across Taraba State demonstrate considerable awareness of AI tools for information service delivery. However, variations in the extent of this awareness particularly between federal and non-federal institutions highlight structural disparities in funding, infrastructure, and professional development. These findings contribute meaningful insight to the growing discourse on digital transformation in Nigerian libraries and suggest the need for targeted interventions to ensure equitable access to AI resources across all types of academic institutions.

Librarians' attitude towards artificial intelligence tools

The findings uphold the null hypothesis that there is no significant difference in the mean responses of librarians regarding their attitudes toward

artificial intelligence (AI) tools across university libraries in Taraba State. The ANOVA summary presented in Table 4 (p. 11) yielded a p-value greater than 0.05, indicating that variations in attitude among librarians at Federal University Wukari (FUW), Taraba State University (TSU), and Kwararafa University Wukari (KUW) were not statistically significant. Despite this statistical uniformity, the data indicated that librarians across the three institutions generally held favorable attitudes toward the adoption and use of AI tools for information service delivery. The mean scores reported in Table 2 reflect positive dispositions toward AI integration in library services. However, the result of Hypothesis 4 (Table 4, p. 11) revealed a significant difference in attitude scores based on institutional affiliation, with librarians in federal universities exhibiting more favorable attitudes than their counterparts in state and private institutions. This divergence may be attributed to disparities in access to technological infrastructure, institutional support, and opportunities for professional development. Federal universities are typically better funded and more exposed to innovation, allowing their staff greater access to structured training programs and emerging technologies. In contrast, librarians in state and private universities often encounter policy gaps, inadequate facilities, and limited exposure, which may temper their enthusiasm or confidence in adopting AI tools. These findings are consistent with Kibet and Kemoni (2020) who reported that librarians exhibited strong positive attitudes toward AI integration, perceiving it as essential for modernizing academic library services. Their respondents supported the use of AI-based automation, although concerns arose regarding digital divides and staff training needs. Internationally, Abdullah and Abdul Rahman (2021) reported overwhelmingly positive attitudes among Malaysian librarians, who viewed AI as complementary rather than competitive to traditional librarianship.

These findings align with national and international studies and contribute important regional insights. To ensure equitable and effective AI integration in Nigerian academic libraries, targeted investments in training, infrastructure, and policy development are essential particularly in state and private institutions.

Conclusion and Recommendations

In conclusion, this study demonstrates that librarians across university libraries in Taraba State possess a generally high level of awareness and a positive attitude toward the adoption of artificial intelligence (AI) tools for enhancing information service delivery. The findings indicate a strong willingness among librarians to engage with AI technologies, a recognition of their potential to improve library services, and a proactive orientation toward continuous learning and ethical application. However, the analysis also reveals that institutional affiliation significantly influences both the extent of awareness and the strength of favorable attitudes. Librarians in federal universities reported higher mean scores compared to their counterparts in state and private institutions, a disparity attributable to variances in funding, infrastructural support, and access to professional development opportunities. This underscores the presence of structural inequities that can hinder the uniform integration of AI across the higher education landscape in the state.

The implications of these findings are twofold. Firstly, the existing awareness and positive disposition provide a solid foundation for implementing AI-driven innovations in Taraba State's academic libraries. Secondly, the identified institutional gaps highlight the necessity for targeted interventions, including policy formulation, sustained investment in ICT infrastructure, and comprehensive capacity-building programs tailored to librarians in state and private universities. Therefore, for AI to be effectively harnessed to transform library services in Taraba State, a concerted effort is required from stakeholders including university administrations, library management, and educational policymakers to bridge the resource and training divide. Future research could longitudinally assess the impact of such interventions on actual service delivery outcomes, ensuring that the potential of AI translates into tangible improvements in support of teaching, learning, and research. . Based on the findings, the following recommendations are proposed:

Enhance AI Training for Librarians:

Conduct regular and unified training programs to improve librarians' knowledge and skills in AI and reduce differences in awareness across institutions.

Strengthen Institutional Support for AI Use:

Improve ICT infrastructure, provide adequate funding, and develop clear policies to support effective adoption and use of AI tools in university libraries.

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