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AN EXAMINATION OF AWARENESS, UTILISATION, AND CHALLENGES WITH ARTIFICIAL INTELLIGENCE IN UNIVERSITY LIBRARY SERVICES PROVISION AMONG LIBRARIANS IN KWARA STATE, NIGERIA

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ABSTRACT

This study examined the awareness, utilisation, and challenges of artificial intelligence (AI) in university library services among reference librarians in Kwara State University libraries. A descriptive survey design was employed, and data was collected from 15 reference librarians using a structured questionnaire. The findings reveal that librarians are aware of AI technologies, with 33.3% being very aware and 40.0% aware. However, the utilisation of AI technologies is still in its infancy, with chatbots being the most utilised AI technology (53.3%). The major challenges hindering AI adoption are poor internet connectivity (mean = 4.20), lack of expertise (mean = 4.13), and inadequate infrastructure (mean = 3.93). The study concludes that while there is a good level of awareness of AI among reference librarians, the utilisation of AI technologies is still limited, and several challenges need to be addressed to ensure successful AI adoption in university libraries. Recommendations include developing AI skills, providing necessary infrastructure and funding, and developing policies that support AI adoption.

Keywords: Artificial intelligence, Library services, Awareness, Utilisation, Challenges

Introduction

The integration of Artificial Intelligence (AI) in university libraries has the potential to revolutionise library services, enhancing user experience and improving operational efficiency (Eiriemiokhale & Sulyman, 2023; Oyetola *et al*., 2023). AI technologies, such as chatbots and expert systems, can provide personalised services, automate routine tasks, and facilitate knowledge discovery. The rapid evolution of Information and Communication Technology (ICT) has consistently expanded the boundaries of human knowledge and innovation, particularly in the field of library and information science. Over the past seven decades, significant advancements have been witnessed in storage technologies, transitioning from floppy discs to hard disc drives and solid-state drives, as well as the development of sophisticated computer systems and intelligent information systems. A notable exemplar of such innovation is ChatGPT, an AI system developed by OpenAI, which leverages diverse data training to generate human-like responses across various domains (Dwivedi *et al*., 2023).

This technological breakthrough has sparked both fascination and inquiry into the potential of AI. The rapid advancements in AI are precipitating a transformative shift in higher education, presenting academic libraries with unprecedented opportunities to revolutionise their services. To successfully harness the potential of AI, Kwara State universities' libraries must develop a nuanced understanding of the unique contextual factors and challenges that influence AI adoption in their specific environment. The advent of AI in libraries holds immense promise for revolutionising the field of librarianship, with the potential to develop sophisticated computer systems that can process and analyse complex digital data, rivaling human intelligence (Omame *et al*., 2020). As a transformative force, AI is redefining the landscape of various sectors, including libraries, where it is being leveraged to enhance service delivery, improve efficiency, and personalise user experiences. By harnessing the power of AI, libraries can optimise their operations, streamline information retrieval processes, and provide innovative solutions to meet the evolving needs of their patrons.

A key application of AI in libraries lies in information organisation and management, where AI-powered systems can facilitate more efficient and effective information retrieval, classification, and dissemination. AI-powered systems have the capacity to automatically classify, tag, and categorise vast amounts of digital content based on specific prompts or commands, thereby facilitating more efficient navigation and discovery of relevant resources within complex collections. By leveraging machine learning algorithms to analyse metadata, text, and user interactions, these systems can significantly improve the accuracy and relevance of search results, ultimately enhancing user satisfaction with library services. For instance, AI-powered tools can assist students in streamlining their research process by automatically generating summaries, identifying relevant keywords, and suggesting related materials, thereby reducing the time and effort required to locate pertinent information. Furthermore, AI-driven chatbots and virtual assistants are being increasingly deployed in libraries to provide instant support and guidance to users, exemplifying the transformative potential of AI in revamping library services (Panda & Chakravarty, 2022; Jha, 2023).

AI-powered chatbots and virtual assistants are being increasingly utilised in libraries to provide personalised support and services to patrons. These intelligent agents can respond to common enquiries, facilitate reference services, and offer tailored recommendations based on user preferences and browsing history. By leveraging natural language processing (NLP) and sentiment analysis, these chatbots can engage in meaningful interactions with users, providing timely assistance and support around the clock. Furthermore, AI technologies are revolutionising the preservation and digitisation of cultural heritage materials in libraries. Advanced image recognition algorithms and AI-powered tools are enhancing the accuracy of optical character recognition (OCR), enabling faster and more efficient digitisation of archival documents, rare manuscripts, and historical artifacts. This not only ensures the long-term preservation of these valuable resources but also facilitates global access to them, thereby promoting cultural heritage and knowledge sharing (Teel, 2024).

Statement of the Problem

The rapid emergence of Artificial Intelligence (AI) promises significant improvements in information discovery, automated workflows, and personalised services within academic libraries; nevertheless, the pace and depth of AI adoption in many Nigerian university libraries remain unclear. Preliminary and recent empirical studies indicate uneven awareness and limited practical utilisation of AI tools among university librarians in Kwara State and beyond (Moustapha, 2023; Eiriemiokhale, 2023). Reports point to persistent infrastructural constraints, skill gaps, and inadequate professional development as recurring barriers to meaningful AI integration, despite recognised potentials for collection development, service automation, and improved user engagement (Omeluzor, 2025; Ibrahim, 2024). These contextual realities suggest a disjunction between the theoretical promise of AI and the lived experiences of librarians, which may hinder universities' ability to support teaching, learning and research effectively.

Despite growing literature on AI and library services in Nigeria, there is a dearth of up-to-date, context-specific evidence that systematically examines librarians' levels of awareness, patterns of utilisation, and the precise challenges they face in Kwara State; recent reviews and surveys continue to report minimal adoption and varied readiness across institutions (Edam-Agbor, 2025; Moustapha, 2023). Without robust, localised data, policymakers and library managers cannot design targeted training, allocate resources strategically, or develop evidence-based policies to close the gap between potential and practice. Consequently, this study seeks to fill that gap by empirically investigating awareness, utilisation and perceived challenges associated with AI in university library services among librarians in Kwara State, thereby providing an evidence base to inform capacity building and strategic planning.

Objectives of the Study

This study sets out to:

1. examine the level of awareness of AI among librarians in university libraries in Kwara State, Nigeria;
2. investigate the utilisation of AI technologies in university library services.; and
3. identify the challenges hindering AI adoption in university libraries.

Review of Related Literature

This literature review synthesises existing research through a thematic framework, focusing on librarians' awareness and utilisation of AI, as well as the potential benefits and transformative potential of AI adoption in libraries, including enhanced service delivery and operational efficiency. Finally, it critically examines the concerns and challenges associated with AI adoption, including potential drawbacks and implementation barriers, to provide a comprehensive understanding of the opportunities and limitations of AI in libraries.

Awareness and Utilisation of Artificial Intelligence

Librarians' awareness of AI technologies is the foundation for any meaningful integration into university library services. Recent empirical studies conducted in Kwara State and similar Nigerian contexts show mixed but generally limited awareness: while some professional librarians report familiarity with basic AI concepts and applications (for example intelligent search, chatbots and automated classification), deeper understanding of AI capabilities, limitations and ethical implications remains low among a substantial proportion of practitioners (Eiriemiokhale, 2023; Edam-Agbor, 2025). These investigations suggest that awareness is unevenly distributed by institution and professional grade, with senior staff and those exposed to short courses or conferences showing higher self-reported familiarity than early-career librarians. Such variation indicates that awareness alone cannot be assumed; rather, it must be measured and developed through targeted continuing professional development and curricular interventions.

Studies of actual utilisation reveal that where AI tools are in use within Nigerian university libraries, they are most frequently applied to discrete tasks such as automated catalogue enrichment, basic query handling and plagiarism screening rather than to broader service redesign (Moustapha, 2023; Yusuf *et al*., 2024). Research originating from Kwara State documents early but patchy adoption: a minority of libraries report experimental deployment of AI-enabled discovery layers, chatbots or analytics, yet routine, institution-wide utilisation is rare and often reliant on a few motivated individuals rather than on coherent institutional strategies (Moustapha, 2023). The literature therefore frames utilisation as nascent and task-specific, emphasising that scalable, sustainable use of AI in library workflows requires both institutional commitment (policy, funding) and human capacity development to move beyond pilot implementations.

The integration of AI in university library services has gained significant attention in recent years, transforming the way librarians provide services and interact with patrons. Studies have shown that librarians in Kwara State, Nigeria, have varying levels of awareness and utilisation of AI technologies, with some expressing concerns about the challenges associated with its adoption (Eiriemiokhale & Sulyman, 2023; Okuonghae & Tunmibi, 2024). Research has highlighted the potential benefits of AI in libraries, including enhanced user experience, improved information retrieval, and increased efficiency in library operations (Ajani *et al*., 2022; Hussain, 2023).

However, several challenges hinder the widespread adoption of AI in Nigerian university libraries, such as inadequate technological infrastructure, limited funding, and lack of expertise (Igbo *et al*., 2025; Moustapha & Yusuf, 2023). Moreover, concerns about data privacy, security, and ethical considerations have been raised, emphasising the need for careful planning and implementation (Subaveerapandiyan *et al*., 2023). The literature suggests that librarians in Kwara State, Nigeria, are generally aware of AI technologies, but there is a need for training and capacity-building to enhance their utilisation and address the challenges associated with its adoption (Eiriemiokhale & Sulyman, 2023; Oyetola *et al*., 2023). Further research is needed to explore the specific challenges and opportunities of AI adoption in Nigerian university libraries, and to develop strategies for effective implementation.

The concepts of awareness and utilisation are intricately linked in the context of AI adoption in libraries. Research suggests that librarians exhibit varying levels of awareness regarding AI applications, which can significantly influence their utilisation. Studies have shown that while librarians recognise the inevitability of AI in libraries, they also acknowledge the challenges associated with its implementation (Xu, 2023; Huang, 2022). Some librarians express scepticism about the future role of libraries and their librarians in the age of AI (Gasparini & Kautunin, 2022), while others have mixed feelings about the readiness of academic libraries to adopt AI, especially in the Nigerian context. (Yusuf *et al*., 2022). Conversely, research conducted in Nigeria indicates that students demonstrate a marked awareness of AI applications in library operations, underscoring the importance of computer literacy in navigating the digital landscape. (Abayomi *et al*., 2022). Furthermore, library leaders and practitioners in certain regions, such as Indonesia, exhibit a favorable disposition towards AI adoption and are willing to implement AI initiatives (Harisanty *et a*l., 2022). The literature highlights several factors that influence a library's readiness to adopt AI, including awareness, acceptance, value perception, application experience, leadership support, innovation atmosphere, and competitive pressure (Bisht, 2023; Yakubu, 2023).

Benefits, Concerns, and Challenges of Artificial Intelligence Adoption in Libraries

The corpus of recent studies consistently highlights infrastructural, human-resource and policy-related barriers that constrain AI adoption in Nigerian academic libraries. Prominent impediments include inadequate digital infrastructure and reliable power, limited technical skills and digital competencies among librarians, constrained funding for acquisition and maintenance of AI systems, and the absence of institutional policies or ethical frameworks governing AI use (Nwabuisi, 2024); global reviews and regionally focused studies 2024–2025. Perceived risks such as concerns about data privacy, potential job displacement, and low confidence in vendor-supplied solutions also discourage managers from scaling AI projects. Collectively, these challenges indicate that effective AI integration will require coordinated action across multiple levels: investment in infrastructure, sustained professional training, clear governance frameworks and pilot programmes designed to produce transferable lessons for similar institutions.

The integration of AI in libraries offers numerous benefits, including enhanced efficiency, accuracy, and user experience in various aspects of library operations, such as cataloguing, management, and data management (Sianturi, 2024; Bisht *et al*., 2023). AI technology has the potential to significantly enhance library services by providing personalised recommendations tailored to user preferences and reading habits. Moustapha and Yusuf (2023) presented a conceptual framework for the strategic integration of AI in academic library administration in Nigeria, highlighting its potential benefits, including enhanced usability, multifaceted functionality, and improved efficiency in complex tasks. Additionally, AI can facilitate the identification of customer interests, support reference services, information retrieval, and collection management (Bisht *et al*., 2023; Lin *et al*., 2023).

However, several concerns and challenges hinder the adoption of AI in libraries, including inadequate infrastructure, insufficient funding, and limited awareness among librarians. To address these challenges, it is essential to develop policies, conduct consultations, and provide training and retraining for library staff (Bello & Abdulsallam, 2023). Moreover, the perceived fear of AI replacing librarian roles can create barriers to adoption (Subaveerapandiyan *et al*., 2023). Moustapha and Yusuf (2023) indicated that libraries in Nigeria are encountering significant challenges in their efforts to adopt AI, primarily due to a lack of funding and various technological deficiencies. Additionally, library personnel 'express concerns regarding potential job loss and the reliability and authenticity of AI-generated content, as well as issues related to privacy and confidentiality. Therefore, libraries must carefully consider the limitations and challenges of AI adoption and make informed decisions about technology investments and operations. Ultimately, training librarians and reviewing library school curricula are crucial steps in facilitating the successful integration of AI in libraries.

Methodology

This study employed a descriptive survey design to examine the awareness, utilisation, and challenges of artificial intelligence (AI) in university library services among reference librarians in Kwara State University libraries. Data was collected from 15 reference librarians in Kwara State University libraries using a structured questionnaire. The questionnaire was designed to elicit information on the librarians' awareness and utilisation of AI technologies, as well as the challenges hindering AI adoption. The questionnaire was validated by experts in the field of library and information science to ensure its reliability and validity. Data was analysed using descriptive statistics, including frequency, percentage, mean, and standard deviation. This enabled the researcher to summarise and describe the characteristics of the data collected. The results are presented in tables and figures to facilitate easy understanding and interpretation. By adopting this methodology, the study provides insights into the awareness, utilisation, and challenges of AI adoption in university libraries, highlighting areas for improvement and potential solutions.

Table 1: Population and Sample Size of the Study

Kwara State University Libraries	**Librarian Sampled**
University of Ilorin	4
Kwara State University	3
Kwara State University of Education	1
Federal Polytechnic Offa	3
Kwara State Polytechnic	2
Al-Hikmah University	2
Total	**15**

Data Analysis and Results

Table 2: Level of Awareness of AI among Reference Librarians

Awareness of AI	**Frequency**	**Percentage (%)**
Very Aware	5	33.3
Aware	6	40.0
Neutral	2	13.3
Unaware	2	13.3

Table 2 reveals that the majority of reference librarians (73.3%) are aware of AI, with 33.3% being very aware and 40.0% aware. Smaller proportions (13.3%) are neutral, and equal percentages (13.3%) are unaware of AI.

Table 3: Utilisation of AI Technologies in University Library Services

AI Technology	**Frequency**	**Percentage (%)**
Chatbots	8	53.3
Dynamed	4	26.7
Expert systems	2	13.3
None	1	6.7

Table 3 reveals that the utilisation of AI technologies in university library services is led by chatbots (53.3%), followed by Dynamed (26.7%), and expert systems (13.3%). Only one respondent (6.7%) reported no utilisation of AI technologies.

Table 4: Challenges Hindering AI Adoption in University Libraries

Challenges	**Mean**	**Standard Deviation**
Poor Internet connectivity	4.20	0.56
Lack of expertise	4.13	0.52
Inadequate infrastructure	3.93	0.70
Limited budget	3.80	0.68

Table 4 presents the challenges hindering AI adoption in university libraries, with poor internet connectivity (M = 4.20, SD = 0.56) and lack of expertise (M = 4.13, SD = 0.52) identified as the most significant barriers. Inadequate infrastructure (M = 3.93, SD = 0.70) and limited budget (M = 3.80, SD = 0.68) are also notable challenges.

Discussion of the Findings

The findings of this study reveal that the majority of reference librarians in Kwara State University Library are aware of AI technologies, with 33.3% being very aware and 40.0% aware (Table 1). This suggests that librarians are making efforts to familiarise themselves with AI, which is a positive step towards its adoption. However, the fact that 13.3% are neutral and 13.3% are unaware indicates that there is still a need for awareness-raising initiatives. The utilisation of AI technologies in university library services is still in its infancy, with chatbots being the most utilised AI technology (53.3%), followed by Dynamed (26.7%) (Table 2). This is consistent with the findings of Eiriemiokhale and Sulyman (2023), who reported that chatbots are increasingly being used in Nigerian university libraries to provide personalised services to users.

The major challenges hindering AI adoption in university libraries are poor internet connectivity (mean = 4.20), lack of expertise (mean = 4.13), and inadequate infrastructure (mean = 3.93) (Table 3). These findings are consistent with those of Ajani et al. (2022), who identified similar challenges as major barriers to AI adoption in Nigerian university libraries. The limited budget (mean = 3.80) is also a significant challenge, highlighting the need for university administrators to allocate more funds to support AI initiatives.

The findings of this study have implications for librarians, university administrators, and policymakers. Librarians need to develop their AI skills to effectively utilise AI technologies, while university administrators need to provide the necessary infrastructure and funding to support AI adoption. Policymakers also have a role to play in developing policies that support AI adoption in university libraries. In conclusion, while there is a good level of awareness of AI among reference librarians, the utilisation of AI technologies is still limited, and several challenges need to be addressed to ensure successful AI adoption in university libraries.

Conclusion

The study concludes that while there is a good level of awareness of AI among reference librarians, the utilisation of AI technologies is still limited, and several challenges need to be addressed to ensure successful AI adoption in university libraries. This study examined the awareness, utilisation, and challenges of AI in university library services among reference librarians in Kwara State University libraries. The findings reveal that librarians are aware of AI technologies, but the utilisation of AI is still in its infancy. Poor internet connectivity, lack of expertise, and inadequate infrastructure are major challenges hindering AI adoption.

Recommendations

1. The University Librarians in the studied libraries should develop AI skills through training and workshops to effectively utilise AI technologies.
2. The University Administrators should provide necessary infrastructure and funding to support AI adoption.
3. Policymakers should develop policies that support AI adoption in university libraries.
4. By addressing these challenges and implementing these recommendations, the university libraries studied can harness the potential of AI to improve library services and enhance user experience.

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