



Librarians' Awareness, Perception and Disposition Towards the Use of Artificial Intelligence (AI) in Nigeria Libraries

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Abstract

The study investigated librarians' awareness and disposition towards the use of Artificial Intelligence (AI) in Nigeria libraries. The study adopted the descriptive survey design method and the population of the study comprised a sample of 507 librarians from different types of libraries who attended the Nigeria Library Association (NLA) 62nd annual national conference/ AGM held On July 7th-12th, 2024. The target population is the total number of participants in the conference. The instrument used to obtain data from the respondents was questionnaire. A total of 507 surveys were issued to librarians, with 488 completed and returned, reflecting a 96.2% of the entire population. The questionnaire was analyzed using descriptive statistics, which was subjected to a criterion mean of 2.5 and above as accepted while below 2.5 is rejected. The findings of this study revealed that librarians are aware of the use of AI for library services on an average level. The findings also show that librarians have a positive disposition towards the adoption of AI but with some uncertainty on how the technology is going to affect their job. The result also shows that librarians perceive the benefits of AI in the library to include increase access to information resources and reduction of manual task for librarians. The perceived challenges, as reflected in the findings includes, fear of job loss, high cost of implementing AI systems and unstable electricity supply among others. It was concluded from the findings that librarians in Nigeria are averagely aware of the use of AI in libraries and also majority has a positive disposition towards its adoption. The study recommended that librarians should keep up with trends in the use of AI in libraries by acquiring new knowledge and skills that will prepare ahead of its adoption and use

Keywords: Artificial Intelligence (AI), librarians, libraries, technology, Nigeria

Introduction

Artificial Intelligence (AI) covers a broad range of technologies aimed at developing algorithms, systems, and methods that allow machines to replicate human-like cognitive abilities. According to Tavakoli (2022), AI is a subset of computer science dedicated to creating systems and processes capable of executing tasks that usually necessitate human cognitive skills, including learning and problem-solving. This involves the capability to reason, learn from previous experiences, make decisions, and tackle complex issues. Also, Mamela (2023) defined AI as the set of computer systems that are programmed to carry out tasks that usually require human intelligence, such as

taking decision, detecting objects, problem solving etc. Ryan, (2020), stated that the main idea of AI is to create machines that can perform activities usually requiring human intelligence. Artificial intelligence is becoming a viable tool that can aid librarians in their information service delivery system, because this machines are capable of performing task such as rational reasoning, solving problems, able to make out plan, recognize speech, and also able to discern (Igwe and Sulyman, 2022). For instance, AI can be programmed to deliver information to users at stipulated time without the librarian's interventions. The evolving nature of AI technology has made its integration into daily activities very impactful. More so, AI has also proven to be

beneficial in sectors such as healthcare, manufacturing, and the banking industry. And libraries are not left out of these technological advancements, as it has proven to be a vital tool in enhancing effective service delivery. Supporting this view, Oyetola et al. (2023) stated that AI could aid libraries in modernizing and enhancing their services while maintaining their significance in today's digital landscape.

In Nigeria, the University of Lagos was the first to make a move of AI adoption initiatives, gaining support from Platform Capital. And this made the university, the pioneer institution in the country to adopt artificial intelligence (University of Lagos, 2020). On a global scale, AI aids organizations in the technology sector with a chance to enhance their operational effectiveness (Borges et al., 2021). The integration of advanced information technologies, such as AI, will improve the efficiency of service delivery, which is the core objective of any library. Guzman and Lewis (2020), affirm that research on artificial intelligence has concentrated on replicating elements of human intelligence, such as communication capabilities, within machines. Also Tella (2020), stated that artificial intelligence technologies, such as robots, are utilized in libraries to interactively search for printed materials via a web interface. Highlighting the impact of AIs, Garoufallou and Gaitanou, (2021), emphasized that big data and data analytics are used for both operational functions and service-oriented objectives. AI has carved out new functions for librarians and also created expanded roles. The use of AI in libraries has also pose its implication to practicing librarians and upcoming librarians because for professionals to remain relevant, there will be need to up-skill and be more innovative in practice, instead of the usual traditional methods of discharging of duties. According to Huang (2022), the introduction of AI has changed the traditional functions of libraries and has added more complex roles in which upcoming librarians will need to be more multifarious, decisive, modernized, and creative in their thinking and operations in order to fit into the modern day practice in the library and information world. However, despite the huge benefits presented by the use of AI in any library, it is worrisome still that libraries in Nigeria are reluctant about the adoption of this technology. Confirming this observation, Wheatley and Hervieux, (2019), stated that libraries, in developing countries, such as Nigeria, have failed to adopt digital technologies, and they also show resistance to change in the use of technologies in various library operations.

Statement of the Problem

When a new technology evolves and it is perceived to be beneficial to an organization or institution, it is expected that it should be adopted by the organization or institution. Furthermore the adoption of any technology has been proven by research that, it is closely linked to the level of awareness of its potentials by users. Supporting this view, Eiriemiokhale and Sulyman (2023), stated that researches has revealed that the adoption of AI in libraries and information centres are based on the awareness and perceptions of the LIS professionals in different societies. Since the introduction of AI, many libraries and information centres in developed countries has leverage on the use of this technology to render technology-based service delivery. However preliminary investigations suggest limited adoption of AI technology in Nigeria. Confirming this investigation, Oyetola et.al (2023), stated that it is disturbing that many libraries in Nigeria has not really subscribed to the adoption of AI for enhanced service delivery to library user. In the light of the above, the study seeks to find out, whether librarians are aware of this technology (AI), and if yes, what is their disposition towards its adoption at this time?

Objectives of the Study

The study aimed at investigating the level of awareness of librarians and their disposition towards the use of Artificial Intelligence in libraries in Nigeria. The specific aims of the study are:

- 1 To examine the level of awareness of librarians on types of AI tools available for library services.
2. To investigate the disposition of librarians on areas where AI can be used in library services.
3. To find out what librarians perceived to be the benefits of adopting AI for service delivery.
4. To ascertain perceived challenges associated with the adoption of AI in Nigeria libraries.

Review of related literature

AI tools for Library Services and their Areas of Application.

As information technology continues to evolve, libraries, as centers for information dissemination, must adapt by incorporating Artificial Intelligence (AI) into their services, fundamentally transforming how they function and engage with their users. According to Owolabi et al. (2022), integrating artificial intelligence into libraries represents the peak of several advanced technological developments that

enable libraries to utilize tools capable of perceiving, comprehending, acting, and learning. The potential uses of AI in libraries are extensive and diverse, presenting opportunities to improve both the user experience and the efficiency of library operations. According to Panda and Chakravarty (2022), AI can offer Virtual Assistance; AI-based solutions, like chatbots or “InfoBots,” can be used to deliver round-the-clock virtual support to library patrons. These AI chatbots are capable of addressing questions, guiding users through the library’s resources, and even aiding in research endeavors. Such virtual assistants can enhance the reference service, introducing a new aspect to virtual reference services. Another area where AI can be utilized is in Cataloging and Classification. It can help automate the cataloging and classification of library materials. By utilizing machine learning algorithms, AI can examine and categorize large quantities of data, making the cataloging process more efficient and ensuring precision. AI can also implement recommendation systems, analyzing user habits and preferences to deliver customized suggestions for books and resources. This not only improves the user experience but also encourages the use of library resources.

Furthermore, AI can assist in the management and organization of digital collections, making certain that digital assets are readily accessible and properly maintained. Supporting this perspective, Urhefe-Okotie (2023) agreed that AI can assess user data to create focused marketing campaigns, thereby ensuring that library services and resources are promoted effectively to the appropriate audience. For example, libraries in Africa have innovatively utilized various AI-driven strategies to market library and information services. Additionally, recent global occurrences, including the COVID-19 pandemic, have required libraries to alter their mode of operations. Artificial intelligence can help adjust to these new realities by converting in-person services to digital platforms, thereby ensuring that libraries successfully meet the needs of their patrons during these evolving situations (Winata, Fadelina, and Basuki, 2020).

The swift progress in AI research has resulted in the creation of numerous tools and techniques designed for particular needs and applications. AI can be generally classified into different types according to its abilities and functions. From farming to medical care, AI-based solutions are transforming sectors and pushing the limits of what machines can accomplish (Spanaki et al., 2021). AI technologies

differ in their roles as communicators, ranging from personal conversational agents to creators of content. Voice-activated assistants like Amazon’s Alexa respond to human inquiries and requests through voice interaction. Physical robots engage with individuals both verbally and nonverbally (Peter and Kühne, 2018). Automated systems known as bots participate in text-based social media conversations by simulating human interaction, influenced by the technology acceptance model in shaping the tone and content of these dialogues (Ferrara et al., 2016). News-writing programs create narratives from unprocessed data that are presented alongside stories created by humans and are often indistinguishable from them (Graefe et al., 2018). These technologies share a commonality in that by acting as communicators, they assume a position within the theoretical boundaries of the communication field; thus, AI not only aids communication but also automates it (Reeves, 2016).

Benefits of AI in Library Service Delivery

There are numerous advantages to integrating AI into library services. Ridge (2019) emphasized that it enhances user experience, fosters collaborations, improves systems, and refines processes and digitization. It allows for the collection of contemporary descriptive metadata as a by-product of project results, and boosts operational efficiency in libraries. Yusuf et al. (2022) explored the role of artificial intelligence in enhancing library services within Nigerian university libraries by conceptualizing and monitoring the advancements of AI. The research corroborated the advantages of employing AI in library services, which include ease of use, limitless capabilities and capacities, and the ability to tackle complex tasks, among others. The incorporation of AI in the information sector is likely to enhance the way academic libraries offer information services (Cox, 2021). By optimizing collection analysis, digitization, preservation, and service provision, AI technologies enable libraries to operate more effectively (Tella, 2020). In addition, artificial intelligence tools like robots are utilized in libraries to scan physical items in real-time via a web interface (Tella, 2020). Big data and data analytics are utilized for both operational purposes and service-oriented objectives, highlighting the impact of AI technologies (Garoufallou and Gaitanou, 2021).

Challenges associated with the Application/ Implementation of AI in Libraries

The incorporation of Artificial Intelligence (AI) into library services holds great potential, but it also faces numerous obstacles. According to Bryant (2019), inadequate funding serves as a substantial challenge. The implementation of AI-powered solutions typically demands considerable financial resources for technology, infrastructure, and training. For many libraries, particularly those with tight budgets, this poses a notable obstacle. Zimmer (2018) further elaborated on the issue of Data Privacy. As AI systems process user information, there are legitimate concerns surrounding user privacy and the security of their data. It is crucial to ensure that AI systems adhere to data protection regulations and that user data is managed ethically. Effective functioning of AI systems often depends on large quantities of user data. This creates concerns regarding the methods of data collection, storage, and usage. Consequently, Bubinger and Dinneen (2021) stated that it is essential for the library to make it a priority to keep user data confidential and prevent any misuse. Additionally, Korinek and Stiglitz (2017) argued that advancements in AI technology could result in workforce polarization or job drop. The rise of automation and the incorporation of AI may contribute to a substantial increase in inequality. The World Bank (2016) stated that nations in the developing world may be more hesitant to adopt technology due to the potential for considerable job losses. As artificial intelligence takes over various tasks within libraries, there are worries about job loss and the evolving role of librarians in a library environment influenced by AI. Yusuf et al. (2022) pointed out challenges such as inadequate infrastructure, widening skills gaps, potential job losses, unreliable power supply, and a rise in various alternative information sources. According to Watkins and Cain (2022), AI systems, particularly those utilizing machine learning, can unintentionally carry forward biases found in the training data. Supporting this view, Benjamin (2019) stated that this could result in biased recommendations and services, which could undermine the library's goal of delivering impartial and fair services. Faber, Gasparini, and Grote (2022) noted that while incorporating Artificial Intelligence (AI) into library services presents many benefits, it also raises several ethical issues that libraries need to consider. As libraries adopt different AI-enabled tools and services, they must guarantee that these tools comply with ethical guidelines, particularly regarding open science and maintaining academic

integrity.

Methodology

The research examined the level of awareness and the disposition of librarians regarding the use of AI in libraries across Nigeria. The study made use of a descriptive survey research design, using all practicing librarians that participated in the 2024 NLA annual conference. A Census enumeration sampling technique was adopted in order to allow all the targeted population participate in the study. A total of 507 librarians from various types of libraries who participated in the Nigeria Library Association (NLA) 62nd annual national conference/AGM held from July 7th to 12th, 2024, were used for the study.

The instrument for data collection was designed by the researcher in order to provide answers to the research questions that guided the study. Before distributing the questionnaire to respondents, the researcher carried out a reliability test using 40 copies of the questionnaire on librarians from four selected special libraries in Delta state. This is just a facet of the population of study. The 40 copies of the questionnaire were all retrieved and analyzed using the Cronbach's alpha correlation coefficient at 0.50 level of significance, and it gave a result of $r = 0.82$. The result from the test shows that the questionnaire was reliable and can be used for data collection for the study. This is because, the result of $r = 0.82$ was higher than the acceptance level of 0.50. Furthermore, the instrument was also given to a research expert in the field of Social Sciences, who examine the questionnaire for content, face validation and suitability for the study. More so, ethical considerations were made by the researcher, by appealing to respondents that, the study is purely for research and as such, their responses will be treated confidentially and anonymously.

A researcher-designed questionnaire which was divided into two major sections was used to collect data from the respondents. The questionnaire was titled "Awareness and Disposition of Librarians in the Use of AI in Libraries in Nigeria Questionnaire" (ADLAILNQ). It consisted of two parts: the first section aimed at gathering personal and demographic details from the respondents, while the second part was focused on collecting data aligned with the research goals. The questionnaire was distributed to respondents by the researcher and collected back the same day. A total of 507 questionnaires were distributed to librarians, with 488 returned and fully completed, indicating a response rate of 96.2% of the

total population. The analysis of the questionnaire was done using descriptive statistics and simple percentages which was subjected to a criterion mean of 2.5 and above as acceptable response. While below 2.5 is a rejected response.

Results and Discussion

Table 1: Personal and demographic information of librarians

Items	Options	F	%	
Gender	Male	233	47.7	
	Female	255	52.3	
	Total	488	100	
Age range	21-25 years	0	0	
	26-30 years	8	1.64	
	31-35 years	23	4.71	
	36-40 years	160	32.79	
	41-50 years	197	40.37	
	51 years and above	100	20.49	
		Total	488	100
	Academic Qualification	BLS/BLIS	232	47.54
	MLS/MLIS	200	40.98	
	PhD	56	11.48	
	Total	488	100	
Work experience	0-5 years	57	11.7	
	6-10 years	101	20.7	
	11-15 years	125	25.6	
	16-20 years	107	21.92	
	21years and above	98	20.08	
		Total	488	100
	Position/job status	Assistant Librarians	58	11.88
	Librarian 11	89	18.24	
	Librarian1	63	12.90	
	Senior Librarian	97	19.91	
	Principal Librarian			
	Deputy Librarian	69	14.13	
	University Librarian	78	15.98	
	Total	34	6.96	
		488	100	

Source: Researcher provided (2024)

Table 1 shows that 233 (47.7%) of the respondents were male, while 255 (52.3%) were female. 8 (1.64%), were within the age range of 26-30 years followed by 31 – 35 years with 10 (27.0%), 36 – 40 years 160 (32.79%), while 41 –50 years constitute 197 (40.37%)

and 51 years and above, got 100 (20.49%). Furthermore, 232 (47.54.1%) of the respondents had BLS/BLIS, followed by 200 (40.98%) who had MLS/MLIS and 56 (11.48%) had PhD. Also, 57 (11.7%) had 0 – 5 years' job experience, 101 (20.7%) had 6 – 10 years experience, 125 (25.6%) had 11 – 15 years experience, while 107 (21.92%) respectively had job experience of 16 – 20 years and 21 years and above had 98 (20.08). Finally, 58 (11.88%) were Assistant Librarians, 89 (18.24%)

were Librarian II, 63 (12.90%) were Librarian I, 97 (19.91%) were Senior Librarian 69 (14.13%) were Principal Librarian and 78 (15.98%) were Deputy University Librarian, while 34 (6.96%) were University Librarians respectively. The result confirms that all respondents in the study are trained librarians who have gotten a minimum qualification of a bachelor degree in librarianship.

Study Objective 1

Table 2: Level of awareness of librarians on AI tools available for library services.

Level of awareness of librarians on AI technologies/ tools available for library services	HA (F)	A (F)	LA (F)	NA (F)	\bar{X}	%	Decision
I am aware of the use of Robots in libraries	280	200	3	5	3.0	33.0	Accept
I am aware of Chatbots in libraries	185	209	45	49	2.6	37.9	Accept
I am aware of the use of RFID (Radio Frequency Identification) in libraries	189	225	42	32	2.7	36.9	Accept
I am aware of the use of Machine learning	198	221	31	38	2.7	36.7	Accept
I am aware of ChatGTP in libraries	208	209	33	38	2.7	36.5	Accept
I am aware of the use of Automated Storage and Retrieval+ System in libraries	232	221	26	9	2.8	34.6	Accept
I am aware of the use of Barcodes in libraries	219	227	21	21	2.8	35.3	Accept
I am aware of the use of Big data and data analytics in libraries	223	249	9	11	2.9	34.2	Accept

N = 488, HA = Highly Aware, A = Aware, PA= Poorly Aware, NA = Not Aware

The result in Table 2 shows that all items listed are AI tools available for use in libraries, majority of the respondents have a high level of awareness on robots with mean rating of 3.0 and a percentage of (33.0%), Big data and data analysis with mean rating 2.9 (34.2%), barcodes 2.8 mean rating, and percentage (35.3.5%), automated storage and retrieval system 2.8 mean rating, (34.6%) were AI tools available for use in library services. The result also reveals that respondents also aware of ChatGPT with a corresponding mean rating of 2.7 (36.5%), machine leaning 2.7 mean rating, (36.7), RFID with a mean of 2.7 (36.9), and Chatbots with the mean of 2.6 (37.9%) that can be used as tools for AI application and use in libraries.

The findings indicate that the primary AI tools recognized by librarians include robots, big data and data analysis, barcodes, as well as automated storage

and retrieval systems. Additionally, the study reveals that librarians have limited knowledge of ChatGPT, machine learning, RFID, and chatbots. The finding in Table 2 reveals that majority or above 50% of librarians in Nigeria was aware of AI technologies. The result on the level of awareness reveals that librarians are gaining more knowledge, are positive and mindful of emerging trend in information technology, and are aware of how these machines are transforming various institutions/organizations for improved efficient service delivery. This finding is supported with several literatures, for instance, Spanaki et al., (2021), stated that AI-driven solutions are transforming industries and redefining the capabilities of machines. From the result, librarians are more conversant with robots coming first on the list with the highest mean score. It affirms the notion posited by Peter and Kühne, (2018),

when they asserts that robots are common AIs because they interact verbally and nonverbally with people. Furthermore, comparing the result with the findings of Eiriemiokhale and Sulyman (2023), who studied Awareness and Perceptions of Artificial Intelligence

among Librarians in University Libraries in Kwara State, Nigeria, their findings, corroborates the result of this study. Their study shows that librarians in Nigeria have a considerable good knowledge of AI applications in libraries. From the result of this study,

it means majority of librarians are highly aware of AI application in library services. On the other hand, the findings in table 2 reveal that, a minority of librarians were yet to understand the evolution of AI technology in the information landscape; hence they have no idea of what AI technology is all about.

Study Objective 2

Table 3: Disposition of librarians on areas where AI can be used in the library.

Disposition of librarians on areas where AI can be used in library services	SA	A	SD	D	\bar{X}	%	Decision
AI can be used for Cataloguing and Classification	195	220	20	53	2.6	38.5	Accept
AI is capable of performing Reference Services	233	211	18	26	2.8	35.1	Accept
AI is capable taking Bibliographic records	215	231	19	23	2.8	35.4	Accept
AI is capable of Preservation of library resources	200	213	50	25	2.7	36.6	Accept
AI is capable of performing Book title recognition	273	203	4	8	3.0	33.3	Accept
AI is capable performing Library security task	244	232	8	4	3.0	29.9	Accept
AI is capable performing Users identification	239	241	8	0	3.3	29.7	Accept
AI is capable of helping in Research and Scholarship activities	223	251	6	8	2.9	34.3	Accept
AI is can be used for digitization of library materials	218	230	29	11	2.9	35.0	Accept
AI is capable of Registration of users	218	239	25	6	2.9	34.8	Accept

N = 488, SA = strongly agree, A = Agree = Disagree, SD = Strongly agree

Table 3 shows that all of the respondents have a positive disposition that AI technologies can be adopted and use in major areas in libraries with areas such as book title recognition having mean rating of 3.0 (33.3%), library security task 3.0 (29.9%), followed by user identification 3.0 (3.7%), AI is capable of helping in research and scholarship activities 2.9 (34.3), AI can be used for digitization of library materials, 2.9 (35.0%) and AI is capable of registration of users 2.9 (34.8%) respectively. On the other hand other items such as; AI is capable of performing reference services weighs 2.8 (35.5%), AI is capable taking bibliographic records 2.8 (35.4%) , on AI is capable of preservation of library resources 2.7 (36.6%) and finally on, AI can be used for cataloguing and classification with mean rating and percentage of 2.6 (38.5%) respectively.

The findings reflect the level of understanding and general outlook towards the use of AI technologies by librarians. It indicates that librarians have some level of knowledge on how the integration of AI in library services would significantly transform the

library scene. This means that librarians has a good disposition towards the use of AI technologies in library services, and thus it means AI technology would be very useful if adopted, as revealed in the response of librarians on areas where AI can be use in library services. This finding in this study, concur with Winata, Fadelina, and Basuki (2020), who states that AI can assist in library services, and also be able to adapt to changes and new norms as they comes, as well as transforming physical services to online, and making sure that libraries continue to serve their clientele effectively and efficiently. The result also agreed with the view of, Tella, (2020), who asserted that AI helps in improving collection analysis, digitization, conservation, and service delivery. This means AI technologies in libraries will ensures efficiency and effectiveness of library services. The implication of this result as reflected above in the table shows that librarians have a positive disposition towards the use of AI technologies in libraries.

Study Objective 3

Table 4: Perception of librarians on the benefits of adopting AI in library services.

Perception of librarians on the benefits of adopting AI in library services	SA	A	SD	D	\bar{X}	%	Decision
Expanding access to information	291	197	0	0	3.0	32.6	Accept
Supporting innovation and learning	272	175	18	23	2.9	34.6	Accept
Reduce manual task for librarians	296	190	2	0	3.0	32.5	Accept
Reduce repetitive tasks for librarians	279	200	9	0	3.0	32.9	Accept
Minimize errors and inconsistencies in data generation	255	220	8	5	3.0	33.6	Accept
AI enable interactions with library anytime and anywhere	231	249	16	0	2.9	33.9	Accept
AI improving the efficiency and accuracy of library data	295	190	2	1	3.0	32.5	Accept
AI increasing the relevance of resources and services	275	201	8	4	3.0	33.1	Accept
i AI increases the diversity of resources and services	271	217	0	0	3.0	32.9	Accept
AI facilitate the discovery of ideas	223	229	15	21	2.8	35.0	Accept
AI facilitates innovations and knowledge	251	235	2	1	3.0	33.3	Accept
AI provide personalized recommendations to library users	262	243	9	8	3.1	31.7	Accept
AI helps in discovery of new and emerging trends in LIS profession	239	215	14	20	2.8	34.7	Accept

N = 488, SA = strongly agree, A = Agree = Disagree, SD = Strongly agree

The result of the study as shown in table 4 revealed the benefits of AI in library services. Most of the respondents believed that AI provides personalized recommendations to library users with mean rating of 3.1 and corresponding percentage of (31.7%), followed by AI expanding access to information 3.0 (32.6%), AI reduce manual task for librarians 3.0 (32.5%), AI reduce repetitive task librarians 3.0 (32.9%), AI minimize errors and inconsistencies in data 3.0 (33.6%), AI improves efficiency and accuracy of library data 3.0 (32.5%), AI increases the relevance of resources and services 3.0 (33.1%), AI increases the diversity of resources and services 3.0 (33.1%), and AI facilitates innovations and knowledge 3.0 (33.3%). However, 2.9 (34.6%), agreed that AI supports innovations and learning. Furthermore, the result reveals that 2.9 (33.9%), supported that AI enables interactions with library anytime and anywhere. And then, a smaller percentage of 2.8 (35.0%) agreed that AI facilitates the discovery of ideas

The finding from the table above is very vital and optimistic, and it is a pointer to a brighter prospect for information service delivery for librarians. Respondents believed that AI will be able to make recommendations that will suit personal needs of users, and it will also

expand the scope of access to library services, thereby reducing manual task and repetitive task for librarians etc. The result corroborates the findings Yusuf et al. (2022), which listed the benefits of applying AI to library services and these benefits include simplicity of use, endless capabilities and capacities, the ability to handle difficult tasks, among others. The result is also in agreement with Ridge (2019), which states that the use of AI in libraries includes improved user experience, partnerships, system improvements, mastery of processes and digitization, etc.

Study Objective 4

Results from table 5 below reveals that fear of job displacement by librarians and high cost of implementing AI systems has the highest mean of 3.3 (30.5%) and 3.2 with a corresponding percentage of (33.4%) out of the perceived challenges affecting the adoption of AI libraries in Nigeria. This is followed by difficulty in getting AI experts to leverage expertise and resources 3.0 (33.4), Fear of adapting to change by librarians and library users, 3.0 (33.4%), demanding organizational and cultural changes 3.0 (33.7%) and difficulty in acquiring data literacy among librarians 3.0 (33.2%). on the other hand, lack of technical and

professional skills among librarians has the mean rating of 2.9 (34.9%), unstable electricity power supply has 2.9 (34.3%) and ethical and social challenges got 2.9 (34.3%) the lowest on the list is lack of analytical skills by librarians with a mean of 2.8 (34.9%).

Table 5: Perceived to be challenges associated with the adoption of AI in Nigeria libraries.

Librarians perceived to be challenges associated with the adoption of AI in Nigeria libraries	SA	A	D	SD	\bar{X}	%	Decision
High cost of implementing AI systems	202	225	33	28	3.1	32.1	Accept
Lack of technical and professional skills among librarians	232	244	10	2	2.9	34.0	Accept
Demanding organizational and cultural changes	239	245	0	4	3.0	33.7	Accept
Unstable electricity power supply	229	240	11	8	2.9	34.3	Accept
Ethical and social challenges	173	192	73	62	2.9	34.3	Accept
Fear of adapting to change by librarians and library users	251	234	2	1	3.0	33.4	Accept
Lack of analytical skills by librarians	163	192	91	42	2.8	34.9	Accept
Fear of job loss by librarians	227	239	12	10	3.3	30.5	Accept
Difficulty in acquiring data literacy among librarians	192	215	31	50	3.0	33.2	Accept

N = 488, SA = strongly agree, A = Agree = Disagree, SD = Strongly agree

Regardless of the level of awareness and positive disposition of librarians towards the use of AI technologies, there are quite a number of challenges that may thwart the use of AI technologies in Nigeria libraries. Fear of job lost, ranked as a major challenge in table 4 above. Other major challenges include high cost of implementation and Fear of adapting to change by librarians and library users among other challenges. These findings are notable because, there is a tendency for people to draw back whenever a new technology is introduced. This can be as a result of personal fears and worries, organizational norms and policies and as well as personal interest. Most libraries in Nigeria are not adequately funded and equipped, as such the digital facilities and equipments needed to integrate AI technologies are not there. The study's findings support Bryant's (2019) assertion that lack of funding is a major challenge, as implementing AI-driven solutions often requires significant financial investment in technology, infrastructure, and training. Additionally, Korinek and Stiglitz (2017) claim that the use of AI technology can lead to retrenchment in the workforce. The results show that the adoption of AI in Nigerian libraries is hampered by librarians' fear of losing their jobs, the high cost of implementing AI systems, and the difficulty of convincing AI experts to leverage

expertise and resources Other factors include fear of adapting to change by librarians and library users, AI demanding organizational and cultural changes and difficulty in acquiring data literacy among librarians. The finding from the study concurs with Bryant (2019) who stated that Lack of funding is a major challenge, because implementing AI-driven solutions often requires significant financial investment in technology, infrastructure, and training. Also in agreement with the result of the study, Faber, Gasparini and Grote, (2022), added that the integration of Artificial Intelligence (AI) into library services, while it seems so promising, also brings along with it, so many challenges, which includes ethical concerns that libraries must address.

Conclusion

Introducing the use of Artificial Intelligence (AI) into library services will expose users to new experiences in the library and also aid librarians in innovative, efficient and easy library services delivery. The study was undertaken to investigate awareness and disposition of librarians in the adoption of Artificial Intelligence (AI) in Nigeria libraries. However, it was concluded from the findings that librarians in Nigeria are aware of the use of AI in libraries and also majority have a positive disposition towards its

adoption but with some uncertainty. Given the high rate of awareness and positive disposition of librarians in this study, there is the room for the integration of AI technologies in library services and this will lead to improved service delivery. The results also show positivity and willingness of librarians on accepting emerging technology. The challenges as shown in this study present a framework for libraries, and their funding bodies to work on, in order to integrate AI into library service delivery in Nigeria.

Recommendations

Based on the result gotten from the study, the following recommendations are made:

1. The study recommends that the management of libraries in Nigeria should make it a duty to train Librarians in the area of AI use in libraries. Acquiring this skill will prepare them ahead of its adoption and ensure their expertise in effective use of AI for efficient service delivery.

2. It is also necessary that more awareness on the benefits of AI's in library services be created. This will cause managements of libraries to push for its adoption.

3. It is important for library managements to create advocacy programs to make it clear to librarians that AI adoption in libraries will not cause them job loss but will aid them in efficient and innovative service delivery.

4. Libraries and their funding bodies should plan for the adoption of AI, by setting out budget for it.

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