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# Assessment of University Librarians' ICT Skills and Competencies for Use of AI in the Provision of Information Services in Kenya

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## Abstract

Integration of Artificial Intelligence (AI) in university libraries has resulted in automation of previously manual processes. Consequently, librarians need to upgrade their Information and Communication Technologies (ICT) skills and competencies to stay relevant. This study aimed to assess the ICT skills and competencies of librarians in Kenyan university libraries for adopting AI in the provision of information services. The objectives were to examine the ICT competency level of librarians in Kenyan university libraries, sources of ICT skills, and challenges in acquisition of ICT skills. The study adopted a descriptive survey design, and a mixed methods approach. The target population was seven (7) university librarians and 33 library Heads of Sections (HOSs). Using census and purposive sampling techniques respectively, seven (7) university librarians and 33 HOSs respectively were sampled. Questionnaires were used to collect data from the HOSs, and interview schedules for university librarians. Quantitative data was analyzed using the Statistical Package for the Social Sciences (SPSS) through descriptive and inferential statistics, while qualitative data was analyzed thematically. The study established that majority of the staff had high competence in basic, and intermediate ICT skills, but moderate competence in advanced ICT skills. On-the-job training, workshops and seminars were the most preferred methods for acquiring ICT skills, and lack of AI expertise, insufficient budgets and technological obsolescence were challenges in acquisition of ICT skills. The study concluded that the librarians had inadequate skills for adoption of AI. The study recommends that university libraries should invest in the training of their staff in advanced ICT skills, libraries and other educational institutions should provide training programs to improve the library staffs' proficiency in AI technologies, and universities' management should support the training programs for library staff. This study guides AI-focused capacity building for librarians by identifying skills gaps in university libraries.

**Keywords:** *Artificial Intelligence (AI), Librarians, Information and Communication Technologies (ICT), ICT Skills, University Libraries*

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## 1.0 Introduction

University libraries have a fundamental role in creating, organizing and providing students, faculty and researchers with access to information. However, in the age of digitization, their future has become a point of contention, with changes in the structure and the contents of libraries (Popa et al., 2024). To remain relevant, university libraries need to leverage emerging technologies such as Artificial Intelligence (AI) (Ali et al., 2022). In the library setting, AI is considered a collection of information management tools, including Natural Language Processing, image processing, Experts Systems, text mining, pattern recognition, and robotics that help in processing information for users, managing digital resources, and recommending to users what to read (Ali et al., 2022). AI systems can sense their surroundings, think, learn, and act accordingly, which justifies their adoption in university libraries (Faga & Yusuf, 2023). The Commission of University Education (2014) defines a librarian as a professionally trained person with a minimum of a bachelor's degree in Library and Information Science or related field. For AI to be adopted in university libraries, librarians need to possess adequate Information and Communication Technologies (ICT) skills and competencies to effectively use AI tools and systems. A study by Popa et al. (2024) in Romanian university libraries found a strong correlation between ICT skills and efficient use of AI tools. In Africa, studies by Abiolu and Akinyemi (2025) in Nigeria, and Alam et al. (2024) in Zambia established that training of library staff on fundamentals of AI tools and systems was essential for successfully integrating AI in university libraries. Further, Bakiri et al. (2024) found that the adoption of AI in Tanzanian university libraries was hindered by the staff's inadequate ICT skills. In Kenya, studies by Jebet and Gichugu (2025), Masinde et al. (2024), and Sang (2025) attributed the slow uptake of AI in university libraries to inadequate ICT skills among library staff. According to Alam et al. (2024), the librarians' level of AI literacy greatly influences successful integration of AI into information services. This calls for ongoing training to equip library staff with ICT skills for effectively using AI technologies (Nzioki, 2021). Consequently, this study was conducted to determine the adequacy of Kenyan university libraries' staff ICT skills and competencies in using AI to provide information services.

***Problem statement***

Using AI to provide information services is a relatively new trend that is becoming popular as the society evolves into a digitally-driven economy. According to Ali et al. (2022), AI has a great potential in enhancing the efficiency and effectiveness of information services in libraries. However, while libraries in the developed world have integrated AI into various information services (Tella, 2020); Ajakaye (2022) notes that its uptake in the developing countries is slow. Confirming this assertion, Jebet and Gichugu (2025) maintain that AI is still a grey idea in Kenyan university libraries; Masinde et al. (2024) established that Kenyan university libraries were still at the initial stage of adopting AI; while Sang (2025) found that only 7% of the respondents' libraries had adopted AI. Masinde et al. (2024) and Sang, (2025)

attribute this sluggish adoption to the skills gap among librarians in Kenyan university libraries. Given that the librarians' level of ICT literacy greatly influences successful integration of AI in information services (Alam et al., 2024), Kenyan university libraries risk missing out on the opportunity to enhance their library services as a result of ICT skills gaps among librarians; thus, losing their competitive advantage over third party information providers. This calls for targeted training programs for the librarians to equip them with ICT skills and competencies for effectively using AI tools and systems. Consequently, the current study aims to assess the ICT skills and competencies of librarians in Kenyan universities, in readiness for adoption of AI for provision of information services. By identifying the skills gaps, it is anticipated that the study's results will guide the creation of focused training programs for librarians in Kenyan university.

***Research Questions***

The following questions were the focus of the study:

i. What is the ICT competency level of librarians in Kenyan university libraries?

ii. What are the sources of ICT Skills for librarians in university libraries in Kenya?

iii. What are the challenges encountered by librarians in university libraries in Kenya in acquisition of ICT skills?

**Literature review**

The literature review for this study was conducted in line with the study's research questions.

The study concluded that the librarians in Kenyan university libraries had inadequate ICT skills and competencies for adoption of AI in provision of information services. Majority lacked advanced ICT skills that are key for AI implementation.

***ICT Competency Level of University Librarians***

A smart librarian should be proficient in ICT skills to deliver quality services to library patrons. ICT skills were classified by Atasoy et al. (2012) into basic, intermediate, and advanced levels. According to Anthonia and Idiodi (2024) and Jan et al. (2024), besides possessing basic and intermediate ICT skills, librarians should possess advanced ICT skills, such as Natural Language Processing (NLP), Cloud computing, Machine Learning (ML), Big data analytics, algorithm design, and programming to effectively utilize AI technologies. Consequently, the assessment of staff's ICT skills and competencies in readiness for adoption of AI involves the evaluation of various indicators that demonstrate the staff's capacity to interact and use AI technologies, including their degree of competence in basic, intermediate,

and advanced ICT skills (Edelmann et al., 2023). A study by Jan et al. (2024) in Pakistani university libraries established that the slow adoption of AI was as a result of lack of expertise needed to integrate AI in libraries. Further, Oyedokun et al. (2018) established that 43% of the librarians in Nigeria's Kwara State rated their basic ICT skills as very high, while only 25% rated their advanced ICT skills as high. Antidius (2018) also established that 72.5% of the staff in Dar es Salaam university had basic ICT skills, 20% had intermediate ICT skills, while 5% thought their skills were very low. Moreover, Maina and Muthee (2020) found that nearly three-quarters of the librarians in Kenyan university libraries only had basic ICT skills.

***Sources of ICT Skills***

University libraries' staff need proficiency in advanced ICT skills to embrace the use of AI (Nzioki, 2021). Consequently, providing ongoing training in advanced ICT skills for librarians is essential to successfully use AI to provide information services. According to Oyedokun et al. (2018), librarians can advance their ICT skills through formal continuing education, learning from colleagues, informal education, self-study, supplier training, workshops, conferences, and attending IT courses. A study by Ducas et al. (2020) found that majority of the Canadian library staff learnt new ICT skills through professional work experience (81%), self-study (72%) and workshops (51%). Bajpai and Margam (2019) also established that University librarians of Delhi acquired ICT skills through workshops (70%), self-study (68.3%), colleagues (68.3%), training by software suppliers (63.3%), formal education (61.7%), on-the-job training (53.3%), web-based tutorial (48.3%), short courses (43.3%) and refresher courses (31.7%). Namaganda (2019) also established that librarians in Uganda's university libraries engaged in conferences and seminars (76.9%) and workshops (92.3%). In Kenya, Agava and Underwood (2020) established that all respondents (100%) preferred workshops, conferences, and seminars; 80% preferred furthering their education in LIS, while 70% preferred free online courses. This indicates that library staff prefer practical, hands-on training methods such as workshops and seminars in building their proficiency in utilization of AI tools.

***Challenges in Acquisition of ICT Skills***

Librarians face several challenges in their pursuit of ICT skills and competencies (Agava & Underwood, 2020). Hamad et al. (2021) established that Jordanian universities' librarians experienced challenges such as lack of funding for training programs, inadequate financial support for workshop attendance, and inadequate library infrastructure in acquisition of ICT skills, with means of 4.28, 4.20, and 3.71, respectively. Another study by Bansode and Viswe (2017) found that daily hectic work schedule (55.2%), lack of knowledge (17.91%), insufficient funding (21.64 %), and inadequate training (35.07 %) were the barriers to acquiring ICT skills by Indian universities' librarians. Further Isibika et al. (2021) found that the biggest obstacles to librarian training in Tanzanian university libraries were lack of transparency in selection of employees for training (42.1%), lack of training opportunities (40.0%), and a culture that did not

support employee training (38.0%). In Kenya, Gitau (2016) found that the challenges experienced by librarians in their quest for retooling were inadequate finances (57.4%), lack of a clear policy (37.7%), time constraints (36.1%), lack of employer's support (32.8%), changing technologies (23.0%), unwillingness (21.3%), lack of motivation (19.7%) and lack of invitations (16.4%). By understanding the challenges faced by library staff in acquisition of ICT skills, the library management will be able to identify the reasons for the delay in readiness; thus, put in place strategies to build the library staff's AI competencies.

## 2.0 Materials and Methods

The study adopted a descriptive survey research design and a mixed methods research approach to achieve triangulation. The study's target population comprised seven (7) university librarians and 33 library Heads of Sections (HOSs) from the universities sampled. The classical formula by Fisher (1998) was used to sample seven (7) chartered universities. The universities were first divided into two strata, public chartered universities (35) and private chartered universities (27), based on the list of chartered universities in Kenya on the Commission for University Education (CUE) website. The number of universities sampled from each stratum was then determined using a proportionate distribution of the entire sample size, resulting in four (4) chartered public universities and three (3) chartered private universities. Stat Trek's random number generator was used to randomly select University of Embu, Egerton University, Jomo Kenyatta University of Agriculture and Technology (JKUAT), Murang'a University of Technology, Kenya College of Accountancy (KCA) University, United States International University (USIU), and Kenya Highlands University from the list of universities chartered by CUE. Census approach was used to sample all the seven (7) university librarians since each university has one university librarian. Purposive sampling was used in selection of 33 library HOSs. The inclusion criteria included heading a particular library department and having served as a HOS for more than two years. The study used closed questionnaires for quantitative data collection from the HOSs and interviews for qualitative data collection from the university librarians. Questionnaires allowed the HOSs to respond to questions thoughtfully since they could complete the questionnaires at their convenience; while the interviews allowed for collection of more information from the university librarians through probing. Content, construct and face validity were used to ensure the validity of the research instruments, while their reliability was checked using the Cronbach alpha value. Quantitative data was analyzed using descriptive and inferential statistics and presented using tables and figures. The qualitative data was analyzed thematically.

## 3.0 Results and Discussion

The overall response rate for the study was 94%. The summary of the major findings is systematically presented based on the study's research questions.

### *Demographic Information of the Respondents*

The results show that there was a near balanced gender distribution among the

library HOSs, with 56.7% males and 43.3% females. Regarding academic qualifications, 50% of the library HOSs had a bachelor's degree, while 46.7% possessed a master's degree. In terms of work experience, majority (76.7%) had served as librarians for more than 10 years. The HOSs were distributed across various library sections, such as reader services, technical services, reference service, digital library and special collection. Majority of the university librarians had worked in the library sector for an extended period, with some having over 25 years of experience. The demographic characteristics of the respondents helped enhance the objectivity of the study, as well as the understanding of the responses gotten on the variables of the study.

### *ICT Competency Level of University Librarians*

The librarians' level of ICT skills and competencies was divided into basic, intermediate, and advanced ICT skills.

### *Level of Competence in Basic ICT Skills*

The HOS were asked to indicate the librarians' level of competence in basic ICT skills. Table 1 presents a summary of the findings.

**Table 1**

*HOSs Responses on the Level of Competence in Basic ICT Skills*

| Basic ICT skills | Very high | High | Moderate | Mean | Std. dev. |
|---|---|---|---|---|---|
| Performing basic computing tasks, such as word processing | 16(53.3%) | 11(36.7%) | 3(10.0%) | 4.43 | .679 |
| Creating PowerPoint presentations | 17(56.7%) | 10(33.3%) | 3(10.0%) | 4.47 | .681 |
| Copying, saving, and organizing documents in digital formats. | 20(66.7%) | 9(30.0%) | 1(3.3%) | 4.63 | .556 |
| Retrieving documents from storage devices | 23(76.7%) | 7(23.3%) | 0(0.0%) | 4.77 | .430 |
| Using statistical tools like Excel | 15(50.0%) | 12(40.0%) | 3(10.0%) | 4.40 | .675 |
| Navigating digital library management systems | 18(60.0%) | 11(36.7%) | 1(3.3%) | 4.57 | .568 |
| Troubleshooting basic technical issues. | 15(50.0%) | 12(40.0%) | 3(10.0%) | 4.40 | .675 |

The findings in Table 1 reveal a consistently very high level of basic ICT skills and competencies among university librarians, with at least 90.0% of the respondents indicating high competence levels, and with most items showing no low ratings. The qualitative findings from the university librarians also indicated that the librarians had very high basic ICT skills. These findings corroborate the findings of Agava and Underwood (2020) in Tangaza university, where 80% of the librarians had very high, while 16.7% had high basic ICT skills. Studies in Nigeria by Adedara et al.

(2022) and Oyedokun et al. (2018) also established that majority of the librarians possessed basic ICT skills. According to David-West and Ig-worlu (2023), basic ICT skills proficiency among librarians is a precondition for effective adoption of AI for provision of information services. Consequently, the high proficiency in basic ICT skills indicates that the librarians in Kenyan university libraries are well-placed for the transition to AI-powered systems in information provision. This implies that minimal training may be required to bridge the gap for AI adoption.

### *Level of Competence in Intermediate ICT Skills*

The HOS were asked to indicate the librarians' proficiency in intermediate ICT skills. Table 2 provides a summary of the findings.

**Table 2**

*HOSs Responses on the Level of Intermediate ICT Skills*

| Intermediate ICT skills | Very high | High | Moderate | Low | Very low | Mean | Std. dev. |
|---|---|---|---|---|---|---|---|
| Browsing the Internet | 22(73.3%) | 8(26.7%) | 0(0.0%) | 0(0.0%) | 0(0.0%) | 4.73 | .450 |
| Creating and managing web content | 13(43.3%) | 11(36.7%) | 5(16.7%) | 0(0.0%) | 1(3.3%) | 4.17 | .950 |
| Utilizing Web 2.0 technologies | 13(43.3%) | 13(43.3%) | 2(6.7%) | 1(3.3%) | 1(3.3%) | 4.20 | .961 |
| Using search engines effectively | 21(70.0%) | 8(26.7%) | 1(3.3%) | 0(0.0%) | 0(0.0%) | 4.67 | .547 |
| Using email for communication | 24(80.0%) | 6(20.0%) | 0(0.0%) | 0(0.0%) | 0(0.0%) | 4.80 | .407 |
| Managing cloud-based storage platforms | 14(46.7%) | 10(33.3%) | 4(13.3%) | 1(3.3%) | 1(3.3%) | 4.17 | 1.020 |
| Data visualization | 14(46.7%) | 9(30.0%) | 5(16.7%) | 2(6.7%) | 0(0.0%) | 4.17 | .950 |
| Integrating multimedia tools in digital content. | 10(33.3%) | 12(40.0%) | 6(20.0%) | 1(3.3%) | 1(3.3%) | 3.97 | .999 |

The findings in Table 2 indicate that university librarians demonstrate strong competence in intermediate ICT skills. The highest competencies were in email use (M = 4.80), internet browsing (M = 4.73), and search engine use (M = 4.67), highlighting staff readiness to engage with AI systems that rely on digital interaction and information retrieval. Moderate competencies in web content creation (M = 4.17), use of Web 2.0 tools (M = 4.20), cloud storage (M = 4.17), and data visualization (M = 4.17) further demonstrate preparedness. However, these areas may benefit from capacity-building initiatives to ensure optimal use of AI-enabled tools. Multimedia integration, while

rated lowest (M = 3.97), remains a crucial area for improvement, as multimedia formats are increasingly used in the AI-enhanced information delivery. The qualitative data from the librarians also indicated the need for librarians to advance their ICT skills. Corroborating these findings, Antidius (2018) established that 73.3% of the librarians in Dar es Salaam university possessed intermediate ICT skills. The study's findings also indicate that the librarians had the highest proficiency in the use of internet (M = 4.73) and email communication (M = 4.80) which concurs with the findings of Oyedokun et al. (2018), where 67.9% of the librarians had high proficiency in internet use than any other intermediate ICT skills. These findings imply that university libraries can leverage the existing ICT skill base of their staff as a foundation for AI adoption. However, targeted training in areas such as multimedia content creation and the more advanced use of collaborative technologies would enhance overall readiness.

### *Level of Competence in Advanced ICT Skills*

The HOS were asked to indicate the librarians' proficiency in advanced ICT skills. The findings are summarized in Table 3.

**Table 3**

*HOSs Responses on Advanced ICT Skills*

| Advanced ICT skills | Very high | High | Moderate | Low | Very low | Mean | Std. dev. |
|---|---|---|---|---|---|---|---|
| Designing and integrating software | 4(13.3%) | 10(33.3%) | 8(26.7%) | 5(16.7%) | 3(10.0%) | 3.23 | 1.194 |
| Performing minor computer repairs. | 9(30.0%) | 9(30.0%) | 8(26.7%) | 3(10.0%) | 1(3.3%) | 3.73 | 1.112 |
| Data analysis and developing algorithms | 3(10.0%) | 8(26.7%) | 9(30.0%) | 8(26.7%) | 2(6.7%) | 3.07 | 1.112 |
| Database management | 5(16.7%) | 13(43.3%) | 7(23.3%) | 5(16.7%) | 0(0.0%) | 3.60 | .968 |
| Programming languages | 3(10.0%) | 7(23.3%) | 4(13.3%) | 12(40.0%) | 4(13.3%) | 2.77 | 1.251 |
| Cloud computing platforms | 3(10.0%) | 8(26.7%) | 6(20.0%) | 11(36.7%) | 2(6.7%) | 2.97 | 1.159 |
| Fine-tuning machine learning models | 5(16.7%) | 8(26.7%) | 4(13.3%) | 8(26.7%) | 5(16.7%) | 3.00 | 1.390 |

The results in Table 3 indicate that university librarians generally possess moderate competence in advanced ICT skills. While foundational skills such as minor computer repairs (M = 3.73) and database management (M = 3.60) show promise, key competencies for advanced AI implementation, such as programming (M = 2.77), cloud computing

(M = 2.97), and training AI models (M = 3.00), were significantly lacking. The qualitative findings from the university librarians also indicated that the librarians lacked advanced ICT skills for using AI to provide information services. These results are corroborated by the findings of studies focusing on Nigerian university libraries by Adedara et al. (2022) and Oyedokun et al. (2018), where a small number of respondents indicated that their proficiency in programming skills, with 62% and 65% respectively. These studies also recorded a drop in the number of respondents with advanced ICT skills in comparison to the basic and intermediate ICT skills. This implies that although the library staff may be able to support and interact with user-end AI tools, they lack the expertise for developing, customizing, and scaling AI systems independently. This calls for an urgent need for structured training programs focused on programming languages, cloud platforms, and machine learning. Without these capabilities, university libraries may find themselves overly dependent on external vendors or limited to superficial AI applications.

### *Sources of ICT Skills*

The HOS were asked to indicate their preferred method of training on new technologies, such as AI. Table 4 provides a summary of the findings.

**Table 4**

*HOSs Responses on Methods of Training*

| Methods of Training | Strongly Prefer | Prefer | Neutral | Do not prefer | Strongly do not prefer | Mean | Std. dev. |
|---|---|---|---|---|---|---|---|
| Workshops and conferences | 23(76.7%) | 7(23.3%) | 0(0.0%) | 0(0.0%) | 0(0.0%) | 4.77 | .430 |
| Seminars. | 20(66.7%) | 10(33.3%) | 0(0.0%) | 0(0.0%) | 0(0.0%) | 4.67 | .479 |
| Further studies in Information Science | 16(53.3%) | 12(40.0%) | 2(6.7%) | 0(0.0%) | 0(0.0%) | 4.47 | .629 |
| Online courses | 20(66.7%) | 8(26.7%) | 2(6.7%) | 0(0.0%) | 0(0.0%) | 4.60 | .621 |
| On-the-job training | 24(80.0%) | 6(20.0%) | 0(0.0%) | 0(0.0%) | 0(0.0%) | 4.80 | .407 |
| Friends and colleagues | 15(50.0%) | 10(33.3%) | 4(13.3%) | 1(3.3%) | 0(0.0%) | 4.23 | 1.073 |
| Software suppliers | 16(53.3%) | 11(36.7%) | 2(6.7%) | 0(0.0%) | 1(3.3%) | 4.37 | .890 |
| Internships in libraries already leveraging AI | 11(36.7%) | 15(50.0%) | 4(13.3%) | 0(0.0%) | 0(0.0%) | 4.23 | .679 |

The findings in Table 4 reveal that interactive, applied, and flexible training methods were the most preferred by the HOSs. Methods such as on-the-job training (M=4.80), workshops (M=4.77), seminars (M=4.67), and online courses (M=4.60) received near-universal support, suggesting preference for experiential and multimodal

learning, which accommodates varied learning styles and allows immediate application of skills in real-world library settings. The qualitative findings from the librarians suggested seminars, workshops, and webinars as the preferred methods of acquiring ICT skills. These findings concur with those of Agava and Underwood (2020) where 100% of the librarians preferred seminars and workshops, while 70% preferred on-the-job training. A similar study by Adedara et al. (2022) also established that librarians preferred on-the-job training and workshops and seminars, with means of 4.04 and 3.76 respectively. According to Agava and Underwood (2020), seminars, conferences and workshops are preferred since they run for a short time, and are mostly financed. The results of this study indicate the need for institutions to prioritize diverse and continuous training strategies that combine formal, informal, and peer-driven learning models. Workshops, internships, and on-the-job training opportunities should be actively integrated into professional development plans. Additionally, partnerships with AI vendors and external platforms could help scale training delivery without overburdening in-house resources.

### *Challenges in Acquisition of ICT skills*

The HOSs were asked to indicate the challenges faced in acquisition of ICT skills and competencies. The findings are summarized in Table 5.

**Table 5**

*HOSs Responses on Challenges in Acquisition of ICT Skills*

| Challenges | Extremely likely | Likely | Neutral | Unlikely | Extremely unlikely | Mean | Std. dev. |
|---|---|---|---|---|---|---|---|
| Lack of AI experts | 10(33.3%) | 20(66.7%) | 0(0.0%) | 0(0.0%) | 0(0.0%) | 4.33 | .479 |
| Lack of staff motivation | 10(33.3%) | 10(33.3%) | 3(10.0%) | 6(20.0%) | 1(3.3%) | 3.73 | 1.230 |
| Limited training opportunities | 8(26.7%) | 15(50.0%) | 0(0.0%) | 5(16.7%) | 2(6.7%) | 3.73 | 1.230 |
| Insufficient library budget | 14(46.7%) | 10(33.3%) | 4(13.3%) | 1(3.3%) | 1(3.3%) | 4.17 | 1.020 |
| Lack of time for training | 7(23.3%) | 15(50.0%) | 2(6.7%) | 4(13.3%) | 2(6.7%) | 3.70 | 1.179 |
| Reliance on training by software suppliers | 5(16.7%) | 15(50.0%) | 5(16.7%) | 5(16.7%) | 0(0.0%) | 3.67 | .959 |
| Lack of institutional support | 7(23.3%) | 13(43.3%) | 3(10.0%) | 5(16.7%) | 2(16.7%) | 3.60 | 1.221 |
| Limited awareness of the AI's potential | 9(30.0%) | 14(46.7%) | 0(0.0%) | 6(20.0%) | 1(3.3%) | 3.80 | 1.186 |
| Rapid pace of technological advancements | 9(30.0%) | 14(46.7%) | 2(6.7%) | 5(16.7%) | 0(0.0%) | 3.90 | 1.029 |

The findings in Table 5 show that the most significant challenges in preparing librarians for AI adoption include lack of AI expertise (M = 4.33), insufficient budgets (M = 4.17), fast technological change (M = 3.90), limited awareness (M = 3.80), and lack of training opportunities (M = 3.73). The qualitative findings from the librarians also pointed out lack of institutional support and librarians' lack of motivation as the major setbacks. These findings corroborate findings by Agava and Underwood (2020), where the librarians pointed out ICT obsolescence, lack of training opportunities and inadequate funding as challenges in acquisition of ICT skills. Moreover, this study's findings on lack of AI expertise and lack of training opportunities concur with the findings of Baro et al. (2019),while the findings on limited awareness corroborate the findings by Manzo (2020) and Oyedokun et al. (2018). The enumerated challenges highlight systemic issues such as inadequate human and financial resources, institutional support gaps, and structural limitations in training delivery. Therefore, proactive planning and leadership are necessary to fostering a workforce that is adequately prepared for AI-powered librarianship.

## 4.0 Conclusion

The study concluded that the librarians in Kenyan university libraries had inadequate ICT skills and competencies for adoption of AI in provision of information services, with majority lacking in advanced ICT skills that are key for AI implementation. Further, the study concluded that role-appropriate and task-oriented training models, such as workshops, seminars, conferences, and on-the-job training which are aimed at empowering staff to assist users and enhance service delivery were the most preferred methods of training for university librarians in Kenya. Moreover, the study concluded that lack of AI expertise, insufficient budgets, technological change, lack of training opportunities, and limited awareness were the major setbacks in acquisition of ICT skills by Kenyan universities' librarians. Finally, the study concluded that for successful integration of AI in Kenyan university libraries, training of the librarians, management support, inclusive leadership, encouragement, and staff involvement are key to overcoming resistance and to ensure sustainability.

## 5.0 Recommendations

The study recommends that university libraries should strategically invest in training of their staff in advanced ICT skills through partnering with the Information technology (IT) department, and other external institutions to build their capacity. Moreover, university libraries and other educational institutions should organize workshops and training programs to improve the librarians' proficiency with AI technologies. Finally, the management of universities should support training programs for librarians through increased budgetary allocation, hiring of training facilitators with AI expertise, and motivation of staff to attend trainings.

## References


Abiolu, O. A., & Akinyemi, O. E. (2025). Staff training and the use of Artificial Intelligence (AI) in university libraries. *International Journal of Knowledge Content Development & Technology*. https://www.ijkcdt.net/xml/44532/44532.pdf

Adedara, J. T., Kolawole, O. I., & Omonagbe, C. O. (2022). Academic librarians' ICT competency and skills towards effective library service in Ekiti State, Nigeria. *Library Philosophy and Practice (e-Journal).*, *7462*. https://digitalcommons.unl.edu/libphilprac/7462

Agava, S. L., & Underwood, P. G. (2020). ICT proficiency: Perspectives of Tangaza University College librarians in Kenya. *Library Management*, *41*(6/7), 487–501. https://doi.org/10.1108/LM-03-2020-0057

Ajakaye, J. E. (2022). Applications of Artificial Intelligence (AI) in libraries. In I. I. Ekoja, E. F. Ogbomo, & O. Okuonghae (Eds.), *Advances in library and information science* (pp. 73–90). IGI Global. https://doi.org/10.4018/978-1-7998-9094-2.ch006

Alam, A. F., Subaveerapandiyan, A., Mvula, D., & Tiwary, N. (2024). AI literacy and Zambian librarians: A study of perceptions and applications. *Open Information Science*, *8*(1). https://doi.org/10.1515/opis-2022-0166

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

Anthonia, C., & Idiodi, E. O. (2024). The place of librarians' awareness and integration of Artificial Intelligence technologies for inclusive information provision. *Journal of Educational Research on Children, Parents & Teachers*, *5*(1), 38–58. https://ercptjournal.org/wp-content/uploads/2024/02/JERCPT-5.4.pdf

Antidius, F. (2018). Usage of Information and Communication Technology to Support innovative library services in universities: A case of the university of Dar es Salaam Wilbert Chagula library. *University of Dar Es Salaam Library Journal*, *13*(2), 3–17. https://www.ajol.info/index.php/udslj/article/view/184595

Atasoy, H., Banker, R. D., & Pavlou, P. (2012). *ICT use and labor: Firm-level evidence from Turkey*. https://www.researchgate.net/publication/228270235

Bajpai, V. K., & Margam, M. (2019). ICT Skills and competencies of library and information science professionals working in college libraries, university of Delhi: A study. *Library Philosophy and Practice (e-Journal).*, *2275*. https://digitalcommons.unl.edu/libphilprac/2275

Bakiri, H., Mbembati, H., & Tinabo, R. (2024). Artificial Intelligence services at academic libraries in Tanzania: Awareness, adoption and prospects. *University of Dar Es Salaam Library Journal*, *18*(2). https://doi.org/10.4314/udslj.v18i2.3

Bansode, S. Y., & Viswe, R. R. (2017). ICT literacy among library professionals working in the university libraries in Maharashtra, India: A Study. *DESIDOC Journal of Library & Information Technology*, *37*(5), 353. https://doi.org/10.14429/djlit.37.11723

Baro, E. E., Obaro, O. G., & Aduba, E. D. (2019). An assessment of digital literacy skills and knowledge-based competencies among librarians working in university libraries in Africa. *Digital Library Perspectives*, *35*(3/4), 172–192. https://doi.org/10.1108/DLP-04-2019-0013

Commission of University Education. (2014). *Universities standards and guidelines, 2014*.

David-West, B. T., & Ig-worlu, M. O. (2023). AI-driven future: Strategies and skills development for Nigerian librarians. *Gateway Information Journal*, *24*(1 & 2), 20–32. https://www.gatewayinfojournal.org/index.php/gij/article/view/33

Ducas, A., Michaud-Oystryk, N., & Speare, M. (2020). Reinventing ourselves: New and emerging roles of academic librarians in Canadian research-intensive universities. *College & Research Libraries*, *81*(1), Article 1. https://doi.org/10.5860/crl.81.1.43

Edelmann, N., Mergel, I., & Lampoltshammer, T. (2023). Competences that foster digital transformation of public administrations: An Austrian case study. *Administrative Sciences*, *13*(2), Article 2. https://doi.org/10.3390/admsci13020044

Faga, F., & Yusuf, A. O. (2023). Adoption of Artificial Intelligence (AI) in library parlance: Issues and benefits. *Library Philosophy and Practice (e-Journal)*, *Summer 4-5*(7691). https://digitalcommons.unl.edu/libphilprac/7691

Fisher, L. D. (1998). Self-designing clinical trials. *Statistics in Medicine*, *17*(14), 1551–1562. https://doi.org/10.1002/(SICI)1097-0258(19980730)17:14<1551::AID-SIM868>3.0.CO;2-E

Gitau, J. N. (2016). *Staff retooling practices effects on information service delivery in selected private university libraries in Kenya* [Masters Thesis, Kenya Methodist University]. http://rgdoi.net/10.13140/RG.2.2.28198.27207

Hamad, F., Al-Fadel, M., & Fakhouri, H. (2021). The effect of librarians' digital skills on technology acceptance in academic libraries in Jordan. *Journal of Librarianship and Information Science*, *53*(4), 589–600. https://doi.org/10.1177/0961000620966644

Isibika, I. S., Zhu, C., De Smet, E., & Musabila, A. K. (2021). Perceived training needs assessment of librarians in Tanzanian academic libraries aimed at introducing microlearning intervention to training. *International Journal of Training Research*, *19*(2), 107–124. https://doi.org/10.1080/14480220.2021.1896565

Jan, S. U., Khan, M. S. A., & Khan, A. S. (2024). Organizational readiness to adopt Artificial Intelligence in the library and information sector of Pakistan. *Evidence Based Library and Information Practice*, *19*(1), 58–76. https://doi.org/10.18438/eblip30408

Jebet, T., & Gichugu, M. (2025). Adoption and use of artificial intelligence tools in service delivery in selected academic

libraries in Kenya. *International Academic Journal of Information Sciences and Project Management*, *3*(7), 287–301. https://ir-library.ku.ac.ke/bitstreams/8208d9e1-e177-44c7-bafc-5dc81486f2d6/download

Maina, P. K., & Muthee, D. W. (2020). Preparedness towards adoption of cloud computing technologies by academic libraries in Kenya. *International Journal of Research in Library Science*, *6*(1), 200. https://doi.org/10.26761/IJRLS.6.1.2020.1320

Manzo, B. S. (2020). ICT skills acquisition and competencies of academic librarians in Katsina State tertiary institutions of learning. *International Journal of Library and Information Studies*, *10*(4), 25–31. https://www.ijlis.org/articles/ict-skills-acquisition-and-competencies-of-academic-librarians-inkatsina-state-tertiary-institutions-of-learning.pdf

Masinde, J. M., Mugambi, F., & Wambiri, D. M. (2024). Exploring the current landscape of Artificial Intelligence adoption in Kenyan academic libraries. *Proceedings of the 17th International Conference on Theory and Practice of Electronic Governance*, 403–408. https://doi.org/10.1145/3680127.3680156

Namaganda, A. (2019). Continuing professional development of librarians in public university libraries in Uganda: A survey. *Qualitative and Quantitative Methods in Libraries (QQML)*, *8*(3), 291–306. https://www.qqml-journal.net/index.php/qqml/article/view/555

Nzioki, R. (2021). *An assessment of the level of adoption of disruptive technologies in academic libraries in Kenya: A case study of the Mahatma Gandhi graduate research library, University of Nairobi, kenya* [PhD Thesis, University of Nairobi]. http://erepository.uonbi.ac.ke/handle/11295/161040

Oyedokun, T. T., Oyewumi, F. A., & Akanbi, M. L. (2018). Assessment of ICT competencies of library staff in selected universities in Kwara state, Nigeria. *Library Philosophy and Practice (e-Journal)*, *1797*. https://digitalcommons.unl.edu/libphilprac/1797

Popa, I., Cioc, M. M., Breazu, A., & Popa, C. F. (2024). Identifying sufficient and necessary competencies in the effective use of Artificial Intelligence technologies. *Amfiteatru Economic*, *26*(65), 33. https://doi.org/10.24818/EA/2024/65/33

Sang, L. J. (2024). Adopting artificial intelligence in Kenyan academic libraries: Analyzing through the technology-organization-environment framework. *Library Management*, *ahead-of-print*(ahead-of-print). https://doi.org/10.1108/LM-03-2024-0029

Sang, L. J. (2025). Artificial Intelligence (AI) for smart library systems: A focus on awareness and level of adoption in the kenyan university libraries. *CUEA Journal of Science*, *2*(1).

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