

Artificial Intelligence for Effective Service Delivery by Librarians: A Swot Analysis of Three Federal Universities in Southeast Nigeria

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Abstract

This study explores the potentials of Artificial Intelligence for effective service delivery by librarians: a SWOT analysis of three federal universities in Southeast Nigeria. Five research questions guided the study. Descriptive research design was used, the population of the study consisted of 7103 staff and users of three Federal Universities in Southeast Nigeria. The instrument used for data collection was a structured questionnaire. Data generated was analyzed using descriptive statistics of mean and standard deviation and shown on a cone chart. The results of the study revealed the strength of Artificial Intelligence (AI) for effective service delivery; the weakness of Artificial Intelligence (AI) in service delivery in Federal Universities in Southeast Nigeria; the opportunities of Artificial Intelligence (AI) for effective service delivery. The study found out that job displacement among others is a threat of Artificial Intelligence (AI) for effective service delivery in Federal Universities in Southeast Nigeria. This threat and the identified problems could be curbed by training and professional development among other strategies to enhance the use of artificial intelligence for effective service delivery. It was recommended that there should be adequate budget management for power supply, strategic planning, capacity building and steady internet connectivity for the successful integration of AI in Federal Universities in Southeast Nigeria.

Keywords

AI, Service Delivery, SWOT Analysis, Emerging Technology, Digital Libraries

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State Chapter

Introduction

The emergence of Artificial Intelligence (AI) has significantly transformed the landscape of information management and service delivery across various sectors, including academic libraries. As libraries evolve in this digital age, leveraging Artificial Intelligence (AI) becomes crucial for librarians to enhance service delivery and remain relevant in the information landscape. AI technologies such as machine learning, natural language processing, chatbots, and predictive analytics are increasingly being integrated into library operations, offering numerous benefits. These benefits include enhanced efficiency, improved user experience, personalized services as well as streamlined routine tasks (Arlitsch & Cushing, 2020). According to

Library and Information Science scholars, AI enables Libraries to shift from traditional service models to intelligent, user centered systems capable of delivering real-time and personalized services.

The term Artificial Intelligence (AI) has been defined by several scholars. Russell and Norvig (2020) view artificial intelligence as the development of computer systems that can perform tasks that typically require human intelligence, such as learning, problem solving and decision – making. Artificial intelligence can also be defined as a field of study that focuses on creating algorithms and statistical models that enable machines to learn from data, make predictions and improve their performance over time (Jordan & Mitchell, 2015). AI refers to technology that can

perform tasks that require a certain level of intelligence that is, a machine or tool that has been trained to perform work like that of a human. This is to say that a librarian can make use of AI to enhance service delivery in a library.

Artificial Intelligence (AI)–based tools refer to computational applications that utilize technologies such as machine learning, natural language processing, and data mining to support knowledge discovery, automate tasks, and improve decision-making. In the context of academic librarianship, these tools enable librarians and researchers to analyze large datasets, identify patterns, generate insights, and enhance service delivery in ways that would be more time-consuming or difficult if performed manually (Obande, Adegioriola, & Bilal, 2024). AI-based tools also enhance personalization of information services, support digital content management, and optimize user experience in academic libraries (Abudulsalami et al., 2024; Steiger, 2024).

A librarian according to American Library Association (2020) is a professional responsible for managing information resources, including acquiring, organizing and maintaining library collections. Katz (2019) defines a librarian as a professional who assists library patrons with their information needs and research inquiries, providing guidance on using library catalogs, databases and other research tools. In other words, a librarian is an educator who impacts into library user on how to identify their information needs, develop effective search strategies, critically evaluate sources as well as use information. For a librarian to effectively use AI, there is need to understand the SWOT analysis involved in using AI.

SWOT is an acronym for strength, weakness, opportunity and threat. SWOT analysis can help identify the strengths, weaknesses, opportunities and threats associated with AI

adoption in libraries. The strengths of adopting AI in libraries include efficient information retrieval and management (Arlitsch & Cushing, 2020), enhanced user experience (Kumar and Singh, 2020), automation of routine tasks (Fernandez-Marcial & Real, 2019) as well as improved resource discovery (Bawden & Robinson, 2018). The weaknesses of SWOT include high implementation cost (Davenport and Dyche, 2013), need for specialized skills (Jordan & Mitchell, 2015), Data quality (Arlitsch & Cushing, 2020), as well as Algorithmic biases (Kitchin, 2017). The opportunities for adopting AI in libraries include personalized services (Kumar and Singh, 2020), improved collection management (IFLA, 2018) as well as enhanced accessibility (Brophy & Craven, 2017). The threats to adoption of AI in libraries include job displacement (Frey & Osborne, 2017), data security (Kumar & Singh, 2020), dependency on technology (Davenport & Dyche, 2013) as well as privacy concerns (Kumar & Singh, 2020).

In Nigeria, particularly within the federal university system, libraries face persistent challenges that hinder effective service delivery. These include chronic underfunding, leading to outdated print collections and inadequate subscription to premium digital databases (Okiki, 2023); infrastructural deficits such as unreliable power supply, poor internet connectivity; and a growing user population with high expectations for instance, remote access to information (Adeyinka & Adedeji, 2019). Consequently, users often experience delays in accessing materials, insufficient research support, and a general disconnect between the services offered and their actual academic needs.

Statement of the Problem

The emergence of Artificial Intelligence (AI) presents a transformative opportunity to address these long-standing inefficiencies. AI technologies—such as intelligent chatbots for

24/7 reference services, machine learning algorithms for personalized content recommendation, natural language processing for enhanced discovery systems, and predictive analytics for collection development—have the potential to revolutionize academic librarianship (Adeyomoye, 2021). Globally, leading academic institutions are leveraging AI to automate routine tasks, provide proactive and personalized user services, and make data-driven decisions, thereby significantly enhancing operational efficiency and user satisfaction (Doshi et al., 2021). However, the integration of AI in Nigerian university libraries remains nascent and largely theoretical. Existing studies reveal that although librarians exhibit awareness of AI tools, there is a substantial gap between awareness and practical implementation. While the potential benefits are widely acknowledged in literature, there is a significant gap in context-specific, empirical studies that critically examine the feasibility, internal strength, and weaknesses, as well as the external opportunities and threats influencing AI-driven service delivery, strategic pathway for its adoption within the unique operational environment of these university libraries. It is unclear to what extent librarians in federal universities in South-East Nigeria are aware of, prepared for, or equipped to harness AI technologies. Key questions remain unanswered: What are the inherent Strengths that can be leveraged? What Weaknesses exist within the current system? What Opportunities does AI present for transformative service delivery? And what Threats or barriers could impede successful implementation? It is on this premise that the study seeks to fill the gap in existing knowledge by conducting a SWOT analysis that will systematically investigate the internal Strengths and Weaknesses, and external Opportunities and Threats associated with the adoption of AI for service delivery in selected federal universities in South-East Nigeria.

The findings will provide a strategic framework for policymakers, university library management, and librarians to make informed decisions, informed capacity building and develop realistic roadmaps to successfully integrate AI to overcome existing service delivery challenges and meet future demands of users.

Objectives of the Study

The study investigates Artificial Intelligence (AI) for effective service delivery by librarians: a SWOT analysis of three Federal Universities in Southeast Nigeria. Specifically, the study is set to achieve the following:

1. Identify strength of Artificial Intelligence (AI) for effective service delivery in Federal Universities in Southeast Nigeria.
2. Examine the weakness of Artificial Intelligence (AI) for service delivery in Federal Universities in Southeast Nigeria.
3. Ascertain the opportunities of Artificial Intelligence (AI) for effective service delivery in Federal Universities in Southeast Nigeria.
4. Identify the threats of Artificial Intelligence (AI) for service delivery in Federal Universities in Southeast Nigeria.
5. Proffer appropriate solutions to enhance the use of Artificial Intelligence for effective service delivery in Federal Universities in Southeast Nigeria.

Research Questions

The following research questions were formulated to guide this study:

1. What are the strengths of Artificial Intelligence (AI) for effective service delivery in Federal Universities in Southeast Nigeria?
2. What are the weaknesses of Artificial Intelligence (AI) in service delivery in

- Federal Universities in Southeast Nigeria?
3. What are the opportunities of Artificial Intelligence (AI) for effective service delivery in Federal Universities in Southeast Nigeria?
 4. What are the threats of Artificial Intelligence (AI) for service delivery in Federal Universities in Southeast Nigeria?
 5. What are the appropriate solutions to enhance use of Artificial Intelligence for effective service delivery in Federal Universities in Southeast Nigeria?

Literature Review

Artificial Intelligence (AI) has emerged as a transformative technology reshaping the way libraries deliver information services and manage operations. In recent years, libraries have increasingly adopted AI tools to enhance access, streamline workflows, and improve user satisfaction (Kisilowska-Szurmińska, 2025; Ogunbenro, 2025). Through applications such as chatbots, machine learning algorithms, recommender systems, and predictive analytics, librarians are redefining traditional service models to meet the evolving demands of the digital information environment (Adeyomoye, 2021; Misau, 2021; Pawar et al, 2021). AI applications in libraries are diverse, covering both front-end and back-end services. In technical services, AI supports cataloging and classification through automated metadata generation, optical character recognition (OCR), and content analysis, leading to faster and more accurate organization of materials (Misau, 2021; Ocholla, 2020). In public service areas, AI-powered chatbots and virtual reference assistants provide 24/7 user support, guiding users through databases and responding to frequently asked questions (Edam-Agbor, 2025; Steiger, 2024). These tools reduce librarians' workloads and allow them to focus on higher-level professional tasks. Similarly, AI-driven recommender

systems personalize information retrieval, enhancing the user experience by suggesting relevant materials based on prior searches (Nirudi & Parichi, 2024).

Furthermore, studies have shown that AI enhances decision-making and service efficiency. According to Lo (2024), AI tools enable librarians to analyze user data, monitor usage patterns, and make evidence-based decisions in collection development and information dissemination. Nwabuisi (2024) noted that such data-driven insights help libraries optimize limited resources and tailor services to user needs. Additionally, Mwantimwa (2025) highlighted the growing role of generative AI applications—such as text summarization and writing support in assisting both librarians and researchers in content creation and knowledge synthesis. Moreso, the integration of AI also transforms librarians' roles and competencies. Librarians are now required to develop new digital and analytical skills to interact effectively with AI systems (Ibrarhim & Okpala, 2024; Rasheed, 2024). In the same vein, Lo (2024) emphasized that AI literacy, including understanding data analytics, algorithmic processes, and ethical implications, is becoming an essential component of professional practice. Edam-Agbor (2025) found that while Nigerian librarians show a positive attitude toward AI adoption, most lack adequate training and technical skills. Therefore, continuous professional development and capacity building remain crucial for successful AI-driven service delivery.

Despite the numerous benefits, AI adoption in libraries faces several challenges. In many developing countries, particularly Nigeria and other parts of Africa, infrastructural deficits, unreliable electricity, limited funding, and inadequate digital resources pose significant barriers (Nwabuisi, 2024). Misau (2021) also pointed out the problem of data scarcity and low-quality metadata, which affects the accuracy of AI systems. Additionally, ethical concerns such as user privacy, data

protection, and algorithmic bias raise questions about transparency and accountability in library operations (Rasheed, 2024). Kisilowska-Szurmińska (2025) therefore advocates for clear ethical frameworks and institutional policies to guide responsible AI implementation. Interestingly, Nigerian and African libraries are increasingly exploring AI solutions despite these limitations. Edam-Agbor (2025) reported growing awareness among Nigerian librarians and efforts by institutions to adopt AI in cataloging, reference services, and digitization projects. Ogungbenro (2025) suggested that partnerships with technology firms, consortia, and government agencies can help bridge skill and infrastructure gaps, enabling sustainable AI integration. Such collaborations could also foster shared learning, policy development, and access to digital innovation.

Looking to the future, Edam-Agbor (2025) predicts that AI will continue to play a vital role in enhancing library efficiency and relevance in the knowledge economy. Emerging tools such as natural language processing, predictive analytics, and generative models are expected to further improve discovery systems, automate routine tasks, and support research engagement (Mwantimwa, 2025). However, Rasheed (2024) cautioned that AI should complement, not replace, human expertise in information management. A balance between technological innovation and human-centered service is therefore essential for maintaining the core values of librarianship—equity, privacy, and intellectual freedom. These assertions underscore that AI significantly enhances service delivery by improving accessibility, responsiveness, and efficiency in libraries. Yet, its full potential can only be realized through strategic investment in infrastructure, policy frameworks, and staff training. As libraries evolve in the digital era, the integration of AI must be guided by ethical principles and professional standards to ensure that technology continues to serve as

a tool for empowerment rather than exclusion.

Methodology

The descriptive survey research design was adopted for this study. This design was considered appropriate because it will help the researchers to know how the librarians and library users perceive AI and its existing conditions, by collecting structured data from both groups without manipulating variables. The total population of the study was 7,103 registered library users and librarians; the librarians implement AI tools, and library users experience the service. Taro Yamane was used to select a sample size of 223 respondents comprising librarians and library users. The area of the study is located in the Southeast region of Nigeria and comprise Abia (Michael Okpara University of Agriculture, Umudike), Anambra (Nnamdi Azikiwe University, Awka) and Enugu (University of Nigeria, Nsukka). Respondents were 223 librarians and library users of these universities.

The instrument for data collection is a self-structured questionnaire. The instrument is titled AI for Effective Service Delivery: A SWOT Analysis Questionnaire (AIESDSAQ). It comprises of a 25 – item questionnaire divided into five clusters and each cluster contains relevant question items that addressed each of the five research questions. The instrument was validated through expert opinion and the completed questionnaire was analyzed for reliability using Cronbach Alpha coefficient. Eventually, the reliability statistic of 0.860 was established for the whole set of scores. Research questions were analyzed using mean and standard deviation and shown with cone chart with the aid of SPSS. Mean scores below 2.50 was rejected.

Results

Research Question 1: What are the strengths of Artificial Intelligence (AI) for effective service delivery in Federal Universities in Southeast Nigeria?

Table 1: Mean Responses of respondents on Strength of Artificial Intelligence (AI) for effective service delivery in federal university libraries in Southeast Nigeria

S/N	Items	SA	A	D	SD	Mean	STD	Decision
1	Enhances user experience	190	17	10	5	3.81	0.64	Accepted
2	Efficient information retrieval and management	185	32	5	0	3.77	0.45	Accepted
3	Improved resource discovery	172	46	4	0	3.76	0.47	Accepted
4	AI can analyze usage data and trends to strongly support decisions on new acquisitions and resource subscriptions.	168	48	6	0	3.73	0.50	Accepted
5	Automation of routine tasks	156	62	4	0	3.68	0.50	Accepted
Cluster Mean						3.61	0.53	Accepted

Description: SA: Strongly Agree, A: Agree, D: Disagree, SD: Strongly Disagree, STD: Standard Deviation

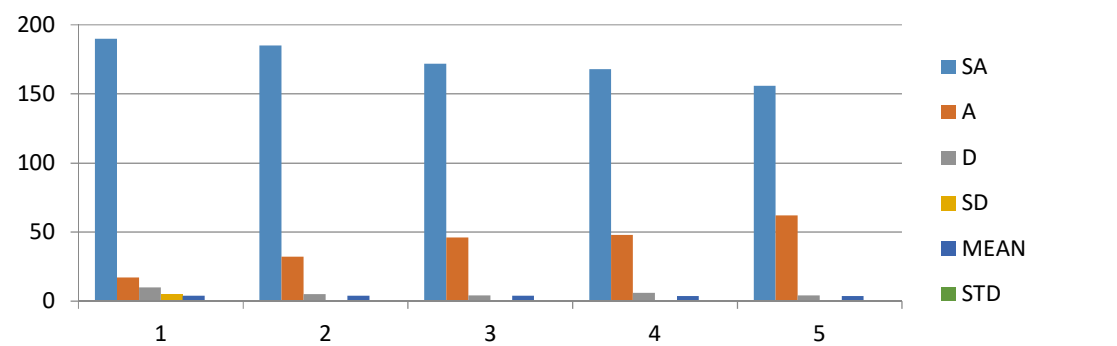


Figure 1: Cone Chart Showing Mean Ratings and Standard Deviation on Strength of Artificial Intelligence (AI) for effective service delivery in federal university libraries in Southeast zone of Nigeria

Table 1 as also indicated in the chart presents the strengths of Artificial Intelligence (AI) for effective service delivery in the selected federal university libraries. The data indicates a favourable agreement towards all the listed strengths of AI with a grand mean of 3.61 and standard deviation of 0.53. However, respondents ranked *enhanced user experience* 3.81, *efficient information retrieval and management* 3.77, and *improved resource discovery* 3.76 as the most significant strengths of AI. This finding aligns

with Ibrahim and Okpala (2024), who observed that AI tools enhance information retrieval and personalize user interactions in Nigerian libraries. Similarly, Steiger (2024) emphasizes that AI applications such as chatbots and recommendation systems improve students’ access and overall library experiences.

Research Question 2: What is the weakness of Artificial Intelligence (AI) for effective service delivery in federal universities in Southeast Nigeria?

Table 2: Mean Responses on Weakness of Artificial Intelligence (AI) for effective service delivery in federal university libraries.

S/N	Items	SA	A	D	SD	Mean	STD	Decision
1	High implementation cost	191	15	6	10	3.74	0.72	Accepted
2	Algorithmic biases	195	5	2	20	3.69	0.88	Accepted
3	Need for specialized skills	191	2	2	27	3.61	0.99	Accepted
4	High training cost	160	18	34	10	3.48	0.91	Accepted
5	Data quality	188	6	7	21	3.63	0.93	Accepted
Cluster Mean						3.63	0.89	Accepted

Description: SA: Strongly Agree, A: Agree, D: Disagree, SD: Strongly Disagree, STD: Standard Deviation

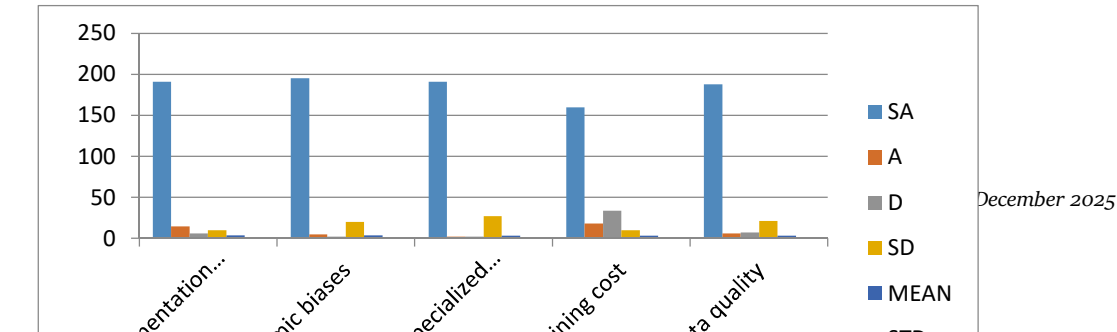


Figure 2: Cone Chart Showing Mean Ratings and Standard Deviation on Weakness of Artificial Intelligence (AI) for effective service delivery in federal university libraries in South East Zone of Nigeria

Table 2 outlines the weaknesses of AI in service delivery with overall cluster mean of 3.63 and standard deviation of 0.89. The data shows that *high implementation cost* with mean 3.74; *algorithmic biases* with mean 3.69 and need for *data quality* with mean 3.63 were identified as the top-ranked challenges. This is equally indicated in the cone chart with the three ranking highest among others. This is consistent with Pawar et al. (2021), who argue that implementing AI requires substantial investments in hardware,

software, and personnel training—resources often scarce in academic libraries. Likewise, the South African Journal of Libraries and Information Science reports that infrastructure limitations and expertise shortages further constrain AI adoption (Ocholla, 2020).

Research Question 3: What are the opportunities of Artificial Intelligence (AI) for effective service delivery Federal Universities in Southeast Nigeria?

Table 3: Mean Responses on Opportunities of Artificial Intelligence (AI) for effective service delivery in federal university libraries

S/N	Items	SA	A	D	SD	Mean	STD	Decision
1	Improved collection management	212	8	2	0	3.94	0.28	Accepted
2	Enhanced accessibility	205	12	3	2	3.89	0.42	Accepted
3	Personalized services	198	12	1	11	3.79	0.69	Accepted
4	Enhances content management.	195	5	8	14	3.72	0.81	Accepted
5	Space optimization	176	21	3	22	3.58	0.93	Accepted
Cluster Mean						3.78	0.63	Accepted

Description: SA: Strongly Agree, A: Agree, D: Disagree, SD: Strongly Disagree, STD: Standard Deviation

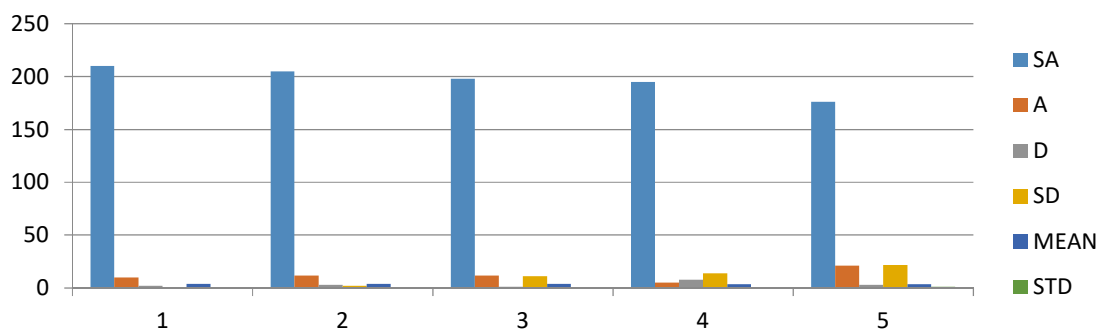


Figure 3: Cone Chart Showing Mean Ratings and Standard Deviation on Opportunities of Artificial Intelligence (AI) for effective service delivery in federal university libraries

Table 3 highlights the opportunities of AI in service delivery with *improved collection management* 3.94; *enhanced accessibility* 3.89; *personalized services* 3.79 and *enhances*

content management 3.72 emerging as the leading advantages. In the cone chart, the leading four items equally had the highest ratings of 200, 190, 180 and 170 respectively.

Adoption studies (Nwosu, 2022; Eze & Igwe, 2023) confirm that AI supports cataloguing, automates repetitive workflows, and enhances retrieval efficiency in academic libraries. The cluster mean of 3.78 and a standard deviation of 0.63 reflect consensus

among respondents regarding these opportunities.

Research Question 4: What are the threats of Artificial Intelligence (AI) for effective service delivery in Federal University libraries?

Table 4: Mean Responses on Threats of Artificial Intelligence (AI) for effective service delivery in federal university libraries

S/N	Items	SA	A	D	SD	Mean	STD	Decision
1	Job displacement	210	12	0	0	3.95	0.23	Accepted
2	Dependency on technology	208	9	5	0	3.91	0.35	Accepted
3	Privacy concerns	206	4	9	3	3.86	0.53	Accepted
4	Data security	202	6	8	6	3.82	0.62	Accepted
5	High cost	196	8	16	2	3.79	0.60	Accepted
Cluster Mean						3.87	0.47	Accepted

Description: SA: Strongly Agree, A: Agree, D: Disagree, SD: Strongly Disagree, STD: Standard Deviation

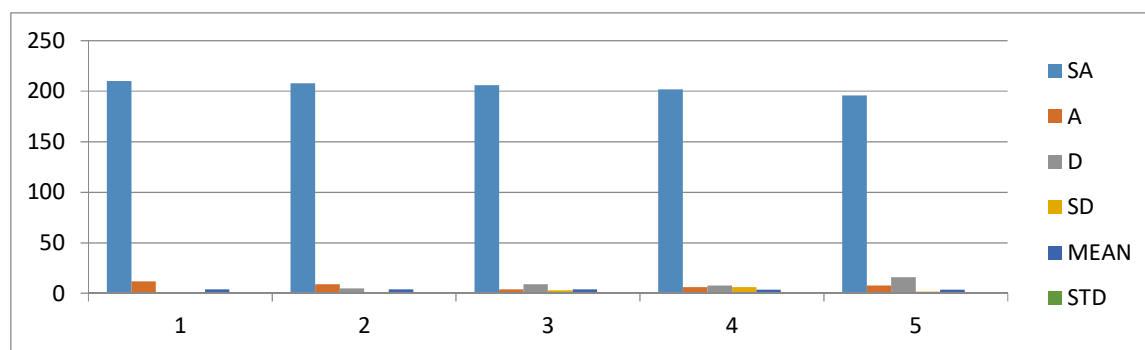


Figure 4: Cone Chart Showing Mean Ratings and Standard Deviation on Threats of Artificial Intelligence (AI) for Effective Service Delivery in Federal University Libraries in South East Zone of Nigeria

Table 4 presents the threats of AI use. Although the respondents generally agreed on all the items as threats of AI, items 1 and 2 with mean ratings of 3.95 and 3.91 ranked highest as the greatest concern. This is also indicated in the cone chart with items 1 and 2 scoring 190 and 180. This finding resonates with Steiger (2024), who underscores the risk of AI automating professional roles, alongside ethical issues like plagiarism and misinformation. Similarly, Ogbene (2024)

identifies algorithmic bias, privacy risks, and workforce anxieties as critical threats to AI deployment in academic libraries. The cluster mean and standard deviation of 3.87 and 0.47, respectively, reflect broad agreement.

Research Question 5: What are the appropriate solutions to enhance use of artificial intelligence for effective service delivery in federal universities in South East Nigeria?

Table 5: Mean Responses on Solution to Enhance Use of Artificial Intelligence (AI) for effective service delivery in federal university libraries in South East Zone of Nigeria

S/N	Items	SA	A	D	SD	Mean	STD	Decision
1	Training and professional development	220	2	0	0	3.99	0.09	Accepted
2	Infrastructure development	215	7	0	0	3.97	0.17	Accepted
3	Collaboration and partnerships	210	12	0	0	3.95	0.23	Accepted
4	Designing AI – powered library with the needs and preferences of users in mind.	206	15	0	1	3.92	0.32	Accepted
5	Policy and guidelines development.	201	21	0	0	3.91	0.29	Accepted
Cluster Mean						3.95	0.22	Accepted

Description: SA: Strongly Agree, A: Agree, D: Disagree, SD: Strongly Disagree, STD: Standard Deviation

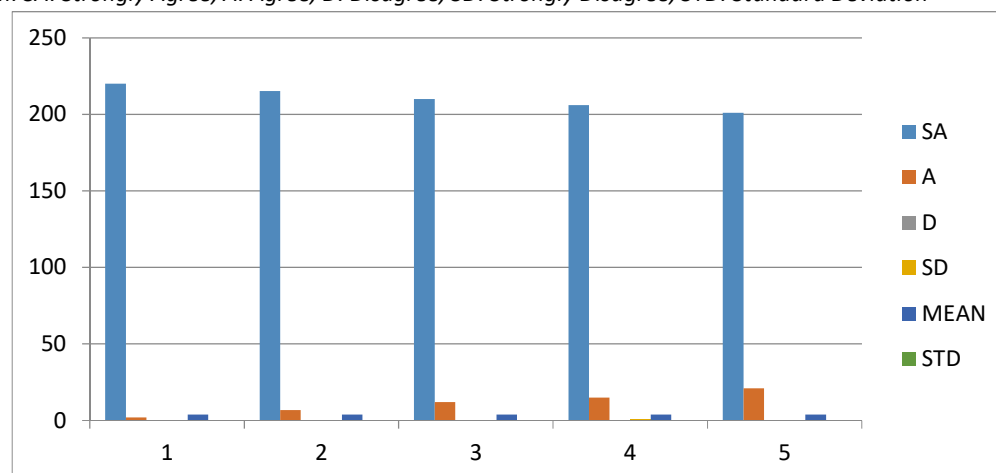


Figure 5: one Chart Showing Mean Ratings and Standard Deviation on Solution to Enhance Use of Artificial Intelligence (AI) for effective service delivery in federal university libraries

Table 5 identifies solutions for enhancing AI use in university libraries. Respondents agreed that all the items are appropriate strategies. However, *training and professional development* with mean score of 3.99; *infrastructure development* with mean score of 3.97; *collaboration and partnership* with mean score of 3.95 were recognized as the most effective. Abiolu and Akinyemi (2025) found a significant relationship between librarians' training and successful AI adoption in Nigerian university libraries. Moreover, Gateway Information Journal (2024) highlights that professional development in data analysis, programming, and ethics equips librarians with the necessary skills to harness AI effectively. The respondents strongly agreed on these solutions, with a cluster mean of 3.95 and a standard deviation of 0.22.

Discussion of Findings

From the finding of the study, it has been revealed that enhancing users experience amongst others are the strength of Artificial Intelligence (AI) for effective service delivery by librarians in the selected Federal Universities in South East Nigeria. This finding is in agreement with that of Kumar *et al.*, (2020) who identify 'enhances users experience' among others as the strength of Artificial Intelligence (AI) for effective service delivery in Universities in Nigeria.

Additionally, the study revealed that high implementation cost is one of the weaknesses of Artificial Intelligence (AI) in service delivery. This finding collaborates with that of Davenport *et al.*, (2013) who identified high implementation cost as a strong challenge in the adoption and use of AI in university libraries.

More so, the study revealed that improved collection management is one of the opportunities of Artificial Intelligence (AI) for effective service delivery in Federal Universities in South East Nigeria. This finding is in alignment with IFLA (2018) who found out that improved collection management is achieved with the adoption of Artificial Intelligence (AI) for effective service delivery.

Furthermore, the study also revealed that job displacement and dependency on technology among others are threats of Artificial Intelligence (AI) use in the selected Federal Universities in South East Nigeria. This finding corroborates with that of Frey *et al.*, (2017) who found out that given the fact that librarianship is a patron-driven profession where there is need for the librarians to meet one and one with library users, job displacement is a concern to librarians with the adoption of Artificial Intelligence (AI) for service delivery in university libraries in Nigeria.

Since the study revealed that AI enhances user experience and improves service delivery, policies should be developed to provide guidelines for the selection, implementation, and evaluation of AI tools to ensure they align with the goals of the library and the information needs of users. Moreso, the finding that high implementation cost is a major weakness suggests the need for policies that provide adequate funding for AI initiatives. Owing to this, sufficient financial resources for the acquisition, maintenance, and upgrading of AI technologies should be allocated in Federal University libraries. The identified strengths and opportunities of AI indicate the need for continuous training of librarians. This is to say that library policies should mandate regular workshops, seminars, and professional development programmes that equip librarians with the skills required to operate AI systems effectively. This will enhance librarians' competence and confidence in using emerging technologies. Interestingly, improved collection

management emerged as a significant opportunity. Therefore, libraries should adopt AI-driven tools for cataloguing, classification, indexing, collection analysis, and resource recommendation. The study finding shows that job displacement is a potential threat. This highlights the need for policies that emphasize workforce transformation rather than workforce replacement. There is strong need for retraining and reskilling programmes to be implemented to prepare staff for evolving responsibilities. Again, the threat of dependency on technology suggests the importance of developing ethical guidelines for AI use in libraries. Policies should be enforced to ensure that AI complements rather than replaces human judgment. Libraries should maintain a balance between automated services and human interaction to preserve service quality and professional ethics. Overall, these findings suggest that library policies should focus on encouraging AI adoption, providing adequate funding, enhancing librarians' skills, strengthening ICT infrastructure, and addressing ethical and employment concerns. By implication, these findings are suggestive of the fact that librarians should embrace continuous learning, utilize AI for improved service delivery and collection management, and maintain a balance between technological innovation and human expertise. These measures will enable Federal University libraries in South-East Nigeria to maximize the benefits of AI while minimizing its associated challenges.

Conclusion

From the results of this study, there is high percentage on enhancing users experience as the strength of Artificial Intelligence (AI) for effective service delivery. Findings indicated that high implementation cost is a weakness in the use of Artificial Intelligence (AI) for effective service delivery while improved collection management is one of the major opportunities of Artificial Intelligence (AI) for effective service delivery in libraries. It was

also observed that job displacement is a threat to librarians with the use of Artificial Intelligence (AI) for service delivery. Consequently, training and professional development is a major proffered solution to enhance the use of Artificial Intelligence for effective service delivery in Federal Universities in South East Nigeria.

Recommendations

Based on the findings of the study, the following recommendations are made;

1. Library management and University administration in should develop clear policies that encourage the adoption and integration of AI technologies into library operations in Federal Universities in South-East Nigeria.
2. University administrations, government agencies, and library stakeholders should allocate sufficient financial resources for the acquisition, maintenance, and upgrading of AI technologies. Library management may also seek partnerships, grants, and collaborative funding opportunities to reduce financial burdens. This is paramount.
3. Library management should establish policies to support the modernization of collection management practices such as cataloguing and classification, indexing and abstracting to improve accessibility, efficiency, and decision-making regarding library resources.
4. To maximize the strengths and opportunities of AI, University administration in Federal Universities should invest in reliable ICT infrastructure, including internet connectivity, power supply, data storage systems, and cybersecurity measures. They should enforce policies that will support regular infrastructure upgrades to ensure the smooth operation of AI-powered services in libraries.
5. Because AI enhances users' experiences, librarians should adopt practices that prioritize user needs and satisfaction. AI tools such as chatbots, personalized recommendation systems, and virtual reference services should be utilized to provide faster, more accurate, and more convenient services to library patrons.
6. Library management should implement and support librarians with retraining and reskilling programmes to prepare staff for evolving responsibilities in Federal Universities in South East Nigeria.
7. Library management should redefine librarians' roles to focus more on higher-level tasks such as information literacy instruction, research support, digital curation, and AI oversight. Embedding AI into information-literacy classes will go a long way to enlightening libraries and librarians for improved information services delivery.

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