



Exploring the Awareness, Readiness and Challenges of Utilization of Artificial Intelligence (AI) Tools for Library Users with Visual and Hearing Impairment in Nigerian Universities

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Abstract

This study explores the awareness, readiness and challenges of utilization of artificial intelligence (AI) tools among information providers for library users with visual and hearing impairment in Nigerian universities. The research employed a descriptive survey design with a sample population consisting of university librarians known as information providers at the federal, state and private universities across all the 36 states and Federal Capital Territory of Nigeria. Due to the larger number of universities (170) across Nigeria, a convenience sampling method was used to select ten universities from each of the six geopolitical zones of Nigeria and one from the Federal Capital Territory, giving a total of 61 universities. The finding showed that a higher percentage above 50% of the respondents was aware of AI tools. The result indicated the readiness of the respondents to adopt AI in delivering library and information services to users with visual and hearing impairment. The significant number of enthusiastic respondents indicated an inspiring future of AI adoption and utilization in academic libraries in Nigeria. Despite their awareness and readiness, there were certain challenges facing the utilization of AI for people with visual and hearing impairment in Nigeria university libraries. However, respondents were optimistic and resilient about AI's utilization for users with disabilities.

Keywords: Artificial Intelligence, Information providers, hearing impairment, visual impairment, disability, University Library, Nigeria.

Introduction

Innovative and emerging technologies are being integrated into different sectors of the economy for the improvement of tasks and processes. These technologies including artificial intelligence (AI) is resonating among professionals in the health care, finance, national security, transformation, engineering and education sectors (West & Allen, 2018). AI is transforming every walk of life by mimicking human intelligence to adapt, recognize and process information (West & Allen, 2018). The awareness of AI in handling different routine tasks in the library is increasing among librarians (Omeluzor & Ojukwu,

2024). Despite the growing awareness on the utilization of AI among information practitioners, not much study (if any) has shown the awareness and readiness of information practitioners to utilize AI technology for library users with visual and hearing impairment (disability) in Nigeria university. The university library is a service division of an academic institution with a clear mandate to support every user irrespective of their social status, health condition, religion or region. The mandate of the university library covers users with hearing and visual impairments who are part and parcel of an academic community with all rights and privileges to access information without any form of

constraint (IFLA, 2012).

There are about 466 million people worldwide that are suffering from hearing loss (Kumar, et al. 2022). Observation has shown that most library users with visual and hearing impairment faces a lot of challenges in using the library services with less or no supporting technologies in most university libraries in Nigeria. Hence, awareness and readiness of information practitioners to utilize AI technology for students with disability would improve their learning and research experience at the university library. Students with visual and hearing impairment experience a lot of educational impediments that many other students do not know (Kumar, et al. 2022). Awareness of AI tools for users with disability, readiness and identifying challenges of utilization of AI tools would resolve such barriers.

Currently, most librarians in Nigeria are only aware of regular and traditional tools such as catalog, integrated library software (ILS) and institutional repository that have existed for years (Omeluzor, et al., 2017), and are not utilizing AI to assist library users with hearing and visual impairments. Several library professional bodies in Nigeria have held series of workshops, webinar and training on AI to create awareness and prepare information practitioners on the utilization of AI for library users. This study therefore investigates the level of awareness, readiness and the constraints for the utilization of AI among information practitioners for library users with visual and hearing impairment. The research is steered by three research questions:

1. What is the level of awareness of AI technologies for hearing and visual impairment among information providers in Nigerian universities?
2. What is the readiness of information providers in the Nigerian university libraries and information centres to adopt AI technologies in support of information users with hearing and visual impairment?
3. What are the challenges of using AI in libraries and information centres in support of information users with hearing and visual impairment?

Background to the Study

AI has largely been utilized by many on Google or smart phones. The usage has been generally for speech recognition, natural language processing. It is also used in driving or autonomous cars without support. AI has also helped in machine learning, deep learning and robotics among others (Omame & Alex-Nmecha, 2020). People who are unable to see contents

on screen have used AI-based tools such as Apple Siri, Amazon Echo and Alexa to interact (Tugend, 2022). The interaction technologies provide desired satisfaction to people with visual impairment as they are able to hear through a spoken dialogue model which allows them to know how the contents are structured (Tugend, 2022). Furthermore, there is an ongoing effort on the utilization of AI to improve visual and auditory accessibility for people with disability (PWD). For instance, the National Technical Institute for the Deaf is working with Microsoft to modify already existing technology and platforms in order to address challenges affecting classes for deaf and hard-of-hearing students (Tugend, 2022). In addition, students with disabilities can be assisted using AI to test accessibility, content descriptions and interactions on webpages (Educause Review, 2022). A recent study by Wang, Wang and Zhang (2023) on the application of deep learning methods in diagnosing eye diseases and smart devices to assist visually impaired people highlighted AI as better alternative. The summary showed a futuristic impact of AI on visually impaired people.

Literature Review

Information practitioners have made effort both in the past and present to provide equitable access to information services for divergent library users. Such effort has led to the development of different methods and tools including: physical and online information services, card catalogs and integrated library software (ILS) among others (Omeluzor, et al., 2017). Aside the utilization of traditional tools, literature has shown where technology such as AI was utilized on online learning and education processes in China, India and the United States in support of learners (Dogan, Dogan & Bozkurt, 2023). In another dimension, studies have also revealed that the application of AI in the university library has several positive implications in demystifying services to the library users including people with disability (Omame & Alex-Nmecha, 2020; Echedom & Okuonghae, 2021; Hassain, 2023). Currently, inquiry into the use of AI technologies that aim at improving accessible learning environments for people with hearing and visual impairment is growing (Educause Review, 2022).

There is also an increasing awareness of AI among information providers around the world. Berdasco, et. al. (2019) study comparing users experiences on “intelligent personal assistants” such as: “Alexa, Google Assistant, Siri and Cortana,” showed

that 99% of the participants attested to be aware of the diverse AI assistants, but majority of them (86%) had utilized at least one of them. Similarly, the study of Moustapha and Yusug (2023) revealed that librarians at the university libraries in Kwara State were aware of several ways to apply AI in library services. Equally, a study on the perception, awareness and usefulness of AI in library operations at the Kwara State university library revealed that a higher percentage of the respondents (librarians) knew about AI technologies including robots, AI Chatbots, Humanoids, Dynamed, AI Expert Systems and Virtual References (Isiaka, et. al., 2024). Evidence in these studies did not show the awareness and preparedness of librarians in adopting AI for library users with visual and hearing impairment.

In a similar development, an assessment on the level of awareness of AI and perception among librarians in Osun State university libraries in Nigeria showed that 80% of the librarians were aware of AI technologies, but unaware of the transformative impact of AI on users with visual and hearing impairment (Oyekale & Zubairu, 2023). Likewise, there is indication that librarians are fully aware that AI could be deployed for the management of university libraries in Nigeria (Abayomi, et. al., 2021; Ali, et. al., 2022). The level of awareness is a testament of various conversations and researches that are exposing the positive impacts of AI on university library (Hervieux & Wheatle, 2021).

On the adoption and utilization of AI, Obiano, et al., (2016) argued that the utilization of AI in library services require adequate and functional information technology infrastructure. Adebayo, et. al. (2022) study established some of the benefits of utilizing AI in academic libraries including: user-friendly, infinite functions and ability to take complex outweigh certain perceived challenges. Majority of librarians in Nigeria are showing interest for the utilization AI in library services. Obiano, et al. (2016) study showed that 170 librarians were ready to adopt AI in library services. The study described the utilization of AI in academic libraries as setting a new level of efficiency and effectiveness in service delivery that would help the financial uncertainty, emerging skill gap, and competing with today's alternative sources of information that is prevailing among developing countries such as Nigeria.

However, Wood and Evans (2018) argued that AI is not much discussed in library literature compared to other professions like medicine, law, military, and

aviation, which is invariably affecting the level of awareness of AI technology for users with hearing and visual impairment. The argument set the parameter for further investigation on the utilization of AI for persons with hearing and visual disability. A recent study on the prospects of AI in library services amidst challenges showed that AI is a dynamic technology that can accelerate library services to people with disability (Hussain, 2023). However, inadequate funding, attitude of librarians and technical skills are impediments on the utilization of AI technologies in library operations (Hussain, 2023). Similarly, the impact of institutional factors such as: lack of support, training and funding and personal factors such as: fear of job loss, resistance to new technology and phobia were some of the persisting setbacks for the utilization of AI in academic libraries in Nigeria (Afolayan, 2025). In addition, some studies have shown that infrastructural deficit also plays a key role in hindering the utilization of IT facilities including AI (Odigie, 2024; Ogechukwu, 2024).

Theoretical Framework

This study is anchored on one model and two theories. The model and theories provides complementary perspectives on the technological and institutional factors that help in exploring the awareness, readiness and challenges of utilization of artificial intelligence (AI) tools among information providers in Nigerian universities. Among the model and theories that the researchers adopted are: Technology Acceptance Model (TAM), Digital Divide Theory (DDT) and Institutional Theory (IT).

Technology Acceptance Model (TAM): The model was developed by Davis in 1989. The model explain how users accept and utilizes technology based on perceived usefulness and perceived ease of use. The theory is relevant in this study because it buttresses the behavior of people towards new technology, particularly within the context of the libraries in Nigeria. The theory provide some significant reasons relating to the awareness and readiness of information providers by examining how they perceive AI tools and their willingness to utilize it in service delivery to library users with visual and hearing impairment.

Digital Divide Theory (DDT): Jan A.G.M. van Dijk's Digital Divide Theory was first developed in 1999. "The core of the theory posits that inequalities of personal position and background result in inequalities in resources for the individual, which in turn lead to inequalities of access and finally to disparities in

participation by the individual in the society” (Pick & Sarkar, 2016: 3890). The DDT explores disparities in access, skills, and usage of digital technologies. The application of DDT in this study is very relevant because it explain how inequality may create a gap in awareness and readiness of information practitioners in using AI for people with disability. Moreso, the issue of digital divide where a few are aware of AI may create inequality among information practitioners which may affect readiness and usage of AI for people with disability. The adoption of the DDT in this study would also enable the understanding of the disparities and the challenges of using AI tools for users with visual and hearing impairment in Nigeria universities.

Institutional Theory: John Meyer and Brian Rowan primarily developed the institutional theory in the late 1970s. The theory argues that organizational norms, policies, and structures are major influencers of technology utilization. Thus, applying the institutional theory to this study is highly relevant as it is useful in understanding the institutional barriers and facilitators in Nigerian universities. The adoption of the theory also provide evidence on those organizational norms, policies, and structures that would enhance awareness and readiness of information practitioners as well as understanding the challenges surrounding the utilization of artificial intelligence (AI) tools for library users with visual and hearing impairment. The theories and model adopted in this study provide a framework in understanding the underpinning factors and complexities of utilization of AI for people with disability in university libraries in Nigeria.

Methods

A descriptive research design was used for this study. The choice of a research design was because of its reliability in providing an opportunity for the researchers to utilize data gathered from the study to investigate the awareness, readiness and challenges of utilization of Artificial Intelligence (AI) tools by information providers in Nigerian universities.

Population and Sample

The study population consists of all the 170 university libraries across Nigeria universities (National Universities Commission, 2024). The sample population includes all university librarians known as information providers in federal, state and private universities in all the 36 states and Federal Capital Territory in Nigeria. A consensus sampling method was adopted to select six universities from each of

the six geopolitical zones of Nigeria and one from the Federal Capital Territory due to the large number of universities in Nigeria which gives a total of 37. From the 37 universities, all the university librarians were used, giving a total of 37 respondents. The main purpose of selecting the 37 was to use them as sample in order to reduce expenses and time consumption in using a larger sample.

Development of Research Instrument

The study employed a structured online questionnaire using Google form for data collection. The research instrument was developed by the researchers to provide answers to the research questions. Before the questionnaire was sent out to the intended respondents, it was subjected to reliability test using 15 copies of the instrument on librarians who work in public libraries and were not part of this study. The 15 questionnaires were all retrieved for analysis using the Cronbach’s alpha correlation coefficient at 0.50 level of significance, with a result of $r = 0.82$. The test result indicated that the questionnaire was reliable and good for data collection for this study since the result was above the acceptance level of 0.50. In addition, for the validity of the instrument, a researcher in the School of Social Sciences was used to examine the questionnaire to ensure that its contents are suitable for the study.

There were four sections of the instrument (Sections A to D). Section A provides the demographic information of the respondents. Section B had 24 options and tries to ascertain the level of awareness of AI technologies for hearing and visual impairment by the respondents. In section C, there were five questions that bother on the readiness of the respondents to adopt AI technologies in support of library users with impairment. That section had five questions. Section D had 9 questions which consider the challenges facing the utilization of AI technologies in support of users with impairment in university libraries in Nigeria.

Questionnaire administration and retrieval

For the administration of the questionnaire, we utilized the professional WhatsApp platform of the Committee of Librarians in Nigerian Universities (COLNU) and email addresses of the selected respondents to send out the instrument to the participants who were university librarians which made it possible to reach out to them within the period stipulated for the research. The use of the WhatsApp platform and email eliminated responses from unintended respondents and reduces the cost

and risk of travelling long distances to administer the questionnaire on a face-to-face approach. The responses that were received through the platform and email were scrutinized to ensure there was no duplication. The Google response tool also assisted us to identify each respondent by their university which is a double check on duplication of respondents. The 37 respondents that were contacted responded to the instrument given a 100% response rate, which was suitable to complete the study. The collected data was analyzed with Google Forms analysis tool and Statistical Package for Social Sciences (SPSS) version 7.0. Presentation of results was on frequency, percentage and chart for clarity.

Result

Demographic Information of Respondents

The demographic result of the respondents shows that 37 university librarians responded to the instrument from the four (4) geo-political zones of Nigeria. The result in Table 1 shows their demographic details.

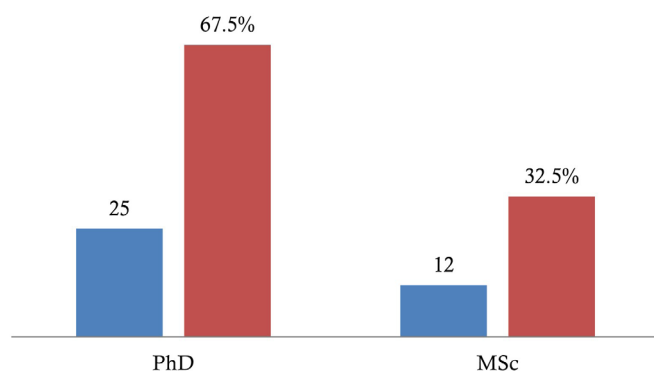


Figure 1: Academic qualification of respondents

The result in figure 1 reveals that majority or 25 (67.5%) of the respondents had PhD while 12 (32.5%) had Masters Degree in Information Science. The result shows that among the respondents, 25 (67.5%) were university librarians while 12 (32.5%) were in the capacity of deputy university librarian.

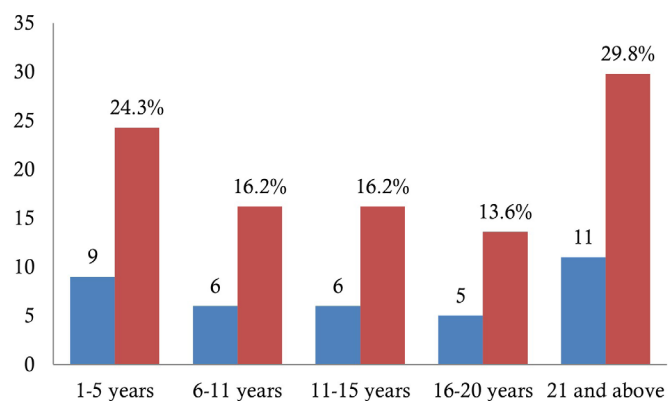


Figure 2: Years of experience of the respondents

The result in figure 2 shows that 9 (24.3%) have worked between 1 to 5 years, 6 (16.2%) of them had worked between 6 to 11 years and 11 to 15 years respectively. The result reveals that 5 (13.5%) had worked between 16 to 20 years while 11 (29.8%) had worked for 21 years and above at their libraries. This result implies that the respondents are qualified to be part of this study as majority of them have worked for many years in various capacities at the university library with requisite experience that can help them to take necessary decisions.

The results in Table 1 reveal the awareness level of the different AI technologies for hearing and visual impairment.

The result in Table 1 is separated into two parts. The first part shows the result on the awareness of the respondents about AI technologies for hearing impairment while the second part shows responses about the awareness of the respondents about AI technologies for visual impairment. The result reveals that 78.4% were aware of ASR, another 75.7% were aware of Real-Time Captioning, 72.9% were aware of Sign Language Recognition while 75.7% were aware of Speech-to-text software. The result further shows that 70.2% were aware of Chatbots for Communication, 81% were aware of Speech Recognition Technology, 72.9% were aware of Smart Assistants for Library Services, 62.1% were aware of Social Robot and 51.3% of the respondents were aware of Advanced Speech synthesis technologies. Furthermore, the result in Table 1 indicated that 70.3% were aware of text-to-speech software, 67.6% were aware of image recognition for visual content description, 64.8% were aware of Braille translation software and voice command navigation respectively. It also shows that 56.7 of the respondents were aware of accessible graphs and data representation, 67.5% were aware of smart cameras

and object recognition, 54% of the respondents were aware of natural language processing for Search, 59.4% were aware of electronic Braille displays. The result in Table 1 further reveals that 62.1% were aware of screen readers with AI enhancements, 72.9% were aware of AI-driven educational games, 59.4% were aware of gesture recognitions for navigation, 70.2% were aware of smart assistants for library services. The result also reveals that 51.3% were aware of AI-powered accessibility testing while 62.1% were aware of real-time translation services.

Table 1

AI Technologies	Aware	Slightly Aware	Undecided	Unaware
<i>For Hearing Impairment</i>				
Automatic Speech Recognition (ASR)	29 (78.4)	2 (5.4)	4 (10.8)	2 (5.4)
Real-Time Captioning	28 (75.7)	-	6 (16.2)	3 (8.1)
Sign Language Recognition	27 (72.9)	4 (10.8)	4 (10.8)	2 (5.4)
Speech-to-Text (STT) software	28 (75.7)	2 (5.4)	4 (10.8)	3 (8.1)
Chatbots for Communication	26 (70.2)	-	8 (21.6)	3 (8.1)
Speech Recognition Technology	30 (81)	2 (5.4)	2 (5.4)	3 (8.1)
Smart Assistants for Library Services	27 (72.9)	-	5 (13.5)	5 (13.5)
Social Robot	23 (62.1)	-	11 (29.7)	3 (8.1)
Advanced speech synthesis technologies	12 (51.3)	4 (10.8)	11 (29.7)	3 (8.1)
<i>For Visual Impairment</i>				
Text-to-Speech (TTS) software	26 (70.3)	2 (5.4)	4 (10.8)	5 (13.5)
Image Recognition for Visual Content Description	25 (67.6)	2 (5.4)	3 (8.1)	7 (18.9)
Braille Translation Software	24 (64.8)	3 (8.1)	6 (16.2)	4 (10.8)
Voice Command Navigation	24 (64.8)	6 (16.2)	4 (10.8)	3 (8.1)
Accessible Graphs and Data Representation	13 (56.7)	6 (16.2)	4 (10.8)	6 (16.2)
Smart Cameras and Object Recognition	25 (67.5)	6 (16.2)	3 (8.1)	3 (8.1)
Natural Language Processing (NLP) for Search	20 (54)	7 (18.9)	7 (18.9)	3 (8.1)
Electronic Braille Displays	22 (59.4)	7 (18.9)	6 (16.2)	2 (5.4)
Screen Readers with AI Enhancements	23 (62.1)	6 (16.2)	4 (10.8)	4 (10.8)
AI-Driven Educational Games	27 (72.9)	2 (5.4)	4 (10.8)	4 (10.8)
Gesture Recognitions for Navigation	22 (59.4)	2 (5.4)	9 (24.3)	4 (10.8)
Smart Assistants for Library Services	26 (70.2)	3 (8.1)	6 (16.2)	2 (5.4)
AI-Powered Accessibility Testing	19 (51.3)	5 (13.5)	10 (27)	3 (8.1)
Real-Time Translation Services	23 (62.1)	6 (16.2)	5 (13.5)	3 (8.1)

N = 37

The result in Table 2 shows the level of readiness for the utilization of AI technologies for library users with visual and hearing impairment.

The result in Table 2 reveals that a majority (86.5%) of the respondents were ready to receive training

for the integration of AI tools into library services for users with visual and hearing impairment. The result shows that a higher percentage (91.9%) was ready to familiarize themselves with AI technologies designed to assist users with impairments. Another 78.3 also indicated readiness to incorporate AI into library services for users with impairment. The result in Table 2 further shows the readiness of 78.4% in using AI technologies to support users with impairment at the library and information centres while another majority or 83.8% of the respondents were ready to increase patronage of AI technologies in the library and information centre.

Table 2

Readiness	Ready	Slightly ready	Undecided	Not ready
How ready are you to receive training for the integration of AI tools into library services for users with impairments	32 (86.5)	3 (8.1)	-	2 (5.4)
How ready are you to familiarize yourself with AI technologies designed to assist users with impairments	34 (91.9)	3 (8.1)	-	-
How ready are you to incorporate AI into library services for users with impairment	29 (78.3)	6 (16.2)	2 (5.4)	-
How ready are you to support users with impairments in using AI technologies in the library and information centre	29 (78.3)	6 (16.2)	2 (5.4)	-
How ready are you to increase patronage of AI technologies in the library and information centre	31 (83.8)	4 (10.8)	2 (5.4)	-

N = 37

The result in Table 3 reveals the challenges facing the utilization of AI in support of information users with visual and hearing impairment.

Table 3

Challenges	Strongly agree	Agree	Undecided	Strongly disagree	Disagree	Ranking
Cost of acquisition of AI tools	23 (62.2)	11 (29.7)	2 (5.4)	1 (2.7)	-	1 st
Cost of implementation of AI Technology	22 (59.5)	12 (32.4)	2 (5.4)	1 (2.7)	-	1 st
Inadequate knowledge about AI technologies	12 (32.4)	21 (56.8)	3 (8.1)	1 (2.7)	-	2 nd
<i>Competition with today's alternative sources of information.</i>	11 (29.7)	22 (59.5)	3 (8.1)	1 (2.7)	-	2 nd
Lack of technical skills by Users	19 (51.4)	12 (32.4)	2 (5.4)	4 (10.8)	-	3 rd
Institutional bureaucracy	12 (32.4)	18 (48.6)	2 (5.4)	5 (13.5)	-	4 th
Lack of technical skills by service providers	12 (32.4)	16 (43.2)	6 (16.2)	3 (8.1)	-	5 th
Inadequate Library funding	6 (16.2)	19 (51.4)	11 (29.7)	1 (2.7)	-	6 th
Attitude of librarians towards new technology	6 (16.2)	11 (29.7)	-	1 (2.7)	19 (51.4)	7 th

N = 37

The result in Table 3 shows that there were several challenges facing the utilization of AI by information practitioners in support of information users with impairment at the libraries and information centres. The result reveals that 91.9% of the respondents agreed that cost of acquisition and implementation of AI tools were challenges. Another 89.2% agreed that inadequate knowledge about AI technologies and competition with today's alternative sources of information were challenges of using AI in library and information centres. The result further shows that 83.8% and 81% agreed that a lack of technical skills by users and institutional bureaucracy were the challenges of using AI. Also, another 75.6% and 67.6% agreed that lack of technical skills by service providers and inadequate library funding were challenges for the utilization of AI. The result however shows that lesser percentage or 45.9% of the respondents agreed that attitude of librarians towards new technology was a challenges.

Discussion of Findings

The findings in Table 1 reveal the level of awareness about AI technologies for hearing and visual impairment. The findings show that majority or above 50% were aware of AI technologies. The level of awareness shows that librarians are becoming more proactive and conscious of appropriate information technology for different library users. This finding aligns with several literatures, for instance, Bardasco, et al. (2019); Moustapha and Yusug (2023) whose studies revealed that librarians were aware of various AI technologies for library services. Similarly, the finding also supports earlier findings by Oyekale and Zubairu (2023) whose study showed that 80% of the librarians were aware of AI. Conversely, the findings in Table 1 show that a few of the practitioners were yet to come to terms with the dynamic changes in the utilization of innovative technologies in library services, hence a few of them were oblivion of AI.

The findings in Table 2 indicate the readiness and enthusiasm of the information practitioners on the utilization of AI technologies. The findings show that they were ready to receive training and familiarize themselves with AI. Their willingness to accept training and incorporate AI in library services would considerably be of help to users with disability in the university library. Their level of readiness as revealed in the study is a testament of their eagerness to support information users with disability. Their level of acceptance of AI technology agrees with the technology acceptance model (TAM) that we proposed

in this study which stipulates that acceptance and use of any technology is based on perceived usefulness and perceived ease of use. The finding shows that the practitioners actually know the benefit of using AI for users with disability and thus were ready to adopt it. This finding is very significant and encouraging which is an indication of a better future for information services in Nigeria. The finding here confirms an earlier study by Obiano, et al. (2016) which reveals that a total of 170 librarians who works with computer systems at various academic libraries in Nigeria and responded in his study were ready for the utilization of AI in library services, specifically to support users with visual and hearing impairment.

Despite the acceptability of AI and the enthusiasm shown by information practitioners, there are several challenges that may hinder the utilization of AI technologies at the university library. The ranking of some of the challenges in Table 3 shows that cost of acquisition and implementation rank as a major challenge followed by inadequate knowledge and competing alternative sources of information which ranked as second. Other challenges such as lack of technical skills by users, institutional bureaucracy, and lack of technical skills by service providers which ranked third, fourth and fifth were critical factors for the utilization of any technological tools such as AI in support of users with disability at the library and information centres. All these challenges in Table 3 align with the institutional theory (IT) and digital divide theory (DDT). These findings are significant for the fact that organizational norms, policies and structures have always stood as bottleneck against innovative ideas and changes (Afolayan, 2025). The IT and DDT emphasizes how some of the challenges that this study reveals may either facilitate or frustrate the utilization of AI in library services. Most Nigerian university libraries are not fully equipped with AI and digital facilities that can help people with disability (Odigie, 2024; Ogechukwu, 2024). The findings are in tandem with the study of Hussain (2023) who identified inadequate funding, attitude of librarians and technical skills as challenges. Similarly, Kumar, et al. (2022) found out that trained sign language facilitators and high cost of assistive devices were major challenges of using the AI technologies in libraries and information centres. The finding however reveals that attitude of librarians towards new technology was less of a challenge in utilizing AI in the university library. This finding implies that the librarians were not a major problem hindering the utilization of AI for users

with visual and hearing impairment at the university library in Nigeria.

Conclusion

This study focuses on the awareness and readiness of librarian towards the utilization of AI tools for the provision of information services to library users with visual and hearing impairment at the library and information centre. The study highlighted the level of awareness and preparedness of the information practitioners and the challenges affecting the utilization of AI in the university library. Given the high rate of awareness and readiness of the practitioners in this study, there is the tendency for the utilization of AI in library services which will improve the experience of library users with visual and hearing impairment. As shown in several literature, the application of Artificial Intelligence at the library and information centres would improve service delivery to all library users and especially those with visual and hearing impairment by enabling them to access information despite their challenges. The results show the consciousness, enthusiasm and readiness of librarians on emerging technology. It is pertinent to state that from the results of this study, librarians are interested in participating in any conversation for the development of AI that would bring the much needed impact on its users' community. The challenges in this study provide a framework for libraries, information centres and investors to take decision for the development of AI for users with hearing and visual impairment. From the preceding, the following recommendations were made:

1. The university library management should maintain the awareness level of librarians on AI and engage them further in seminar, workshop and ongoing conversation on AI tools. Such program should be organized by the library in collaboration with the ICT unit and should focus broadly on all AI technologies with special attention on critical AI tools such as Chatbots, Speech-to-Text software, Sign Language Recognition and Smart Assistants for visual impaired as well as Text-to-Speech software, Electronic Braille Displays, Braille Translation Software, and Screen Reader with AI enhancements for hearing impaired library users.

2. The university library should organize workshop and seminar program. Such program should benefit the entire library staff with a special attention on librarians assigned to critical service units such as Readers' Services unit, Serials unit, Reference unit and Electronic Library. The program should be evaluated

quarterly by the university librarian to monitor its effectiveness on the utilization of AI by information practitioners at the university library.

3. Considering the readiness of librarians as shown in this study, the university library management should introduce some useful AI tools such as: Chatbot, Speech-to-Text software, Sign Language Recognition and Smart Assistants, Text-to-Speech translator, Electronic Braille Displays, Braille Translation Software and Screen Reader with AI enhancements among others at the university library to enhance the delivery of library services to users with visual and hearing impairment.

4. The university management should endeavour to resolve the contending issues identified in this study by sourcing for fund through grants, philanthropists, NGOs, government agencies and international organizations for the acquisition of AI technology. Additionally, the library should organize training for librarians to improve their skill and knowledge on AI to ensure that AI technologies are utilized at the library.

Limitation

This present research explored the awareness, readiness and challenges facing the utilization of AI tools by information practitioners in support of library users with disability. The study only adopted the quantitative method without the use of other methods like interview; and the target was only the university librarians without considering other information practitioners. The study did not also address the perception of service utilization by users with disability (hearing and visual impairment). Future studies might try to explore those lapses with a view of closing the gaps which would produce different results and ensure adequate service delivery to library users with visual and hearing impairment.

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