Rajagiri Journal of Social Development
Vol. 16, Issue 1, January-June 2024: 30-40
DOI: 10.5958/2583-7087.2024.00003.8

IndianJournals.com
A product of Diva Enterprises Pvt. Ltd.

Research Article

Empowering Education in Africa: The Future of Academic Libraries with Artificial Intelligence – A Comprehensive Review

Jafar Tijjani Umar[1]*, P.V. Vijesh[2] and Sherin Yohannan[3]

[1]Assistant Librarian, Nigerian Army University of Biu Borno State Nigeria
[2]Librarian, Rajagiri College of Social Sciences, Kalamassery, Kerala, India
[3]Librarian, Government Arts College, Thiruvananthapuram, Kerala, India

***Corresponding Author**
jafartijjani2@gmail.com

This article examines the potential transformative impact of Artificial Intelligence (AI) in academic libraries throughout Africa, providing insights into the opportunities and obstacles it entails. The advent of artificial intelligence (AI) has initiated a transformation in the library domain, resulting in improved user experiences and more efficient resource management. The utilisation of artificial intelligence (AI)-driven search engines and recommendation systems is employed to deliver tailored content, hence enhancing the speed and effectiveness of information retrieval. Moreover, artificial intelligence (AI) enhances accessibility for individuals with visual and auditory impairments by leveraging natural language processing and speech recognition technology. The influence of artificial intelligence (AI) extends beyond the provision of user services, encompassing several aspects such as the comprehension of community requirements, trend analysis and resource preservation. Utilising this technology facilitates the effective retrieval of material and promotes collaborative efforts among individuals who share common research interests, hence establishing academic communities. Academic libraries in Africa have several obstacles when it comes to the implementation of artificial intelligence (AI), encompassing financial limitations, ethical considerations and reluctance to embrace change. Adopting AI is impeded by challenges related to connectivity constraints and power supply limits. The resolution of these challenges holds significant importance for academic libraries in Africa, as it enables them to fully leverage the capabilities of artificial intelligence and enhance the standard of library services in the era of information.

Keywords
Education, AI, artificial intelligence in libraries, AI in academic libraries, Africa

www.IndianJournals.com
Not for Commercial Use
Downloaded From IP - 216.73.216.21 on dated 10-Nov-2026

INTRODUCTION

Through automation and information technology, AI is reinventing library operations and services, increasing efficiency and user experience while reshaping old operations. Libraries in the digital age are leveraging automation and AI technology to handle massive amounts of information and give easy access to resources, transforming operations and improving customer satisfaction, AI and related technologies, such as machine learning and natural language processing, have practical uses in university libraries and have the ability to improve academic librarianship (Banks, 2023). Through automating operations and streamlining collection management, enhanced library service systems can improve operational efficiency, service effectiveness and reduce costs in academic libraries. Librarians have had to alter their services and embrace digital technology-driven advances in response to consumer expectations. Because of this shift in teaching and learning paradigms, librarians are looking for new technology to improve user experiences and expedite workflows. Initially, library automation and digitisation broadened services (Enakrire, 2023). Empowering education in academic libraries is one of the most fundamental ways to improve any university whose goal is to support teaching, learning and the community of the parent institution. With this in mind, it will help developing nations, particularly the African continent, to incorporate modern technologies such as AI and other technologies that simplify and promote library services while also providing efficiency and effectiveness. Libraries are currently at an advanced stage, so it is vital for them to

implement current technologies in order to satisfy user satisfaction and promote the library image in order to be patronised and create more awareness of library holdings. AI has taken the entire burden and made it satisfactory for users. This research looks at the future of academic libraries in Africa with AI in empowering education, looking at applications, user views and ethical concerns. It makes practical recommendations for libraries to utilise AI technologies responsibly.

LITERATURE REVIEW

Zambian research of 245 librarians and information scientists discovered overwhelmingly positive sentiments about AI, emphasising the importance of libraries investigating technology, infrastructure, librarian competency and leadership roles before using AI (Subaveerapandiyan et al., 2023). The research investigates AI adoption in academic libraries in Nigeria, emphasising its benefits while also recommending collaboration between government and library administration for training and standards (Adebayo et al., 2022). This article investigates future trends and projections for the use of AI in libraries, with a focus on its natural language processing, machine learning and pattern recognition capabilities (Oyelude, 2021). This research investigates the distinction between information management (IM) and knowledge management (KM) in academic libraries in East and Southern Africa, analysing their significance and offering future initiatives (Jain, 2007). This article explores the use of Artificial Intelligence in libraries by analysing 66 Scopus publications, providing valuable insights after removing duplicates and applying filters (Subaveerapandiyan, 2023). The study investigates the potential of Artificial Intelligence (AI) in library services, emphasising its significance in library operations. Despite constraints like budget, librarian mindset and technical capabilities, AI can speed up processes and provide cost-effective solutions (Jha, 2023). Telephone and fax devices were utilised in librarianship for book orders and inquiries. Computers have become indispensable in library automation and digitalisation, giving 24/7 global access to library content (Ali et al., 2021). The study's goal is to create an AI-LSICF framework for university libraries to use in incorporating AI technology into educational services. It analyses AI adoption in businesses using qualitative content analysis, with the goal of increasing awareness of AI, driving digital transformation and encouraging library professionals to embrace AI for competitive advantage (Okunlaya et al., 2022). This study investigates the use of artificial intelligence (AI) in Pakistani university libraries, examining its benefits, limitations and potential threats while noting constraints such as financing, time and human investment (Ali et al., 2022). This column investigates the potential link between AI and libraries, noting both potential risks and benefits while underlining the importance of more research (Massis, 2018). The study investigates AI's involvement in African university libraries, emphasising its vital role in information distribution, research response, cataloguing and software regulation, while emphasising the need for personal interaction and adaptation (Enakrire & Oladokun, 2023). The study investigates the potential of artificial intelligence chatbots in library reference services, with a focus on millennial users, and their ability to increase library commitment in Bahrain (Nawaz, 2021). The study examines the strategy reactions of academic libraries in the United Kingdom and China to AI applications, indicating that most plans do not reference AI, making it the first to compare foreign experiences (Huang et al., 2023). Omame (2020) AI is gaining traction in libraries by enabling computer-based jobs such as expert systems, book reading robots and virtual reality, which improves library operations and relevance in a digital age. Despite AI's potential in academic libraries, the authors believe Nigerian libraries should completely embrace AI technology such as chatbots, barcodes, RFIDs and robotics to improve services and sustain user interactions (Olusegun et al., 2023). Ali and Bhatti (2020) said despite budgetary and technological constraints, the project investigates the application of Artificial Intelligence (AI) tools in Pakistani university libraries, with a focus on technical and user services. Owolabi (2021) According to the report, librarians' fear of job loss is a key barrier to implementing AI technology in Nigerian university library management, necessitating the acquisition of relevant skills. A survey of 320 Nigerian polytechnic students found that while they are aware of the usage of AI in library operations, they lack essential computer skills, indicating the necessity for alternative power sources and ICT training (Owolabi & Owolabi, 2022). The study, which enlisted the help of 21 librarians, investigates the application of artificial intelligence in Oyo State's university libraries, highlighting its potential for enhanced cataloguing, cost savings and

www.IndianJournals.com
Not for Commercial Use
Downloaded From IP - 216.73.216.21 on dated 10-Nov-2026

www.IndianJournals.com
Not for Commercial Use
Downloaded From IP - 216.73.216.21 on dated 10-Nov-2026

digital resource development (Tella et al., 2023). Despite technical limits and expensive maintenance expenses, a study including 1796 university library patrons discovered an association between device usage and resource accessibility (Burudi & Ndegwa, 2021). Zambia (2022) study investigates AI's involvement in teaching and learning in Sub-Saharan African higher education institutions, highlighting both its potential benefits and job concerns. This column investigates the potential relationship between AI and libraries, noting both potential threats and potential enhancements in early-stage library services (Huang, 2022). The paper investigates the potential of ChatGPT in management education, emphasising both its potential to change evaluation procedures and its limitations in curriculum design and learning processes (Ratten & Jones, 2023). Talley (2016) investigates the importance of academic law librarians implementing intelligent technology into their libraries, analysing its benefits and drawbacks, as well as the impact of ABA standards. Another paper evaluates ICT usage in university libraries in Nigeria and South Africa, demonstrating discrepancies in accessibility and infrastructure difficulties, and proposes continuous librarian education and government help (Enakrire & Ocholla, 2017). Between 2016 and 2019, 970 studies on industrial information integration engineering (IIIE) with an emphasis on energy, engineering, control and communication technologies were reviewed. IIoT, CPS, smart grids and potential interactions with 5G and blockchain are recent themes (Chen, 2020). This study investigates the impact of knowledge management in South African university libraries' digital transformation, discovering that it positively influences change management by boosting information exchange and dissemination (Mabunda & Du Plessis, 2022). The study looks into AI awareness among Indonesian academic library leaders, practitioners and scientists, identifying eight themes such as comprehension, adoption, benefits, competencies, facilities, factors enabling and factors restricting AI adoption (Dessy Harisanty & Aziz, 2022). Another study evaluates the growing use of Artificial Intelligence in academic institutions, with a focus on cataloguing, classification, documentation and tracing the different applications of artificial intelligence to the libraries (SV & BG, 2021). Despite client demand, academic librarians disagree on AI terminology and training, stressing restricted programming in university libraries for improved services and processes (Hervieux & Wheatley, 2021). The study investigates AI usage and awareness in North American public and university libraries, indicating that academic librarians are more knowledgeable and passionate about AI, as well as the importance of AI training (Yoon et al., 2021). The study shows the adoption of robotic technology by Nigerian university librarians, examining digital infrastructure, policy framework, human development readiness, benefits and potential issues (Owolabi & Owolabi, 2022). The study explores the impact of the Fourth Industrial Revolution on South African university libraries, indicating 23 academic trends and 64% positive responses, highlighting responsive, well-resourced and accessible services (Ocholla & Ocholla, 2020). The study investigates the integration of robots in libraries and librarians' readiness, proposing that robots augment rather than replace their employment (Tella, 2020). A study investigates the possibilities of AI and NLP in education and research, highlighting the necessity to address ethical concerns and algorithmic defects in order to improve their effectiveness (Alqahtani et al., 2023). Despite its potential in scientific research and teaching, this essay investigates the influence of ChatGPT on academics, raising worries about plagiarism and misrepresentation (Livberber & Ayvaz, 2023). The impact of open access initiatives on journal cancellations in South African university libraries was shown to have no effect in a study conducted by the University of KwaZulu-Natal, indicating potential future improvements (Geraldine Hoskins, 2013). An essay explores the possible risks of artificial intelligence in academic publishing, urging scholars to engage in debates about its impact on research appraisal (Gendron et al., 2022). Rapanyane & Sethole (2020) investigate the impact of globalisation, artificial intelligence and robotics on South Africa's young employment trends, applying Afrocentricity to critique the fallacies of the Fourth Industrial Revolution. Echedom & Okuonghae (2021) examine the application of artificial intelligence in African university libraries, emphasising the technology's potential to improve information service delivery in the Fourth Industrial Revolution. An analysis was conducted on how people understand, react to and interact with AI, with an emphasis on libraries and users, and offers creative thinking as a tactical solution (Gasparini & Kautonen, 2022). Using an experimental philosophy method, the research investigates university teachers' perspectives on

AI usage in higher education. An online poll indicated discrepancies in accountability, equity and AI expertise, raising questions about justice and knowledge (McGrath et al., 2023).

Objectives of the Study

- The study investigates the potential of artificial intelligence in African academic libraries, with an emphasis on cataloguing, digital resource classification and user search.
- The study investigates the application of artificial intelligence (AI) in academic libraries to eliminate human errors, improve efficiency and improve the quality of library services in the information age.
- The study investigates the financial obstacles that academic libraries in Africa confront when integrating AI technologies, as well as ethical concerns about privacy and data protection.
- The study investigates the influence of weak network connectivity on AI adoption in university libraries in Africa, focusing on cultural attitudes and resistance to change.
- The study investigates the problem of insufficient electricity supply and suggests alternate power sources such as solar energy for effective AI implementation in academic libraries.

www.IndianJournals.com
Not for Commercial Use
Downloaded From IP - 216.73.216.21 on dated 10-Nov-2026

RATIONALE OF THE STUDY

The rationale for this study is rooted in the pressing necessity to utilise artificial intelligence (AI) to revolutionise academic libraries in Africa. The digital revolution is currently transforming the field of education and research, and one area that stands to benefit significantly from this shift is library services. Artificial intelligence (AI) can greatly enhance the capabilities and offerings of libraries. Academic libraries function as central repositories of knowledge, and the integration of artificial intelligence (AI) technology has the potential to optimise various aspects of their operations, enhance accessibility and empower library patrons. Various factors, including financial constraints, ethical challenges, technological limitations, cultural attitudes and skill gaps, currently hinder the adoption of artificial intelligence (AI) in African academic libraries. It is imperative to address these barriers in order to realise the advantages of AI fully. The objective of this study is to present practical recommendations and strategies that can assist libraries in effectively addressing these challenges. Libraries can establish themselves as frontrunners in the digital era by enhancing connectivity, adopting alternative power sources and allocating resources towards skills development. Artificial intelligence (AI) powered solutions can improve cataloguing, resource management and decision-making processes based on data. In addition, artificial intelligence (AI) has the potential to facilitate collaboration, enhance knowledge sharing and promote the establishment of academic communities within library settings. The primary objective of this study is to enhance the capacity of academic libraries in Africa to contribute to the progress of education and research actively. Libraries can enhance their services and contribute to the knowledge ecosystem and advancements in education and research by adopting AI responsibly and strategically. This enables them to provide more efficient and user-centric services.

METHODOLOGY

The methodology employed in this descriptive study centres around implementing artificial intelligence (AI) in academic libraries across Africa. It involves conducting a thorough analysis of existing knowledge and case studies about this subject matter. The initial step involves conducting a comprehensive literature review, which will encompass academic sources as well as case studies. This review aims to establish a fundamental comprehension of the role of artificial intelligence (AI) in libraries, focusing on the challenges encountered by academic libraries in Africa. Next, we will examine current case studies of African academic libraries, evaluating their experiences in adopting artificial intelligence (AI). The real-world data will provide valuable insights into the practical challenges and opportunities. The research will primarily analyse existing data, encompassing quantitative and qualitative information derived from prior studies and documented cases. Next, a comparative analysis will be conducted to compare the adoption of AI in academic libraries in Africa with libraries in other regions. The study will provide recommendations and strategies based on existing data and insights to effectively address challenges and maximise the potential of AI in African academic libraries. Ethical considerations regarding data privacy and protection will be incorporated into the research process. This methodology offers a comprehensive assessment of the

existing AI implementation in academic libraries across Africa.

Countries that Employed the Use of AI in Their Library Operations in Africa

Integrating artificial intelligence (AI) into academic libraries across African nations is a dynamic and rapidly evolving phenomenon in the technology landscape. This integration offers a wide range of perspectives and opportunities. This analysis examines the different levels of AI adoption in specific six African countries, focusing on technophobia, ethical concerns, deployment efficacy, financial limitations and electricity availability. This exploration focuses on the challenges and successes of integrating AI in educational landscapes. It emphasises the significant role played by AI in transforming academic libraries, with South Africa emerging as a leading country in effectively utilising this transformative power in Table 1.

Table 1 shows that Nigeria has reached a high level of utilisation because Technophobia was 35%, ethical issues were 45%, AI deployment was good, financial difficulties were 45% and power supply was subpar.

Mali has a low degree of use, 76% technophobia, 61% ethical difficulties, AI implementation was not very good, 76% financial challenges, and it also has weak funding for implementations.

Senegal also reported limited utilisation, 84% technophobia, 55% ethical issues, poor AI deployment, 82% financial problems and a general lack of funding.

Egypt has a high level of utilisation, 39% technophobia, 23% ethical issues, good AI implementation, 45% financial issues and a reliable power supply.

South Africa, too, has a high level of AI utilisation, with 32% technophobia, 15% ethical issues, good AI implementation, 40% financial issues and appropriate power supply.

www.IndianJournals.com
Not for Commercial Use
Downloaded From IP - 216.73.216.21 on dated 10-Nov-2026

Table 1

Countries	Level of use	Technophobia	Ethical Guidelines	AI implementation	Financial constrain	Electricity supply
Nigeria	High	35%	45%	Good	45%	Average
Mali	Low	76%	61%	Not good	76%	Poor
Senegal	Low	84%	55%	Very bad	82%	Poor
Egypt	High	39%	23%	Not bad	45%	Good
South Africa	High	32%	15%	Good	40%	Good
Tanzania	High	48%	43%	Not bad	52%	Average

Source: Reviewed data

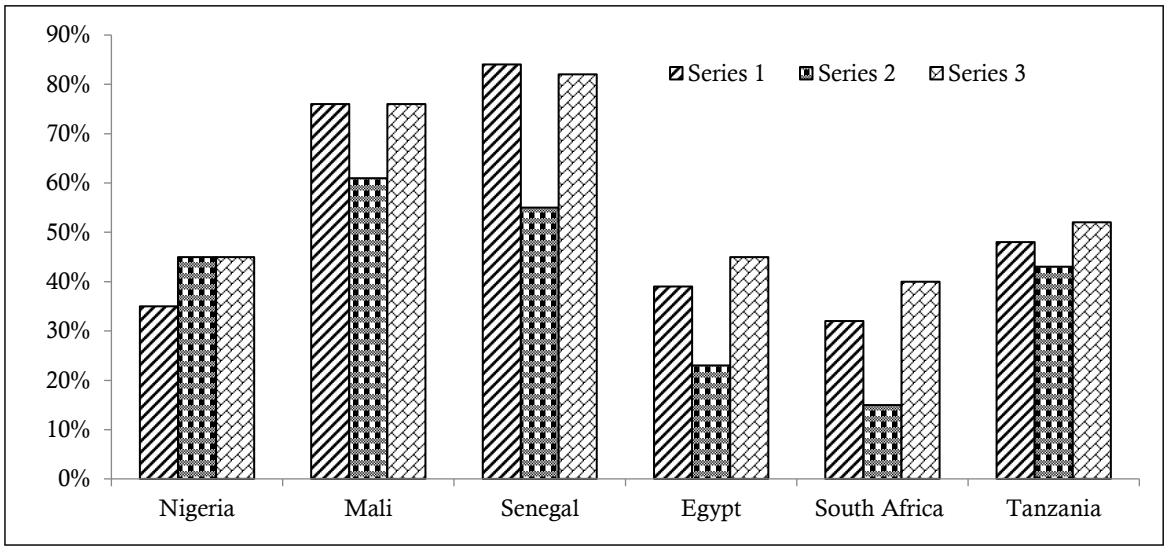


Figure 1
Source: Reviewed data

www.IndianJournals.com
Not for Commercial Use
Downloaded From IP - 216.73.216.21 on dated 10-Nov-2026

Tanzania has also reached a high level, with 48% technophobia, 43% ethical difficulties, excellent AI implementation and 52% financial challenges due to insufficient power supply in Figure 1.

South Africa has the highest application of AI to empower its academic libraries in education among the six (6) selected African countries, according to Figure 1. Egypt ranks second in terms of employing artificial intelligence to promote academic operations, with enough power supply, proper implementations and financial assistance. Another remark is for Nigeria, where there is less technophobia, but there is a lack of adequate power supply and financial support. Tanzania has also entered the emerging phase of applying AI in empowering education in Africa, where technophobia has not prevented them from incorporating the new AI technology into the academic line. Mali and Senegal, on the other hand, have a low amount of AI use, which has caused it to fail.

How Artificial Intelligence Can Help Academic Libraries

AI is transforming libraries by improving their operations and services, with significant implications including:

i. AI can be used in libraries in order to enhance information access, speed and program design. AI-powered search engines and recommendation systems may deliver personalised material, saving time and effort while still assuring user-friendliness.
ii. By integrating natural language processing and voice recognition, AI can increase library resource accessibility while also developing aids for visually and hearing-impaired users. While AI specialists can apply prompt engineering abilities, language models still require human input.
iii. AI can help libraries detect community needs, service gaps, track trends and make educated decisions. It can also improve information literacy through educational seminars, fostering AI literacy in the same way that digital literacy is promoted.
iv. AI can improve library collection preservation and digitisation through automation and picture identification, but its potential economic impact is being seen in some libraries.
v. Through virtual reality, augmented reality and chatbots, libraries may appropriately employ AI to improve community benefits, develop engaging experiences and provide individualised instruction.
vi. AI-powered algorithms increase the efficiency of information retrieval by evaluating large amounts of data and user activity, creating relevant search results, saving time and improving user experience.
vii. AI integrates users with comparable research interests, facilitating multidisciplinary partnerships and promoting academic community, AI improves cooperation and knowledge sharing among library users.
viii. Through assessing usage trends, providing insights into resource utilisation, improving collections, allocating budgets and adapting services to user demands, AI assists libraries in making decisions.

Areas of Artificial Intelligence Application in Libraries that can Empower Academic Libraries in Africa

AI has reshaped the entire library process and has created a user-friendly environment for both patrons and the library community at large, from resource identification to acquisition down to cataloguing and classification of library contents.

- Through automation processes, detecting distinct items and delivering tailored recommendations, AI can improve library cataloguing, digital resource classification, user search experiences and AI has the ability to improve data accuracy through content analysis, information extraction and precise item categorisation, hence speeding up operations.
- Artificial intelligence can be used in a variety of applications, including chatbots for customer service, personalised suggestions and enhancing library accessibility, as well as providing immediate responses, anticipating outcomes and transcribing audio resources and also AI-powered library recommendation systems boost user engagement by analysing user behaviour, recommending relevant resources, services, and events, and encouraging content exploration and discovery.
- AI can help libraries manage collections more effectively and guarantee the correct resources are available at the right time by projecting future needs and preferences based on predictive analysis of user behaviour and trends and also AI help library management solutions streamline inventory management, collection creation and loan processing

www.IndianJournals.com
Not for Commercial Use
Downloaded From IP - 216.73.216.21 on dated 10-Nov-2026

to improve resource allocation and operational effectiveness.

- As demonstrated by the Allen Institute's Semantic Scholar search engine, AI may improve library decision-making by examining usage statistics and trends, as well as aid in resource allocation and operational problems by analysing usage statistics and user interactions can help libraries improve their decision-making, strategic planning, collection creation, resource allocation and service customisation to patrons.
- AI applications help libraries adapt to changing information navigation, leading to improved outcomes. They are integrating cognitive computing and artificial intelligence to improve library service quality and information navigation. AI adaptation in libraries helps to keep the library up to date with current developments and provides users with important information at the proper time.

Academic Libraries in Africa with Artificial Intelligence

The article examines the potential relationship between AI and libraries, noting both potential threats and potential enhancements in early-stage library services (Massis, 2018). Another column investigates the possible connection between artificial intelligence (AI) and libraries. While AI may pose a threat to institutions, it may also provide good improvements in a variety of services. Exploring AI in libraries has the usefulness of presenting its potential and discussing its benefits. AI technologies are being used by libraries for their speed and precision in decreasing human errors and minimising human intervention in regular work. Humanoid robots can be utilised in situations when human lives are in danger, such as shelf reading (Echedom & Okuonghae, 2021). Academic libraries, which have traditionally provided direct service to individuals, have been profoundly impacted by the digital era, which allows users to access resources from anywhere, at any time and via the virtual world of the Internet. An expert system is computer software that uses knowledge and reasoning processes to solve complicated problems in the same way that humans do. It gives advice, teaches and performs clever activities. In academic libraries, using an expert system can increase the efficiency of normal reference librarian jobs, aid users in using library resources, locate materials and guide customers on available content. Traditional library routines, such as shelf space, cataloguing, serials, collection development and resource acquisition, are raised as worries concerning AI integration in academic institutions. As stated by Tella (2020), academic libraries must react to the potential of artificial intelligence by improving the quality of library services in the information age.

Challenges of the Application of AI in Academic Libraries

- Financial constraints, Academic libraries in Africa confront hurdles in effectively integrating AI technologies due to limited budgets and high costs associated with implementation, and Artificial intelligence implementation has failed due to a lack of funds and financial aid from donors or other government entities.
- AI technology brings ethical challenges, such as privacy and data protection, which Academic libraries may encounter due to a lack of knowledge of free access to resources.
- Poor network connectivity in academic libraries stymies AI deployment by restricting access to required datasets and requires strong internet connections and contemporary computing equipment. Poor connectivity has become a hot topic, obstructing access to other academic library consortiums around Africa.
- AI implementation in Academic libraries may face pushback from unfamiliar personnel and users, particularly in Africa, due to cultural attitudes and aversion to change. Overcoming resistance and ensuring successful implementation can be difficult in poor countries.
- Because of Africa's low electricity supply, ICT facilities in libraries are inoperable, necessitating modifications and other power sources such as solar energy for efficient adoption. Additionally, the epileptic power supply impedes the full adoption of AI in academic libraries because the machines can only operate with an electricity supply.
- Academic libraries in Africa confront hurdles in digitising physical content in order to successfully harness AI, due to financial and other constraints.
- The effective use of AI technologies in academic libraries is significantly hampered by the lack of technical expertise and the skill gap among library

staff. One major obstacle to the deployment of AI in academic libraries in Africa is the shortage of professionals with the necessary training.

SUGGESTIONS AND RECOMMENDATION

Here are some key recommendations and suggestions for implementing AI in academic libraries in Africa:

1. **Seek Funding and Partnerships:** To overcome financial constraints, academic libraries should actively seek funding and partnerships with government agencies, private organisations and international institutions. Collaborative efforts can secure the necessary resources for AI implementation.
2. **Prioritise Ethical Guidelines:** Address the ethical challenges associated with AI implementation by establishing and adhering to strict ethical guidelines and data protection policies. Ensure that user privacy and data security are paramount in all AI applications.
3. **Improve Connectivity:** Work towards improving network connectivity in academic libraries. Collaborate with internet service providers and leverage modern technology to ensure seamless access to online resources and AI-powered tools.
4. **Cultural Sensitivity and Change Management:** To overcome resistance to AI adoption, academic libraries should invest in change management strategies. Educate staff and users about the benefits of AI and involve them in the decision-making process. Emphasise the cultural relevance of AI in enhancing education and research.
5. **Alternative Power Sources:** Given the electricity supply challenges, explore alternative power sources like solar energy to ensure the continuous operation of AI systems. Solar power can help reduce dependence on an unreliable grid.
6. **Skills Development:** Invest in training and capacity building for library staff. Develop programs to equip them with the necessary skills to effectively utilise AI technologies, from basic operations to more advanced applications.
7. **User Engagement and Education:** Engage users in the process of AI adoption. Conduct training sessions and workshops to familiarise them with AI tools and resources available in the library—Foster AI literacy alongside digital literacy.
8. **Embrace Expert Systems:** Consider integrating expert systems to enhance reference services. Expert systems can offer personalised recommendations and assistance, improving the overall quality of library services.
9. **Efficient Cataloguing and Classification:** Implement AI-driven solutions to streamline cataloguing, classification and resource management. AI can help libraries predict future needs and optimise collection management.
10. **Data-Driven Decision Making:** Leverage AI to make data-driven decisions, from resource allocation to service enhancements. Analyse usage trends and user behaviour to adapt library services to evolving demands.
11. **Collaboration and Knowledge Sharing:** Foster collaboration among users with common research interests through AI-driven algorithms. Encourage the formation of academic communities within the library, promoting knowledge sharing and multidisciplinary partnerships.
12. **Robust Infrastructure:** Invest in robust AI infrastructure to support automation, recommendation systems and chatbots. Ensure that the library is well-equipped to handle AI-driven services efficiently.

Adopting AI in African academic libraries holds immense potential to enhance education, research and library services. By addressing financial, ethical, technical and cultural challenges, academic libraries can harness the benefits of AI, ultimately providing a more efficient and user-centric experience for their patrons.

CONCLUSION

In conclusion, integrating artificial intelligence (AI) in African academic libraries represents a transformative opportunity to empower education and enhance library services. As AI technology continues to reshape the information management landscape, academic libraries in Africa must embrace this paradigm shift and overcome the associated challenges. Financial constraints pose a significant obstacle, but proactive measures, such as seeking funding and partnerships, can help secure the necessary resources. Furthermore, ethical considerations, network connectivity issues and resistance to change are challenges that must be addressed through the establishment of robust ethical guidelines, improved connectivity, cultural sensitivity and effective change management strategies.

www.IndianJournals.com
Not for Commercial Use
Downloaded From IP - 216.73.216.21 on dated 10-Nov-2026

Alternative power sources, such as solar energy, can mitigate the impact of inadequate electricity supply, ensuring the continuous operation of AI systems. Skills development programs are essential to equip library staff with the necessary expertise to harness the full potential of AI, and user engagement and education are vital to fostering AI literacy. AI applications offer substantial benefits, from enhancing cataloguing and resource management to promoting data-driven decision-making and knowledge sharing among users. Expert systems can improve reference services, providing personalised recommendations and assistance. Ultimately, the successful integration of AI in African academic libraries will result in more efficient, user-friendly and data-driven services, empowering education and research. By taking a proactive approach to overcome these challenges, academic libraries can position themselves as leaders in the digital age, fostering innovation and knowledge sharing while addressing the unique needs of their communities. In the era of information, AI is not just a tool but a catalyst for progress, and African academic libraries have the opportunity to be at the forefront of this transformative journey. By embracing AI responsibly and strategically, these libraries can contribute to advancing education, research and community engagement, creating a brighter future for the entire continent.

www.IndianJournals.com
Not for Commercial Use
Downloaded From IP - 216.73.216.21 on dated 10-Nov-2026

REFERENCES

Abayomi, O.K. (2021). Awareness and perception of the artificial intelligence in the management of university libraries in Nigeria. *Journal of Interlibrary Loan, Document Delivery & Electronic Reserve*, *29*, 1–2. https://www.tandfonline.com/doi/abs/10.1080/1072303X.2021.1918602

Adebayo, O.A., Bello, L.A., Kayode, J.O., & Yusuf, T.I. (2022). Adoption of artificial intelligence for effective library service delivery in academic libraries in Nigeria. *Library Philosophy & Practice*, *2*(1), 1–13.

Ali, M.Y., Naeem, S.B., & Bhatti, R. (2021). Artificial Intelligence (AI) in Pakistani university library services. *Library Hi Tech News*, *38*(8), 12–15. https://doi.org/10.1108/LHTN-10-2021-0065

Ali, M.Y., Naeem, S.B., Bhatti, R., & Richardson, J. (2022). Artificial intelligence application in university libraries of Pakistan: SWOT analysis and implications. *Global Knowledge, Memory and Communication*, *ahead-of-print* (ahead-of-print). https://doi.org/10.1108/GKMC-12-2021-0203

Alqahtani, T., Badreldin, H.A., Alrashed, M., Alshaya, A.I., Alghamdi, S.S., bin Saleh, K., Alowais, S.A., Alshaya, O.A., Rahman, I., Al Yami, M.S., & Albekairy, A.M. (2023). The emergent role of artificial intelligence, natural learning processing, and large language models in higher education and research. *Research in Social and Administrative Pharmacy*, *19*(8), 1236–1242. https://doi.org/10.1016/j.sapharm.2023.05.016

Banks, K. (2023). *How Academic Libraries Use AI to Improve Their Services*. https://blog.pressreader.com/libraries-institutions/academic-libraries-use-artificial-intelligence-to-improve-their-services

Burudi, S.P., Jotham, W., & Ndegwa, L. (2021). Challenges facing academic libraries in utilizing mobile devices in access and use of information in Kenyatta University and University of Nairobi in Kenya. *African Journal of Education, Science and Technology*. https://www.ajest.info/index.php/ajest/article/view/562

Chen, Y. (2020). Information integration in libraries. *Library Hi Tech*, *38*(1), 210–219. https://doi.org/10.1108/LHT-11-2017-0232

Dessy Harisanty, T.E.P., & Aziz, N.A.N. (2022). *Leaders, practitioners and scientists' awareness of artificial intelligence in libraries: A pilot study | Emerald Insight*. https://www.emerald.com/insight/content/doi/10.1108/LHT-10-2021-0356/full/html

Echedom, A. U., & Okuonghae, O. (2021). Transforming academic library operations in Africa with artificial intelligence: Opportunities and challenges: A review paper. *New Review of Academic Librarianship*, *27*(2), 243–255. https://doi.org/10.1080/13614533.2021.1906715

Enakrire, R.T., & Ocholla, D.N. (2017). Information and communication technologies for knowledge management in academic libraries in Nigeria and South Africa. *South African Journal of Information Management*, *19*(1), 1–9. https://doi.org/10.4102/sajim.v19i1.750

Enakrire, R.T., & Oladokun, B.D. (2023). Artificial intelligence as enabler of future library services: How prepared are librarians in African university libraries. *Library Hi Tech News*, *ahead-of-print* (ahead-of-print). https://doi.org/10.1108/LHTN-09-2023-0173

Enakrire, R.T.B.D.O. (2023). *Artificial Intelligence as Enabler of Future Library Services: How Prepared Are Librarians in African University Libraries | Emerald Insight*. https://www.emerald.com/insight/content/doi/10.1108/LHTN-09-2023-0173/full/html

Gasparini, A., & Kautonen, H. (2022). Understanding artificial intelligence in research libraries: An extensive literature review. *Liber Quarterly: The Journal of European Research Libraries*, *32*(1), 1–36. https://doi.org/10.53377/lq.10934

Gendron, Y., Andrew, J., & Cooper, C. (2022). The perils of artificial intelligence in academic publishing. *Critical Perspectives on Accounting*, *87*, 102411. https://doi.org/10.1016/j.cpa.2021.102411

Geraldine Hoskins, R. (2013). The influence of open access on journal cancellations in university libraries in South

www.IndianJournals.com
Not for Commercial Use
Downloaded From IP - 216.73.216.21 on dated 10-Nov-2026

Africa. *The Electronic Library*, *31*(5), 574–592. https://doi.org/10.1108/EL-10-2011-0142

Hervieux, S., & Wheatley, A. (2021). Perceptions of artificial intelligence: A survey of academic librarians in Canada and the United States. *The Journal of Academic Librarianship*, *47*(1), 102270. https://doi.org/10.1016/j.acalib.2020.102270

Huang, Y., Cox, A.M., & Cox, J. (2023). Artificial Intelligence in academic library strategy in the United Kingdom and the Mainland of China. *The Journal of Academic Librarianship*, *49*(6), 102772. https://doi.org/10.1016/j.acalib.2023.102772

Huang, Y-H. (2022). *Exploring the Implementation of Artificial Intelligence Applications Among Academic Libraries in Taiwan | Emerald Insight*. https://www.emerald.com/insight/content/doi/10.1108/LHT-03-2022-0159/full/html

Isaiah Michael Omame, J.C.A.-N. (2020). *Artificial Intelligence in Libraries: Library & Information Science Book Chapter | IGI Global*. https://www.igi-global.com/chapter/artificial-intelligence-in-libraries/245111

Jain, P. (2007). *An Empirical Study of Knowledge Management in Academic Libraries in East and Southern Africa | Emerald Insight*. https://www.emerald.com/insight/content/doi/10.1108/00242530710750572/full/html

Jha, S.K. (2023). *Application of Artificial Intelligence in Libraries and Information Centers Services: Prospects and Challenges | Emerald Insight*. https://www.emerald.com/insight/content/doi/10.1108/LHTN-06-2023-0102/full/html

Livberber, T., & Ayvaz, S. (2023). The impact of Artificial Intelligence in academia: Views of Turkish academics on ChatGPT. *Heliyon*, *9*(9), e19688. https://doi.org/10.1016/j.heliyon.2023.e19688

Mabunda, T.T., & Du Plessis, T. (2022). Knowledge management as a change enabler in academic libraries in the digital age. *South African Journal of Information Management*, *24*(1), 1–10. https://doi.org/10.4102/sajim.v24i1.1450

Massis, B. (2018). *Artificial intelligence arrives in the library | Emerald Insight*. https://www.emerald.com/insight/content/doi/10.1108/ILS-02-2018-0011/full/html

McGrath, C., Cerratto Pargman, T., Juth, N., & Palmgren, P.J. (2023). University teachers' perceptions of responsibility and artificial intelligence in higher education—An experimental philosophical study. *Computers and Education: Artificial Intelligence*, *4*, 100139. https://doi.org/10.1016/j.caeai.2023.100139

Muhammad Yousouf Ali, S.B.N., & Bhatti, R. (2020). *Artificial Intelligence Tools and Perspectives of University Librarians: An Overview—Muhammad Yousuf Ali, Salaman Bin Naeem, Rubina Bhatti, 2020*. https://journals.sagepub.com/doi/abs/10.1177/0266382120952016

Nawaz, N. (2021). *Artificial Intelligence Chatbots for Library Reference Services by Nishad Nawaz: SSRN*. https://papers.ssrn.com/sol3/papers.cfm?abstract_id=3883917

Ocholla, D.N., & Ocholla, L. (2020). Readiness of academic libraries in South Africa to research, teaching and learning support in the Fourth Industrial Revolution. *Library Management*, *41*(6/7), 355–368. https://doi.org/10.1108/LM-04-2020-0067

Okunlaya, R.O., Syed Abdullah, N., & Alias, R.A. (2022). Artificial intelligence (AI) library services innovative conceptual framework for the digital transformation of university education. *Library Hi Tech*, *40*(6), 1869–1892. https://doi.org/10.1108/LHT-07-2021-0242

Olusegun, S., Oladokun, B.D., Maxwell, C.E., & Akor, S.O. (2023). *Artificial Intelligence in the Library: Potential Implications to Library and Information Services in the 21St Century Nigeria* (SSRN Scholarly Paper 4396138). https://doi.org/10.2139/ssrn.4396138

Owolabi, K., Adeleke, O., Abayomi, O.R., Aderibigbe, N., Owunezi, M., Kemdi, Oluwaseun, O., & Okorie, C. (2022). Awareness and readiness of Nigerian polytechnic students towards adopting artificial intelligence in libraries. *SRELS Journal of Information Management*, *59*, 15–24. https://doi.org/10.17821/srels/2022/v59i1/168682

Owolabi, K.A., & Owolabi, K.A. (2022). *Readiness of Academic Librarians towards the Use of Robotic Technologies in Nigerian University Libraries | Emerald Insight*. https://www.emerald.com/insight/content/doi/10.1108/lm-11-2021-0104/full/html

Oyelude, A.A. (2021). *AI and libraries: Trends and projections | Emerald Insight*. https://www.emerald.com/insight/content/doi/10.1108/LHTN-10-2021-0079/full/html

Rapanyane, M.B., & Sethole, F.R. (2020). The rise of artificial intelligence and robots in the 4th Industrial Revolution: Implications for future South African job creation. *Contemporary Social Science*, *15*(4), 489–501. https://doi.org/10.1080/21582041.2020.1806346

Ratten, V., & Jones, P. (2023). Generative artificial intelligence (ChatGPT): Implications for management educators. *The International Journal of Management Education*, *21*(3), 100857. https://doi.org/10.1016/j.ijme.2023.100857

S V, S., & B G, C. (2021). *Methodological Role of Artificial Intelligence in the Bailiwick of Library Management System* (SSRN Scholarly Paper 3858523). https://papers.ssrn.com/abstract=3858523

Subaveerapandiyan, A. (2023). *Application of Artificial Intelligence (AI) In Libraries and Its Impact on Library Operations Review by Subaveerapandiyan A:: SSRN*. https://papers.ssrn.com/sol3/papers.cfm?abstract_id=4528216

Subaveerapandiyan, A., Sunanthini, C., & Amees, M. (2023). A study on the knowledge and perception of artificial intelligence. *IFLA Journal*, *49*(3), 503–513. https://doi.org/10.1177/03400352231180230

Tella, A. (2020). Robots are coming to the libraries: Are librarians ready to accommodate them? *Library Hi Tech News*, *37*(8), 13–17. https://doi.org/10.1108/LHTN-05-2020-0047

Tella, A., Odunola, O.A., & Lawal, W.O. (2023). Cataloguing and classification in the era of artificial intelligence, benefits, and challenges from the perspective of cataloguing librarians in Oyo State, Nigeria. KATALOGIZACIJA I KLASIFIKACIJA U ERI UMJETNE INTELIGENCIJE, PREDNOSTI I IZAZOVI IZ PERSPEKTIVE KNJIZNICARA KATALOGIZATORA U DRZAVI OYO, NIGERIJA. *Vjesnik Bibliotekara Hrvatske*, *66*(1), 159–176. https://doi.org/10.30754/vbh.66.1.1031

Yoon, J., Andrews, J.E., & Ward, H.L. (2021). Perceptions on adopting artificial intelligence and related technologies in libraries: Public and academic librarians in North America. *Library Hi Tech*, *40*(6), 1893–1915. https://doi.org/10.1108/LHT-07-2021-0229

Zambia, U. of. (2022). Emerging assumptions and the future of artificial intelligence in teaching and learning processes in higher learning institutions in Sub-Saharan Africa: A review of literature. *Zambia Journal of Library & Information Science (ZAJLIS),* ISSN: 2708-2695. https://zajlis.unza.zm/index.php/journal/article/view/93

How to cite this article: Umar, J.T., Vijesh, P.V., & Yohannan, S. (2024). Empowering Education in Africa: The Future of Academic Libraries with Artificial Intelligence – A Comprehensive Review. *Rajagiri Journal of Social Development, 16*(1), 30-40.

www.IndianJournals.com
Not for Commercial Use
Downloaded From IP - 216.73.216.21 on dated 10-Nov-2026