



ARTIFICIAL INTELLIGENCE ADOPTION AND JOB PERFORMANCE OF LIBRARIANS IN PUBLIC POLYTECHNIC LIBRARIES IN OGUN AND OYO STATES, NIGERIA

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ABSTRACT

Librarians' job performance in polytechnic libraries is essential to the accomplishment of the institutional goals. The librarian's job performance encompasses task efficiency, user responsiveness and resource management, all of which directly affect the quality of library services. Despite the growing relevance of job performance in any organisation, there seems to be a decline in the job performance of librarians, resulting in a decline in patronage of the library and redundancy in the use of library resources. Artificial Intelligence (AI) adoption is expected to improve librarians' job performance, especially in the aspects of AI in cataloguing, information retrieval, and chatbots for reference services, which should help improve the job performance of librarians in polytechnics. Although there are several studies on librarians' job performance in different settings, there is a dearth of literature on studies that combined the two variables in polytechnics. This study, therefore, examined Artificial Intelligence adoption and librarians' job performance in polytechnic libraries in South-West Nigeria. The study adopted a survey research design. The population comprised 99 librarians across 10 selected public polytechnic libraries in South-West Nigeria. A structured questionnaire was used for data collection to ensure uniformity and objective analysis. Data were analysed using descriptive and inferential (multiple regression) statistics at a 5% level of significance. Findings revealed that Artificial Intelligence adoption has a significant influence on librarians' job performance ($\text{Adj. } R^2 = 0.050$, $F(3, 95) = 2.712$, $p < .05$). The job performance of librarians in polytechnic libraries in Ogun and Oyo State, Nigeria, is high ($\bar{x}=3.56$, $\sigma=0.65$). The extent of artificial intelligence adoption is great ($\bar{x}=3.14$, $\sigma=0.87$). The study concluded that Artificial Intelligence adoption contributes to librarians' job performance in polytechnic libraries in South-West Nigeria. The study recommended that polytechnic libraries should prioritise the integration of AI tools in information retrieval in polytechnic libraries to improve their job performance.

Keywords: Artificial intelligence, Artificial intelligence adoption, Job performance, polytechnic libraries, Librarians, South-West, Nigeria



INTRODUCTION

Job performance is the degree to which an employee effectively and efficiently fulfils their assigned roles and responsibilities to achieve organizational goals. Job performance serves as a measure to showcase the outcome of an employee's assigned task. Job performance can be considered as the degree of output attained when completing a particular task (Bankole et al., 2023). Librarians perform a myriad of functions, especially in providing astute services to users and in promoting the vision and mission of the parent organization. Job performance in library settings, especially in academic institutions and polytechnics in particular, reflects how well librarians carry out their professional tasks like cataloguing, user support, teaching information literacy, and digital resource management in ways that advance the institution's objectives. However, lapses encountered in the job performance of librarians can cause a shortfall in their service delivery, thereby affecting patronage and users' satisfaction. The job of librarians in any academic institution cannot be underestimated because of the contributions to the users and the library at large.

Job performance of librarians reveals the accomplishment of tasks based on the set goals of the institution (Asafa, 2025). The job performance of librarians can be assessed based on their core tasks performed daily in the library and to the users at large. Dewey and Egan (2018) assert that librarians' job performance can be assessed through indicators such as accuracy in cataloguing, responsiveness to users, resource management efficiency, and engagement in professional development. These dimensions are crucial because they directly affect the accessibility, relevance, and quality of library services. Job performance is a multidimensional construct encompassing

task performance, contextual performance, and adaptive performance (Dalal, 2020).

In Nigeria and other developing countries, as observed by the researcher, performance outcomes are often hindered by constraints such as inadequate funding, inadequate technological infrastructure, poor ICT facilities, poor power supply, poor maintenance culture, and insufficient training, which are some of the setbacks confronting the job performance of librarians. These issues are particularly intense in polytechnic libraries, where librarians frequently operate in environments with limited institutional recognition and minimal opportunities for advancement in their careers. Many librarians report high workloads, obsolete tools, and minimal motivation, all of which reduce efficiency and service quality. Adewojo et al. (2024) identified motivation, communication, and professional development as strong predictors of improved job performance. The inability of librarians to perform as expected not only affects the quality of information services but also undermines the broader educational mission of polytechnic institutions.

The Nigerian polytechnic system emphasizes vocational and technical education, requiring robust library services that support teaching, research, and practical training. Polytechnic libraries serve as an integral academic section of the institution of higher learning, saddled with the responsibility of providing access to information resources that support the students' technical learning and lecturers' instructional delivery. Polytechnic libraries focus on delivering resources that promote practical learning and innovation. They serve as the academic backbone by supplying access to technical manuals, research journals, e-resources, and digital tools necessary for students and faculty in engineering, applied sciences, business studies, and technology-related disciplines.



Polytechnic libraries are designed to support teaching, learning, and applied research, thereby fostering technical competence and innovation-driven development. Their operations extend beyond the acquisition and preservation of resources to include training users in information literacy, managing institutional repositories, and supporting curriculum delivery.

Librarians in polytechnics are not only custodians of knowledge but also facilitators of learning who guide students and staff in navigating complex information systems. Their ability to perform these tasks efficiently reflects the level of institutional investment in human capacity and technology. Studies conducted in Nigerian polytechnic libraries show that inadequate staffing, limited professional training, and poor ICT infrastructure remain significant constraints to effective service delivery (Akpukpu & Osawe, 2024). These issues reduce librarians' capacity to integrate innovative tools and consequently hinder the achievement of institutional goals. Furthermore, the persistent underfunding of polytechnic libraries relative to university libraries contributes to disparities in resource availability, staff development, and overall performance (Ubogu, 2022). Job performance in light of this study is measured using task performance, integration and effective use of technology, and contextual performance.

Librarians' task performance represents the extent to which employees effectively carry out core duties that directly support organizational goals. In librarianship, task performance includes essential functions such as cataloguing and classification, reference and information services, collection development, circulation activities, user education, and the management of electronic and digital resources (Obiozor & Nwosu, 2021). The effectiveness with which librarians perform these tasks determines the overall quality of library service delivery. High levels of task

performance enhance user satisfaction, facilitate efficient information dissemination, and strengthen organizational support for teaching, learning, and research, particularly within academic environments (Hermawan et al., 2024). Task performance is the discretion applied by employees that extends beyond the formal job responsibilities, enhancing the overall effectiveness and functionality of the organization. Thus, librarians' task performance serves as the operational mechanism through which broader job performance and service effectiveness in polytechnic libraries are achieved.

Technology integration in libraries encompasses the adoption and use of digital catalogues, electronic databases, institutional repositories, library management systems, assistive technologies, and online information services. These technologies enhance efficiency, expand access to information beyond physical boundaries, and improve user satisfaction (Tevera & Ruhode, 2024). However, the successful integration of such technologies does not occur automatically; it depends largely on the competencies, attitudes, and readiness of librarians to embrace technological change. Librarians are expected not only to possess technical skills but also to demonstrate adaptability, continuous learning, and innovative service delivery in response to emerging technologies (Tshabalala & Dube, 2024). Integration of technology is one of the measures for job performance required to ensure adequate technological infrastructure is in place to assess workflow in polytechnic libraries in Nigeria.

Contextual performance is the discretionary actions employees adopt that extend beyond their formal call of duty and improve the overall performance of the librarian in the library. According to Asafa (2025), contextual performance encompasses discretionary actions that go beyond core job responsibilities, improving library services and patron experiences, such as providing



exceptional user support, assisting patrons in finding resources, offering research guidance, and making personalized recommendations. Contextual performance among librarians often remains a challenge and a problem area for research and practice. Empirical studies suggest that various organisational and individual factors may inhibit librarians' ability or willingness to engage in contextual behaviours. In Nigerian university libraries, for instance, issues such as limited motivation, poor recognition, and inadequate support systems have been associated with sub-optimal job performance, including contextual components. Similarly, stress and lack of supportive work relationships have been found to negatively affect librarians' contextual performance, undermining their capacity to deliver voluntary, value-adding behaviours beyond formal task responsibilities. Artificial Intelligence adoption is expected to improve the performance of librarians in Nigeria.

Artificial intelligence (AI) is introduced in every facet of human existence and in different organisational settings, including the library. AI is referred to as the ability of the digital computer or computer-controlled robot to perform tasks commonly associated with intelligent beings. Artificial intelligence is the ability of computers or computer-controlled robots to perform tasks that are commonly associated with the intellectual processes characterized by human ability to reason (Copeland, 2026). AI represents a broad field of computer science focused on developing systems capable of performing tasks that typically require human intelligence, such as learning, reasoning, problem-solving, and decision-making (Alkathiri, 2022). AI has become instrumental in transforming traditional operations such as cataloguing, classification, information retrieval, and user engagement (Ayinde et al., 2026). The adoption of AI in polytechnic libraries is expected to enhance librarians' job performance in order to render services that

will make users aspire to return over and over again to acquire knowledge in the library. Another aspect of the libraries where AI supports is in reference services, which enhances digital resource discovery, improves administrative efficiency, and contributes to professional development among librarians (Cox, 2024; Zondi et al., 2024). The aforementioned reflects the importance of adopting AI in improving librarians' job performance.

AI adoption can be regarded as the extent to which new technologies are meaningfully utilized in library operations. Academic libraries have consistently been at the forefront of adopting emerging technologies to enhance their operations and improve user experience (Boateng, 2024). Over the years, these libraries have integrated various digital tools like AI-related tools and software to support research, learning and information access. Khan et al. (2023), on similar grounds, explained that the adoption of an innovation involves its actual use in the transformation of work processes to enhance service outcomes. Recent literature also underlines the fact that willingness to adopt is equally matched with the ability to apply new technologies regularly in operational workflows for actual adoption to occur (Emmanuel et al., 2025). That is, if librarians have general knowledge of the AI tools, meaningful adoption only occurs when the cataloguing, reference services, and engagement with users become regular features of their use of the tools. Understanding adoption as a behavioral or operational process highlights why gaps persist between technological awareness and measuring improvements in a job's performance.

There are different types of AI tools used in cataloguing, namely Online Computer Library Centre (OCLC), Ex Libris + Primo AI, spaCY, AutoCat. OCLC is a non-profit global library organisation developed by university and library leaders in Ohio to create a



computerised network for sharing library resources efficiently. Some of the other services provided by OCLC are WorldCat, which is the largest international online public access catalogue maintained cooperatively by OCLC and its member libraries, which allows users to locate, acquire, and catalogue library materials. OCLC maintains and publishes updates to this widely used library classification system (OCLC, 2025). Ex Libris +Priamo AI empowers libraries to shape the discovery experience by providing support for automated classification, indexing, and metadata enrichment. spaCy is a free, open-source library for advanced natural language processing in Python.

Mabona et al. (2024) examined AI adoption in academic libraries without emphasising specific thematic challenges, while Echedom and Okuonghae (2021) focused mainly on AI adoption in academic libraries in African contexts. Similarly, Zondi et al. (2024) reviewed AI in academic library services but did not address the job performance of librarians in polytechnic libraries. Given these gaps, this study becomes essential due to the strategic role of academic libraries in higher institutions and the growing need to address the limitations of existing literature. Consequently, many librarians in polytechnic libraries perform below their potential due to systemic challenges beyond their control. This underperformance raises important questions about how AI adoption could be optimized to improve librarians' job performance within the polytechnics in Nigeria. Therefore, this study aimed to bridge the gap by empirically assessing how AI adoption and librarians' job performance are related in polytechnic libraries in South-West, Nigeria.

Statement of the Problem

The persistent decrease in job performance creates a gap that can hinder librarians' attitude towards the accomplishment of the academic mission of polytechnics, thus frustrating users

and delaying access to vital information. Librarians' job performance has experienced a decline in recent times due to limited resources, evolving users' expectations, and the need to integrate emerging technologies into the polytechnic library operations. AI adoption has been identified as a potential enabler to improve librarians' performance. Applications such as automated cataloguing, chatbots, intelligent search engines and predictive analytics can streamline repetitive tasks, reduce errors, and enhance service delivery (Akpukpu & Osawe, 2025). One of the attempted ways of solving the issue of librarians' job performance in polytechnics is through the adoption of artificial intelligence in library service delivery. AI adoption has been identified as a potential enabler to improve librarians' performance. Despite growing research on AI adoption in libraries, few studies have examined how AI adoption interacts to influence librarians' job performance. Existing studies either focus on AI adoption, technology adoption in isolation, or emphasize workload and ICT competence without considering the two variables measured in this study. Therefore, this study examined the influence of AI adoption on the job performance of librarians in polytechnic libraries in South-West, Nigeria.

Objective of the Study

The main objective of the study was to determine the influence of artificial intelligence adoption on librarians' job performance in polytechnic libraries in South-West, Nigeria. The specific objectives are as follows:

1. find out the level of librarians' job performance in polytechnic libraries in Ogun and Oyo States, Nigeria;
2. ascertain the extent of artificial intelligence adoption in polytechnic libraries in Ogun and Oyo States, Nigeria; and



3. ascertain the influence of Artificial Intelligence adoption on librarians' job performance in polytechnic libraries in Ogun and Oyo States, Nigeria.

Research Questions

The following research questions were formulated to achieve the above objectives:

1. What is the level of job performance of librarians in the polytechnic libraries of Ogun and Oyo States, Nigeria?
2. To what extent is artificial intelligence adopted in the polytechnic libraries of Ogun and Oyo States, Nigeria?

Hypotheses

The null hypotheses were tested at the 0.05 level of significance.

H₀₁: Artificial Intelligence adoption has no significant influence on the job performance of librarians in polytechnic libraries in Ogun and Oyo States, Nigeria.

Scope of the Study

This study focuses on the influence of Artificial Intelligence adoption on the job performance of librarians in South-West, Nigeria. AI adoption was operationalized with librarians' use of AI tools in cataloguing, information retrieval, and Chatbots for reference. Job performance was measured through indicators such as task performance, integration and effective use of technology, and contextual performance. Geographically, the study covers ten public polytechnic libraries owned by federal and state government in South-West, Nigeria namely: Moshood Abiola Polytechnic, Abeokuta; Ogun State Institute of Technology, Igbesa; Gateway Polytechnic, Saapade; Abraham Adesanya Polytechnic, Ijebu-Igbo, Ogun State Polytechnic of Health and Allied Matter and Federal Polytechnic Ilaro, Ogun State; The Polytechnic, Ibadan; The Oke-Ogun Polytechnic, Saki; Adeseun Ogundoyin Polytechnic, Eruwa; and Federal Polytechnic, Ayede in Oyo State, Nigeria. Ogun State and

Oyo State are in South-West Nigeria; the study locale was selected because these two states have more public polytechnics in the region, with one of the oldest polytechnics in Ibadan, as such representing a large number of the polytechnics in that region. This implies that the findings of the study can be generalized. The study is limited to librarians directly involved in library operations and service delivery within these institutions.

Literature Review

Job Performance of Librarian

Job performance is commonly divided into task performance and contextual performance. Task performance refers to the degree of proficiency with which library staff undertake core activities that sustain the technical functions of the organization, such as cataloguing, organizing information resources, and responding to user inquiries. Conversely, contextual performance encompasses behaviors that enhance organizational effectiveness by shaping its social, psychological, and institutional environment, such as assisting colleagues, volunteering for additional assignments, and upholding library standards and policies. Borman and Motowidlo, as cited in Ramawickrama et al. (2017), further emphasized that task performance entails the effective execution of work-related activities that contribute to the technical operations of the organization, whereas contextual performance involves actions not explicitly captured in one's job description but which significantly contribute to organizational growth.

In addition, task performance is defined as the extent to which individuals effectively execute the specific duties and responsibilities directly tied to their roles within an organization. This includes the successful completion of fundamental tasks and activities aimed at achieving organizational objectives (Koopmans et al., 2014). It involves not only fulfilling assigned job responsibilities but also



consistently meeting performance targets and realizing desired outcomes through the application of relevant skills and competencies (Bakker & Demerouti, 2017). Task performance thus captures the execution of job-related duties as well as the demonstration of abilities necessary for effective work outcomes. According to LePine et al. (2019), task performance also includes behaviors that contribute to the accomplishment of specific responsibilities through the efficient and effective application of knowledge, skills, and abilities to meet or exceed organizational standards and expectations. Similarly, Rothmann et al. (2019) noted that task performance entails behaviors and actions that directly contribute to the accomplishment of job tasks, encompassing adherence to established procedures, compliance with guidelines, and the production of high-quality outputs within stipulated timeframes.

In the case of librarians, task performance refers to the specific responsibilities and duties they are expected to fulfill as part of their professional role in a library setting. These responsibilities are fundamental to ensuring the efficient and effective operation of library services and providing users with access to relevant information resources. More broadly, librarians' job performance can be described as the effectiveness and efficiency with which they fulfill professional duties, which include collection development, reference services, information literacy instruction, user assistance, and other activities that support patrons' access to information resources (Huang & Chang, 2020).

The concept of technology integration in librarianship encompasses both the acquisition of technological skills by librarians and the practical application of those skills in service delivery. As society moves further into the digital age, librarians are no longer custodians of physical collections alone, but facilitators of digital knowledge and navigators of online information ecosystems. This broader role

requires librarians to be adept in using information and communication technologies (ICTs), digital databases, automated library systems, social media, and emerging innovations such as artificial intelligence (AI) (Ezeabasili & Idhalama, 2025; Singh, 2022). In academic and public libraries alike, technologies such as integrated library systems, online catalogues, e-resources, and Web 2.0 tools have shifted the focus from static collections toward dynamic, user-centered services that prioritize accessibility and collaboration (Adeyinka & Taofeeqat, 2016; Baro & Godfrey, 2015).

The effective use of technology by librarians is shaped by multiple intersecting factors. One key dimension is librarians' technological competence the knowledge, skills, and attitudes necessary to engage with digital tools meaningfully. Research on librarians' technology skills indicates that higher levels of ICT competency are associated with enhanced management of electronic information resources and improved service delivery (Dime, et al., 2025). Librarians' ICT skills influence their ability to conduct digitization projects, support remote access to resources, and manage complex digital platforms, all of which underpin user satisfaction and operational efficiency.

Another integral concept is evidence-based practice, which ties technology use to professional decision-making that relies on valid and reliable data. Studies suggest that the integration of information technology enhances evidence-based practice among librarians, fostering continual professional improvement and ensuring that technology application aligns with user needs and organizational goals (Ikonne & Adereolu, 2025). Librarians who effectively use data analytics, user feedback mechanisms, and performance metrics are better positioned to evaluate the impact of technologies on library services and to adapt their approaches accordingly.



This performance is not confined to technical duties but also involves adaptability to evolving information technologies, the provision of high-quality customer service, collaboration with colleagues and stakeholders, ongoing professional development, and contributions to the strategic goals of the library (Wang & Liu, 2018). Librarians' job performance is reflected in their ability to effectively manage library resources, provide accurate and timely information services, engage in evidence-based decision-making, foster information literacy competencies, and contribute to the development and implementation of library policies and initiatives.

Contextual performance refers to employee's manifestation of charitable and voluntary behaviour towards the organization, which is beyond their professional responsibilities and without official acknowledgement from their employer (Palenzuela, Delgado & Rodríguez, 2019). Pradhan, Jena and Bhattacharyya (2018) describe contextual performance as additional role behaviors that support an employee's task behaviors but are not explicitly requested of them. Contextual performance refers to the behaviors of employees that contribute to the organizational environment beyond their formal job responsibilities. Unlike task performance, which focuses on the technical execution of duties, contextual performance encompasses voluntary behaviors such as cooperation, initiative, and adherence to organizational norms, which enhance overall institutional effectiveness (Borman & Motowidlo, 1997).

Hirsh (2017) emphasized that librarians' performance also involves the effective management of library resources, delivery of relevant and precise information services, assistance to users in their information-seeking processes, and active engagement in professional development in order to remain current with emerging technologies and trends

in the field. In a similar vein, Borrego and Pember (2016) explained that librarians' job performance encompasses proficiency in organizing and preserving information, facilitating access to resources, promoting literacy skills, creating inclusive and welcoming environments, and fostering collaboration with colleagues and stakeholders to enhance the library's overall effectiveness and impact. Additionally, Luo and Sundin (2019) argued that librarians' job performance is demonstrated through user-centered services, navigation of diverse information sources, participation in policy development and implementation, and advocacy for equitable information access.

Job performance includes their capacity to effectively organize and classify library materials, assist users in locating relevant information, provide continuous guidance in utilizing both physical and digital resources, and contribute to the establishment of services that address the evolving needs of their communities (Sarrafzadeh et al., 2021). These duties highlight the centrality of librarians as facilitators of knowledge, ensuring that users are not only able to access information but also equipped with the skills necessary to navigate the growing complexities of the information landscape. This performance dimension also requires librarians to engage in continuous professional development to enhance their skills, adapt to emerging technologies, and broaden their knowledge base in order to remain effective in the ever-changing information environment (Luo et al., 2019).

Artificial Intelligence Adoption in Libraries

Artificial intelligence (AI) is one of the emerging technologies of this time. AI is a widely used technology in library services that can transform the best services in the age of information technology. Artificial intelligence (AI) refers to the ability of machines to perform tasks that previously required human intelligence. This can include self-driving cars, robots, chatbots, and artificially generated



images (Diaz, 2024). AI combines computers, computer-controlled robots, or software to think intelligently like humans, mimicking the problem-solving and decision-making abilities of the human brain (Duggal, 2023). It is an emerging technology that allows intelligent machines to understand reason, learn, and apply knowledge (Nwakunor, 2021).

AI can be seen as a set of modern technologies that enable libraries to operate machines that can perceive, understand, act, and learn. This has implications for IT connectivity in libraries and can help meet customer demands and needs more effectively. The impact of AI and modern IT on the future of libraries is uncertain and can vary according to different experts (Vijayakumar & Cheshadri, 2019). Artificial Intelligence (AI) holds significance for libraries because it can be used for organizing and making vast collections of information accessible. According to Sridevi and Shanmugam (2017), artificial intelligence is the modern technology that is used to manage the digital library. The ultimate goal of artificial intelligence is to develop computer systems or machines that can think, behave, and truly rival human intelligence, and this undeniably has major implications for librarianship.

Artificial intelligence is not just an intelligent system or a software program; it's a biologically inspired technology used to replicate human processes of perceiving and processing information (Sridevi & Shanmugam, 2017). Among the benefits of AI in improving library services are automating routine tasks, expanding collections, and enhancing user experience. However, we also have to acknowledge the shortcomings of AI, particularly in understanding the complexity of human language and culture. Barriers to the adoption of AI in libraries include high costs, lack of technical skills, and privacy concerns. It is emphasized that librarians should acquire the necessary skills to adapt to the evolving technological environment. AI has the

advantages of significantly improving library services by providing personalized guidance, increasing efficiency, and automating wearisome tasks.

According to Tait and Pierson (2022), the adoption of AI and robotics in libraries may be hindered by a lack of skills and the need for training prior to implementation. Consistent with the above view, Hervieux and Wheatley (2021) argued in their study that the low adoption rate of AI and bots in libraries is due to a lack of knowledge about these technologies. In their investigations of the use of chatbots in university libraries, Kaushal and Yadav (2022) found that despite the huge advantages of chatbots for improving reference services in libraries, their major drawback, a major intrusion on privacy, has to be removed by software designers during the development phase. In their research on some of the barriers to the adoption of artificial intelligence in academic libraries, Youssef et al. (2022) focused primarily on the lack of awareness of librarians on how to use artificial intelligence to meet their service needs and the great disruption that artificial intelligence has caused to traditional library services, which still shocks most library professionals. From a different angle, the study by Korinke and Stiglitz (2017) emphasized that the use of AI poses a threat to the work of librarians and that caution must be taken before its widespread application in libraries. Liao (2019) conducted research on the benefits of chatbots for library operations. The researcher highlighted some of the barriers that might prevent libraries from adopting robots. These include the high-skill requirements of working with bots, the need to redesign workflows, the fact that bots are only designed to perform one or two tasks and cannot be used for all library activities, the fact that bots sometimes have tantrums that can disrupt library services, and more.

Use of AI Tools in Cataloguing

The use of AI in cataloguing aligns with the shift from traditional rule-based systems to



data-driven and learning-based approaches. Machine learning algorithms can be trained on large datasets of existing bibliographic records to identify patterns and replicate cataloging decisions with a high degree of consistency (Cox et al., 2019). For instance, NLP techniques enable AI systems to extract key bibliographic elements such as titles, authors, abstracts, and keywords from textual content, thereby supporting automated descriptive cataloguing. Similarly, AI-powered subject analysis tools can suggest classification numbers and subject headings based on semantic similarity and contextual understanding of resources.

AI tools also play a significant role in improving the speed and scalability of cataloguing operations. Automated metadata generation reduces the time required to process large volumes of digital resources, such as institutional repositories, e-books, and multimedia content (Breeding, 2018). By handling routine and repetitive tasks, AI allows professional catalogers to focus on more complex intellectual work, such as policy formulation, metadata quality control, and the cataloguing of specialized materials. Conceptually, this represents a redefinition of the cataloger's role rather than its elimination. Despite these advantages, the use of AI in cataloguing raises important conceptual and ethical considerations. AI systems are only as effective as the data on which they are trained, and biased or incomplete datasets can lead to biased metadata and misrepresentation of knowledge domains (Noble, 2018).

AI for Information Retrieval

Information Retrieval (IR) refers to the process of obtaining relevant information from large collections of data, typically unstructured or semi-structured, in response to a user's query. Traditional IR systems relied heavily on keyword matching, Boolean logic, and statistical models such as the vector space model and probabilistic ranking. Artificial Intelligence (AI) has therefore emerged as a

transformative force in modern information retrieval systems by enabling more intelligent, adaptive, and user-centered retrieval processes. Information retrieval, involves the application of machine learning, natural language processing (NLP), knowledge representation, and reasoning techniques to improve how information is indexed, searched, ranked, and presented to users. AI-enhanced IR systems go beyond surface-level keyword matching to understand the semantics, intent, and context of user queries, thereby delivering more accurate and relevant results (Russell & Norvig, 2021).

One of the most significant contributions of AI to information retrieval is through machine learning. Machine learning algorithms enable IR systems to learn from data, user behavior, and feedback over time. Supervised learning techniques are often used in ranking models, where systems are trained on labeled datasets to predict the relevance of documents to specific queries. Unsupervised and semi-supervised learning methods also play a role in clustering documents, topic modeling, and identifying latent patterns within large datasets (Manning et al., 2008). These approaches allow IR systems to continuously improve performance as more data becomes available. Natural Language Processing is another core AI component that has reshaped information retrieval. NLP techniques allow systems to process and understand human language in a more meaningful way. Through processes such as tokenization, stemming, lemmatization, syntactic parsing, and semantic analysis, AI-powered IR systems can interpret user queries more accurately. Advanced NLP models, including word embeddings and transformer-based architectures, capture semantic relationships between words and concepts, enabling systems to retrieve documents that are conceptually relevant even when exact keywords are not present (Jurafsky & Martin, 2023). This development has significantly enhanced search accuracy, particularly in



domains such as academic research, legal databases, and healthcare information systems.

Chatbots for Reference Service

The rapid advancement of artificial intelligence (AI) and natural language processing (NLP) has significantly transformed information service delivery, particularly within libraries and information centres. One of the most notable innovations in this regard is the use of chatbots for reference services. Traditionally, reference services involve direct interaction between users and librarians to satisfy information needs through guidance, resource identification, and information literacy support. However, the increasing demand for instant, round-the-clock access to information has necessitated the adoption of automated systems, among which chatbots have gained considerable prominence (Asemi & Ko, 2020).

A chatbot is an AI-powered software application designed to simulate human conversation through text or voice interfaces. In the context of reference services, chatbots function as virtual reference librarians capable of responding to users' queries, directing users to relevant resources, and providing basic research assistance. These systems rely on predefined knowledge bases, machine learning algorithms, and NLP techniques to interpret user queries and deliver appropriate responses (Abdullah & Othman, 2021). Unlike traditional reference services that are limited by staff availability, chatbots enable continuous service delivery, thereby enhancing accessibility and user satisfaction.

Chatbots are conceptualized as tools that complement, rather than replace, human librarians. They are particularly effective in handling routine and repetitive reference queries such as library opening hours, catalogue searches, database navigation, and frequently asked questions. By automating these tasks, librarians are afforded more time to focus on complex information needs that

require critical thinking and professional judgment (Cox et al., 2019). This hybrid model aligns with the evolving role of librarians as facilitators of knowledge rather than mere information gatekeepers.

Adoption of AI and Job Performance of Librarians

AI technologies can significantly improve job performance by augmenting human capabilities and automating routine tasks. By handling repetitive and data-intensive work, AI frees up employees to focus on more complex, strategic, and creative responsibilities (Korinek & Stiglitz, 2017). This shift not only boosts productivity but also increases job satisfaction, as employees can engage in higher-level, more meaningful work. For example, a librarian using an AI system for automated cataloging can dedicate more time to providing personalized research assistance to students, which is a higher-value task that leverages their professional expertise (Yusuf et al., 2025). Providing comprehensive training and development programs is crucial for equipping staff with the skills needed to work alongside AI (Mulimani & Chandrashekar, 2024).

It is essential that librarians receive adequate training so as to enable them acclimatize with the different tools and functions. AI tools training is part of professional development that some establishment like library are trying to accept the reality that it has come to stay, everyone must be abreast in order not to be washed with trends of time and best practices. In addition, the fear of job displacement can create anxiety and resistance among the workforce, leading to lower morale and reduced productivity (Igbo et al., 2024). When employees feel their jobs are at risk, they may be less motivated to embrace new technologies, a phenomenon known as "resistance to change" (Yılmaz & Kılıçoğlu, 2013). This resistance can undermine the very benefits that AI is meant to deliver. Finally, over-reliance on AI can erode critical human



skills such as problem-solving and critical thinking. This study is set to emphasize on the benefits of AI adoption to the job performance of librarians in public polytechnics in Ogun and Oyo State

Methodology

Research Design: The study adopted a survey research design. This design is suitable for this study because it provided a systematic method of collecting data from professional librarians with first-hand experience with AI tools in polytechnic libraries in Ogun and Oyo State, Nigeria.

Population: The population comprised 99 librarians working in 10 selected public polytechnic libraries in Ogun and Oyo State, Nigeria.

Sampling Technique: The study adopted total enumeration method since the population size of 99 was manageable.

Instrumentation: The main instrument used in the data collection is structured and validated questionnaire. The instrument contained two sections that assessed the job performance of librarian and the AI adoption in Polytechnic libraries.

Data Analysis

The data collected was analysed using SPSS version 23. The descriptive statistics was used to analyse the research questions while the inferential statistics was used to analyse the hypotheses

Analyses, nterpretation and Discussion of Findings

Research Question 1: What is the level of job performance of librarians in the polytechnic libraries of Ogun and Oyo States, Nigeria?

Table 1

The level of job performance of librarians in the polytechnic libraries of Ogun and Oyo States, Nigeria.



	VHL	HL	LL	VLL	Mean	SD
Task Performance					3.59	0.63
I complete my assigned library tasks within the stipulated time at a...	70	29	0	0	3.71	.46
	70.71%	29.29%	0.00%	0.00%		
My work output in the library meets the expected professional standards at a...	56	37	4	2	3.48	.68
	56.57%	37.37%	4.04%	2.02%		
I am able to handle multiple library duties efficiently at a...	65	26	7	0	3.57	.73
	65.66%	26.26%	7.07%	0.00%		
I require minimal supervision to carry out my duties effectively at a...	60	35	2	2	3.56	.66
	60.61%	35.35%	2.02%	2.02%		
Technological Adaptation					3.58	0.64
I easily adapt to changes in library technologies and systems at a...	68	25	6	0	3.63	.60
	68.69%	25.25%	6.06%	0.00%		
I am comfortable learning new tools relevant to librarianship at a...	64	29	5	1	3.58	.64
	64.65%	29.29%	5.05%	1.01%		
I adjust quickly to new work procedures when required at a...	68	24	3	4	3.58	.74
	68.69%	24.24%	3.03%	4.04%		
I adapt easily to technological changes at a...	55	40	4	0	3.52	.58
	55.56%	40.40%	4.04%	0.00%		
Contextual Performance					3.54	0.67
I participate in professional development activities at a...	62	30	6	1	3.55	.66
	62.63%	30.30%	6.06%	1.01%		
I contribute ideas to improve library services at a...	59	34	4	2	3.51	.72
	59.60%	34.34%	4.04%	2.02%		
I maintain positive relationships with users and colleagues at a...	59	34	6	0	3.54	.61
	59.60%	34.34%	6.06%	0.00%		
I constantly strive to improve my job performance at a...	61	34	0	4	3.54	.70
	61.62%	34.34%	0.00%	4.04%		
Grand Mean					3.56	0.65

Decision Rule: 1.0-1.74 = Very Low Level; 1.75-2.49 = Low Level; 2.50-3.24 = High Level; 3.25-4.0 = Very High Level

Table 1: The overall grand mean ($\bar{x}$ =3.56) with a standard deviation (σ =0.65) indicates that librarians generally operate at a Very High Level of job performance. Task Performance ($\bar{x}$ =3.59, σ =0.63) recorded the highest mean score among the three dimensions, signaling exceptional competency in core library duties. The item "I complete my assigned library tasks within the stipulated time" achieved the highest score in the entire table ($\bar{x}$ =3.71), with 70.71% of respondents indicating Very High-Level proficiency. Integrated and Effective Use of Technology ($\bar{x}$ =3.58, σ =0.64) closely

followed task performance, demonstrating that librarians are highly adaptable to digital transformation in library services. Contextual Performance ($\bar{x}$ =3.54, σ =0.67), while marginally lower than the other dimensions, still reflects Very High-Level engagement in behaviors that support organizational effectiveness beyond formal job descriptions.

Research Question 2: To what extent is artificial intelligence adopted in the polytechnic libraries of Ogun and Oyo States, Nigeria?



Table 2: Extent of artificial intelligence adopted in the polytechnic libraries of Ogun and Oyo States, Nigeria?

	VHL	HL	LL	VLL	Mean	Standard Deviation
Use Of AI Tools In Cataloguing					2.95	0.90
Oclc for cataloguing in my library	55	30	10	4	3.37	.83
to a...	55.56%	30.30%	10.10%	4.04%		
Ex libris in gathering wide	20	43	30	6	2.78	.84
information resources for	20.20%	43.43%	30.30%	6.06%		
cataloguing at a...						
AutoCat for cataloguing in my	36	22	35	6	2.89	.98
library at a...	36.36%	22.22%	35.35%	6.06%		
SpaCy in cataloguing collections in	27	30	33	9	2.76	.96
my libraries at a...	27.27%	30.30%	33.33%	9.09%		
Use Of AI In Information Retrieval					3.15	0.85
I use al-powered systems to	26	54	11	8	2.98	.87
retrieve relevant information	26.26%	54.55%	11.11%	8.08%		
resources in my library at a.						
AI tools improve the precision of	37	43	12	7	3.11	.88
information search results at a...	37.37%	43.43%	12.12%	7.07%		
I frequently use al-driven databases	40	41	12	6	3.16	.87
and search engines to retrieve	40.40%	41.41%	12.12%	6.06%		
information at a...						
AI adoption has enhanced my	49	39	8	3	3.35	.76
effectiveness in information	49.49%	39.39%	8.08%	3.03%		
retrieval at a...						
Chatbots For Reference Services					3.32	0.87
I use al tools such as chatbots for	37	41	18	3	3.13	.82
reference services in my library at	37.37%	41.41%	18.18%	3.03%		
a..						
I use the chatbots to provide	59	20	16	4	3.35	.90
response to frequently asked	59.60%	20.20%	16.16%	4.04%		
questions of my library users at a...						
Chatbots allows me attend to more	61	19	18	1	3.41	.82
users query real time at a...	61.62%	19.19%	18.18%	1.01%		
I can use the chatbots to get	61	21	10	7	3.37	.93
feedback on reference services	61.62%	21.21%	10.10%	7.07%		
seamlessly at a...						
Grand Mean					3.14	0.87

Decision Rule: 1.0-1.74 = Very Low Level; 1.75-2.49 = Low Level; 2.50-3.24 = High Level; 3.25-4.0 = Very High Level

Table 2 presents a descriptive analysis of the extent of AI adoption in polytechnic libraries in South-West, Nigeria, with an overall grand mean ($\bar{x}$ =3.14) with a standard deviation (σ =0.87) indicates that AI adoption generally

operates at a High Level, with moderate variation across specific application areas. While librarians demonstrate strong integration of AI in user-facing services, backend technical processes show



comparatively lower and more varied adoption. Chatbots for reference ranked highest with a mean ($\bar{x}$ =3.32) while Use of AI tools in cataloguing ranked lowest with mean score ($\bar{x}$ =2.95).

H₀₁: Artificial Intelligence adoption has no significant influence on job performance of librarians in polytechnic libraries in South-West, Nigeria.

Table 3: Influence Artificial Intelligence adoption on job performance of librarians in polytechnic libraries in Ogun and Oyo States, Nigeria

Variables	B	Std Error	Beta	T	Sig	Adj.R ²	F	ANOVA Sig
(Constant)	37.676	2.531		14.885	.000			
Use of AI tools in cataloguing	-.256	.179		-1.427	.157			
Use of ai in information retrieval	.511	.241		2.123	.036			
Chatbots for reference services	.123	.193		.636	.526	0.050	2.712 (3, 95)	0.000

Dependent Variable: Job Performance



Table 3 results revealed that artificial intelligence adoption ($\text{Adj. } R^2 = 0.050$, $F(3, 95) = 2.712$, $p < .05$) had a significant influence on the job performance of librarians. This implied that artificial intelligence adoption was responsible for about 5.0% of the changes in the job performance of librarians. The result further revealed that use of AI tools in cataloguing ($\beta = -.256$, $t = -1.427$, $p > .05$) and chatbots for reference services ($\beta = .123$, $t = .636$, $p > .05$) did not significantly influence the job performance of librarians. However, the use of AI in information retrieval ($\beta = .511$, $t = 2.123$, $p < .05$) had a significant influence on the job performance of librarians. Therefore, the null hypothesis was not accepted and was restated thus: artificial intelligence adoption had a significant influence on the job performance of librarians in polytechnic libraries in Ogun and Oyo States, Nigeria.

Discussion of the Findings

The first research question analyzed the level of job performance of librarians in the polytechnic libraries in South-West, Nigeria. The study found that library personnel in polytechnic libraries demonstrated high levels of job performance following the measure which ran very high from task performance to technological adaptation and contextual performance. This implies that librarians effectively carried out their assigned duties and responsibilities within a stipulated time frame. They agree to easily adapt to changes and participate in professional development activities. This present study negates the findings of Aina (2022) that reported low job performance of librarians in polytechnic libraries. Furthermore, measures that Aina used in his study might not be the same used in this present study which has resulted in low job performance. Findings of the present study indicated that library personnel under study are less affected by those factors based on their

high-level of job performance as found in this study.

The second research question reveal the extent of artificial intelligence adoption in the polytechnic libraries in South-West, Nigeria as high. The study reveal that chatbots was used for reference services in polytechnic libraries especially in responding to frequently asked questions and to attend to users query real-time. Looking at the variable measure AI tools used in cataloguing ranked the lowest which reflects higher AI use in reference services and information retrieval section. This finding is in line with Abb (2023), who documented evidence of AI deployment in different sections of library services in Africa. The finding of this study contradicts the findings of Ajani et al. (2022) that reported that librarians are not yet prepared to use artificial intelligence in their academic library and concluded that most academic libraries in Nigeria have a poor adoption of AI. Akintunde and Ajibade (2023) also reported that few polytechnic libraries had adopted AI tools in Nigeria. In the same vein, Olayode (2022) reported that many libraries in Nigeria rarely used advanced technology other than scanning devices. Owolabi (2023) specifically reported that fewer than 30% of librarians in South-West Nigeria operationally use AI.

The null hypothesis one reveal a statistically significant influence of AI adoption on librarians' job performance in South-West Nigeria ($\text{Adj. } R^2 = 0.050$, $F(3, 95) = 2.712$, $p < .05$). The measure established that the use of AI in information retrieval contributes significantly to job performance of librarian. This implies that librarians who have access to and utilize AI tools are better positioned to perform their daily tasks efficiently. This finding confirms the finding of Nwachukwu and Eze (2023), who found that AI applications improve employee efficiency. Also, Akintunde and Ajibade (2023) reported that AI-enabled



systems improve service delivery outcomes. This implies that the adoption of AI in library enhances the job performance of librarians in polytechnics in Ogun and Oyo State.

Conclusion

This study examined the influence of AI adoption on the job performance of librarians in polytechnic libraries in South-West, Nigeria. The overall findings indicated that the job performance of librarians in polytechnic libraries was high. Task performance was rated high, with Librarians having the ability to complete tasks within the stipulated time. The contextual performance needs to be improved, especially by encouraging librarians to contribute to the development of the libraries with their ideas. Librarians should ensure that their work output in the library meets the expected professional standards at all times. The librarians should be ready to adapt to technological changes. The use of AI tools in cataloguing should be encouraged to improve the job performance of librarians in South-West, Nigeria.

Recommendations

1. The polytechnic administration should make available the relevant AI tools for cataloguing to enhance librarians' job performance in South-West, Nigeria.
2. The polytechnic management should ensure that Librarians in polytechnic libraries are given the required training regularly to improve the job performance of polytechnic libraries in public polytechnics.
3. The government should provide sufficient funds that will allow library staff to go for training, workshops, and career advancement programs that will prepare them for the global world and welcome change easily.

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