



Information Research – Vol. 31 No. 3 (2026)

AI literacy of library and information science students in Africa: insights from Ghana, Nigeria, Rwanda, South Africa and Uganda

Zakir Hossain*, Md. Sakib Biswas, Sophia V. Adeyeye, Monica M. Danquah, Margaret Sraku-Lartey, Berthilde Uwamwezi, Corinne Hertel

DOI: <https://doi.org/10.47989/ir31348430>

Abstract

Introduction. As artificial intelligence (AI) reshapes global education and information systems, Africa's readiness remains uneven. This study examines AI-literacy among Library and Information Science (LIS) students—future librarians—across five African countries: Ghana, Nigeria, Rwanda, South Africa and Uganda. It assesses their technical proficiency, tool usage and ethical awareness in an AI-driven era.

Method and analysis. A quantitative survey was conducted with 437 LIS students from five African countries. The Games-Howell Post Hoc Test was used to compare AI literacy across countries. ANOVA and Multinomial Logistic Regression (MLR) were applied to analyse variations in AI literacy levels based on country, study level, gender and English proficiency.

Results. The findings reveal significant disparities in AI literacy between the five African nations. The results of the Games-Howell post hoc test show that both Rwanda and Uganda have significantly higher mean AI literacy scores compared to Ghana and Nigeria. In contrast, South Africa's scores did not show a statistically significant difference from the other countries, highlighting the varied readiness levels. The study found that ChatGPT dominates usage at 71.9%, while specialised tools such as Elicit remain significantly underutilised at just 4.6%. Ethical concerns among students are also notable, with 39.6% citing worries about privacy risks and 33.2% being troubled about algorithmic bias, highlighting AI anxieties and its societal impact.

Conclusion. This study calls for integrating AI literacy into LIS curricula and advocating for multilingual AI tools. Where new modules are not feasible, institutions can leverage existing courses such as Information Retrieval, Digital Libraries and Research Methods to embed AI content. The results emphasise that context-driven interventions are essential to ensure AI enhances equitable knowledge access rather than deepening existing disparities.

Introduction

Artificial Intelligence (AI) has emerged as a transformative force across industries, reshaping how tasks are performed and decisions are made. With its potential to revolutionise education, information management and other critical sectors, AI has become indispensable in today's digital era (Okojie & Awoyemi, 2024; Pedro et al., 2019). As Generative AI (GenAI) proliferates within academic and professional environments, it has become a core technological asset (Lee et al., 2025). GenAI, epitomised by tools like ChatGPT, DeepSeek and Gemini, has amplified discussions around AI's applications and ethical implications. These developments underscore the need for a new literacy—AI literacy—the ability to critically evaluate, understand and utilise AI technologies effectively and ethically (Hossain, 2023; Long & Magerko, 2020).

In the global context, AI literacy is increasingly recognised as a crucial competency for individuals navigating the digital landscape. In particular, Library and Information Science (LIS) professionals require a strong grasp of AI to remain relevant and effective in an evolving technological environment (Ajakaye, 2022). Despite significant advancements in AI integration in developed nations, many African countries face challenges in developing and adopting AI technologies due to expertise shortages, infrastructure limitations, limited power supply, financial constraints and employment concerns (Ajani et al., 2022; Centre for Intellectual Property and Information Technology Law, 2023; Zondi et al., 2024). This study aims to explore AI literacy among LIS students—the professionals of the future—in the selected African countries, focusing on their AI understanding, challenges and ethical considerations related to AI tools and AI engagement.

Research Rationale

AI is increasingly reshaping information systems, digital literacy and library services worldwide. In education and libraries, AI-powered tools are transforming information access, retrieval and learning practices, particularly in advanced economies (Appleton, 2024; Ta & West, 2023). At the same time, the rapid diffusion of AI raises concerns related to ethics, misinformation, privacy and the digital divide—issues central to information research and policy.

In African higher education, these challenges are compounded by structural constraints. Studies from Nigeria indicate that AI adoption in LIS education is limited by inadequate funding, weak infrastructure and low levels of AI competency among educators (Adeleke et al., 2024; Fasola, 2024; Oyetola et al., 2024). Research from South Africa shows that although librarians demonstrate strong general computer literacy, limited exposure to AI training restricts their engagement with emerging AI-driven information services (Molaudzi & Ngulube, 2025). Similarly, Chigwada and Pasipamire (2024) observed that LIS students in Zimbabwe actively use GenAI tools such as ChatGPT but face persistent challenges related to misinformation and ethical misuse. These findings point to persistent gaps in AI literacy within the LIS profession in Africa.

Recent studies from developing contexts illustrate similar challenges. A survey of 632 LIS students in Bangladesh, India, and Pakistan found moderate familiarity with AI tools, primarily used for academic purposes such as research and writing. While students' self-reported AI literacy ranged from basic to advanced, significant ethical concerns—particularly around plagiarism and academic integrity—were reported, highlighting gaps in critical and ethical engagement with AI (Hossain et al., 2025).

Despite these insights, there remains a limited empirical understanding of AI literacy among LIS students across African countries, particularly in terms of cross-national variation, demographic influences, patterns of AI tool usage, and associated ethical concerns. Addressing these gaps is critical, as LIS students represent the future workforce responsible for implementing and governing AI-enabled library services. Accordingly, this study investigates AI literacy among LIS students in five African countries, focusing on: (1) the overall levels and cross-country variations of

AI literacy, (2) the influence of demographic factors on AI literacy, (3) the types of AI tools students use and their purposes, and (4) the ethical concerns associated with AI adoption. By examining these dimensions, the study aims to assess LIS students' preparedness for an AI-driven professional environment and to inform curriculum development, professional training, and policy interventions within LIS education in Africa.

Study objectives

The objectives of the study were designed to provide insights into the current state of AI literacy among African LIS students from Ghana, Nigeria, Rwanda, South Africa and Uganda, and the role AI tools play in their education, informing the development of tailored strategies for enhancing AI integration into LIS curricula and professional development programmes. The specific objectives are:

1. *To explore the level of AI literacy among African Library and Information Science (LIS) students*, including their familiarity with AI concepts, understanding of AI technologies and proficiency in using AI tools. This objective identifies gaps in technical competencies and informs targeted interventions for LIS education.
2. *To investigate the types of AI tools and applications utilised by LIS students*, analysing their purposes (e.g. research, content generation), frequency of use and perceived challenges. This objective seeks to map trends in AI adoption and highlight barriers to effective tool integration.
3. *To examine LIS students' perspectives on ethical AI use*, including their awareness of ethical concerns (e.g. privacy, bias, misinformation), perceptions of AI's societal impact, and preparedness to address ethical dilemmas in future professional practice. This objective evaluates how ethical reasoning shapes AI engagement and its implications for curriculum design.

Literature review

AI Literacy and AI citizenship

AI literacy has become an essential competency for navigating an increasingly digital world, encompassing more than just the ability to understand and use AI technologies. The concept of AI literacy is relatively new and is often viewed as an advanced form of digital literacy (Yang, 2022). In its basic definition, AI literacy is the ability to understand, interact with, and critically evaluate AI systems and AI outputs. Hossain et al. (2025) conceptualise AI literacy as a multidimensional construct comprising students' familiarity with AI, their knowledge of its applications, and their ethical perceptions of its use. These three dimensions collectively provide a comprehensive measure of students' AI literacy levels (p. 3).

While AI literacy is often situated within the broader umbrella of digital literacy, it is conceptually distinct. Digital literacy generally refers to skills in navigating, evaluating and producing information in digital environments (Law et al., 2018; Lee, 2014). In contrast, AI literacy emphasises competencies related specifically to artificial intelligence technologies, including an understanding of how AI systems function, how to apply AI tools, and how to critically evaluate their outcomes (Long & Magerko, 2020). UNESCO (2022) defines AI literacy as equipping individuals with "the skills, knowledge, and ethical understanding necessary to navigate the complexities of AI technology". Correspondingly, the World Economic Forum (2024) emphasises the essentials of AI literacy in preparing learners to "responsibly use emerging technology for the good of society."

From a legal perspective, the EU AI Act defines AI literacy as the "skills, knowledge, and understanding that allow providers, deployers and affected persons ... to make an informed deployment of AI systems [and] gain awareness about the opportunities and risks of AI" (European

Union “Article 3: Definitions”, 2024). Beyond technical proficiency, AI literacy fosters critical thinking and a deeper understanding of AI’s broader social, cultural and political implications, as its increasing pervasiveness continues to shape societal interactions, governance and cultural landscapes (McKee, 2024). Similarly, Ng et al. (2024) advanced the ABCE model, which organises AI literacy into affective (motivation, self-efficacy), behavioral (engagement, collaboration), cognitive (knowledge, evaluation, creation), and ethical dimensions. These perspectives demonstrate that AI literacy goes beyond technical proficiency to include critical awareness and ethical reflection, which are especially salient for LIS education.

Building on this, Hossain (2024) introduces the concept of AI citizenship as a complement to AI literacy. While AI literacy focuses on understanding and engaging with AI technologies, AI citizenship emphasises informed and ethical participation in an AI-driven society. According to Hossain, AI citizens are expected not only to use AI responsibly but also to understand their rights, advocate for transparency and contribute to public debates on fairness and accountability. This framing highlights the civic responsibilities of future librarians, positioning them as both competent users and ethical stewards of AI in their professional environments.

Status of AI adoption in Africa

AI adoption in Africa presents both opportunities and challenges, particularly in education, where it has the potential to enhance learning outcomes while also requiring careful governance and policy frameworks. The UNESCO-Eastern Africa Sub-Regional Forum on Artificial Intelligence (EARFAI) Report 2024 highlights the need for AI literacy, inclusive education and ethical AI integration across the continent. Key recommendations include: i) implementing AI literacy programmes to equip students, teachers and the public with foundational AI knowledge and critical thinking skills; ii) promoting AI competency frameworks for students and teachers to ensure ethical and responsible AI usage; iii) providing AI training programmes specifically targeting youth, women, people with disabilities, and marginalised groups to reduce digital inequalities. The report further calls for AI policies in education, enhanced digital equity and the establishment of AI research hubs to foster responsible AI adoption in African educational institutions.

The African Union’s (2024) AI Strategy prioritises embedding AI literacy into education systems, training teachers in ethical AI use and ensuring inclusive access for marginalised groups. Furthermore, the document promotes the development of multilingual AI tools, research centers and ethical frameworks aligned with UNESCO guidelines (UNESCO EARFAI, 2024). Governments must fund infrastructure and partnerships to equip youth for an AI-driven future under Agenda 2063 and the Sustainable Development Goals (SDGs) (African Union, 2013). A case study by Nyakundi et al. (2024) underscores AI’s dual role in Africa: as a tool for educational transformation and a challenge requiring strong governance, ethical safeguards and inclusive policies. The study also advocates for integrating AI education into curricula and providing specialised AI training for educators to facilitate adoption. Additionally, it stresses the importance of transparent and fair AI regulations to address issues of bias, accountability and student data privacy.

Despite its potential to drive economic growth and educational advancements, AI adoption in Africa remains limited. Many countries lack the essential infrastructure and policy frameworks needed for their effective deployment (Nyakundi et al., 2024). In the higher education sector, AI implementation reflects a complex balance between potential benefits and persistent structural challenges, requiring strategic investment and policy interventions to maximise its impact.

As Africa advances in AI-driven education, the continent needs to adopt a context-specific approach that aligns with its educational values and priorities (Nyakundi et al., 2024). While global practices offer insights, AI adoption should be tailored to Africa’s unique needs, ensuring equitable access, ethical integration and meaningful innovation. Libraries and librarians play a critical role in promoting AI literacy by curating resources, facilitating digital training and supporting AI

research (Cox, 2023a; Hossain et al., 2025). As knowledge hubs, they can bridge the AI literacy gap, equipping students and educators with essential skills for responsible AI engagement. Through advocacy and training, librarians can help ensure AI supports education, knowledge equity and lifelong learning in Africa.

AI adoption in Libraries and librarianship in Africa: opportunities, challenges and ethical complexities

In an evolving information landscape marked by the ascendancy of AI technologies, libraries worldwide are strategically pivoting to cultivate AI literacy as a core competency (Chun Ru & Tang, 2025). The integration of AI into libraries and librarianship has evolved significantly since its nascent applications in the 1970s (Weinryb-Grohsgal, 2020). While early AI adoption focused on automating routine tasks, contemporary GenAI tools—such as SciSpace, Elicit and ResearchRabbit—now facilitate advanced literature searches, summarisation and analysis, demonstrating the transformative potential for library workflows (Cox, 2023a, 2023b). However, the rapid proliferation of these technologies has exposed systemic competency gaps among LIS professionals, particularly in resource-constrained African contexts (Nyakundi et al., 2024). These gaps underscore the urgent need for structured AI literacy programmes that address both technical proficiency and ethical dilemmas, such as algorithmic bias and data privacy (Cox, 2023b; Ibrahim, 2025).

In Sub-Saharan Africa, studies highlight AI's dual role as a catalyst for efficiency and a source of institutional tension. For instance, Echedom and Okuonghae (2021) emphasise AI's capacity to enhance library services through natural language processing and machine learning, positioning it as indispensable for navigating the Fourth Industrial Revolution. Similarly, Zondi et al. (2024) and Molaudzi and Marutha (2025) document AI-driven improvements in operational efficiency and service personalisation in South African academic libraries, though infrastructural constraints and staff readiness remain critical barriers. In Zambia, Alam et al. (2024) report librarians' strong foundational understanding of AI but note persistent challenges, including resistance to technological change, budgetary limitations and the need for advanced expertise.

The ethical implications of AI adoption loom large in African library contexts and Ibrahim (2025) calls it an 'ethical maze'. Studies from Nigeria and Zimbabwe reveal divergent attitudes: while AI tools like ChatGPT are increasingly used for content generation, concerns about misinformation, plagiarism and job displacement persist (Ajani et al., 2022; Chigwada & Pasipamire, 2024; Fasola, 2024). For example, Nigerian librarians acknowledge AI's potential to minimise human error in repetitive tasks but express scepticism about its threat to traditional library roles (Ajani et al., 2022). These findings align with broader calls for ethical frameworks to govern AI deployment, balancing innovation with accountability (Ibrahim, 2025; Zondi et al., 2024).

African librarians are increasingly positioned as advocates for responsible AI integration. Akakpo (2024) argues that librarians must lead AI literacy initiatives by developing guidelines for ethical GenAI use and integrating digital literacy into curricula. This aligns with Okojie and Awoyemi's (2024) emphasis on policy advocacy and the need for AI-literate professionals to drive sustainable adoption. Ibrahim (2025) further contends that libraries bear an ethical responsibility to ensure AI serves as a societal good, necessitating competencies in critical thinking and ethical reasoning among LIS practitioners.

Despite growing scholarship, few studies holistically examine AI literacy among LIS students—future library professionals—and to the best of our knowledge, no such study has been conducted in the African context. Existing research often isolates factors like tool usage or infrastructure, neglecting the interplay of familiarity, proficiency and ethical awareness. This study addresses this gap by analysing the current state of AI literacy among LIS students across five African nations,

offering actionable insights for curriculum development, policy formulation and ethical LIS education.

Research methodology

The study employs a quantitative research design with a purposive sampling strategy. It aims to target a diverse group of respondents enrolled in Library and Information Science (LIS) programmes across multiple academic institutions in Africa. Specifically, it focuses on participants from Ghana, Nigeria, Rwanda, South Africa and Uganda. The five countries were strategically selected to reflect diverse AI readiness levels (Oxford Insights, 2024; also see Table 1), regional representation, and socioeconomic contexts. Their inclusion enables a comparative analysis of how governance, infrastructure, and resource availability shape AI literacy. Additionally, prior research on African AI adoption has focused disproportionately on professionals in select nations (e.g., Nigeria, South Africa), leaving student perspectives and understudied regions like Ghana, Rwanda and Uganda overlooked. Collaborators in these countries, part of our professional network, facilitated access to participants and contextualised findings within local educational ecosystems.

Dimensions	Ghana	Nigeria	Rwanda	South Africa	Uganda
Vision	100	100	100	50	0
Governance and Ethics	61.73	69.8	75.62	80.71	50.93
Digital Capacity	42.67	32.37	60.11	51.04	45.31
Adaptability	33.71	37.35	50.03	35.46	46.03
Maturity	6.89	9.78	7.38	25.56	4.07
Innovation Capacity	43.55	44	46.13	53.68	36.2
Human Capital	25.6	27.56	37.37	38.22	26.41
Infrastructure	31.02	25.81	24.36	43.05	30.2
Data Availability	42.03	33.13	59.96	66.75	48.88
Data Representativeness	62.05	70.02	71.75	86.05	59.21
Overall Rank	95th	94th	78th	72nd	141st

Source: Oxford Insights (2024) <https://oxfordinsights.com/ai-readiness/ai-readiness-index/>

Table 1. Ghana, Nigeria, Rwanda, South Africa and Uganda in the Oxford Insights AI Readiness Index 2024. (n = 188 countries).

To address the research objectives, data were collected through an online survey distributed to LIS students at varying academic levels. The survey instrument, created using Google Forms, was structured in five distinct sections: (1) Demographic Information, (2) AI Familiarity, (3) AI Applications, (4) AI and Ethical Concerns, and (5) AI in LIS Education and the Profession. A combination of question types—checkboxes, Likert scales, multiple-choice questions and multiple-choice grid-style questions—was employed to capture detailed and nuanced responses. To guide survey design, we adopted Hossain's (2023) definition of AI literacy as 'the ability to identify, understand, develop ideas, and critically evaluate AI technologies, their applications, and ethical implications' (p. 1), while also aligning these points with multidimensional frameworks outlined by Biagini et al. (2024), Ng et al. (2024) and Zhang (2025). Additionally, the survey explored

multiple dimensions of AI literacy, including the LIS context, using a framework of AI components and their corresponding detailed breakdown, as summarised in Table 2 below.

AI components	Detailed breakdown
Familiarity	AI awareness, recognition, and usage experience
Knowledge & Application	Conceptual and technical AI knowledge and understanding
Ethical perceptions	Challenges and impacts of AI in academia and the LIS profession

Table 2. Components of AI Literacy with Detailed Breakdown.

To ensure conceptual clarity, the survey instrument was structured around established AI literacy frameworks. Items were developed to capture three dimensions: (1) technical and conceptual knowledge, (2) usage and application, and (3) ethical and critical awareness. This operationalisation drew from Biagini et al.'s (2024) four-dimensional model of AI literacy—knowledge-related, operational, critical and ethical—as well as Ng et al.'s (2024) ABCE model, which emphasises affective, behavioral, cognitive and ethical domains. Adapting these frameworks for LIS students ensured the survey instrument captured both practical skills and the critical-ethical competencies required in librarianship.

Sampling and recruitment

Purposive sampling was employed to recruit a diverse cohort of respondents from LIS programmes across academic institutions in Ghana, Nigeria, Rwanda, South Africa and Uganda. While purposive sampling does not ensure random selection, it is suitable for targeting specific populations (Etikan et al., 2016), in this case, LIS students, to explore their AI literacy.

Recruitment challenges were experienced in South Africa owing to logistical issues, including limited institutional access and lower response rates. The questionnaire was administered between March and April 2024 via student email lists and university class groups on social media platforms such as Facebook and WhatsApp Groups. The survey was also distributed to various LIS institutions through personal and professional networks, and the authors directly contacted LIS faculty members at multiple universities via their official websites. The sample included students from both public and private universities, representing different levels of LIS education, ensuring a well-rounded and diverse dataset.

The survey yielded 437 responses, 220 from Ghana, 131 from Nigeria, 23 from Rwanda, 53 from South Africa and 10 from Uganda. A detailed demographic breakdown is provided in Table 3. The gathered responses were analysed using statistical analysis tools, such as SPSS and Google Sheets. Descriptive statistics were carried out to show the variability. To analyse AI literacy differences based on country, study level, gender, and English proficiency, various statistical methods were used. The Games-Howell Post Hoc Test was chosen for cross-country comparisons due to unequal sample sizes and non-normal distributions (Alzubi, 2024; Choukou et al., 2024). Multinomial Logistic Regression (MLR) assessed how these variables influenced AI literacy levels (Basic, Intermediate, Advanced, Expert), by estimating the probability of individuals belonging to each category.

This study adhered to ethical guidelines ensuring anonymity, confidentiality and voluntary participation. Informed consent was obtained, and participants were clearly informed of the study's purpose, data usage and privacy. The research complies with relevant institutional ethical standards and ethical principles governing studies involving human subjects.

This study has several methodological limitations. It relied on self-reported data and a purposive, voluntary sample, which might introduce bias and limit representativeness, as more digitally engaged professionals may have been overrepresented. The questionnaire was distributed across all universities in the participating countries offering LIS or similar degrees, rather than to a targeted set of institutions, which may also have affected the balance of responses. These factors should be considered when interpreting the findings.

Research

Participants' sociodemographic profiles

The sociodemographic data are the critical part of the study and are presented in Table 3. The responses were collected based on five variables, namely country, university type, gender identity, current study level and English Language Competency (ELC). In terms of participation by country, Ghana topped the list, followed by Nigeria, South Africa, Rwanda and Uganda. Most of the respondents (65%) are enrolled in public universities (state or provincial government-funded) with a near-equal gender distribution and different study levels, with the majority being undergraduate students (72.3%).

Variables	Categories	Frequency (<i>n</i>)	Percentage (%)
Country	Ghana	220	50.3
	Nigeria	131	30.0
	Rwanda	23	5.3
	South Africa	53	12.1
	Uganda	10	2.3
University Type	Public (State or provincial govt. funded)	284	65.0
	Private	149	34.1
	International/Foreign (Offshore campus)	4	0.9
Gender Identity	Male	215	49.2
	Female	222	50.8
Current Study Level	Bachelor	316	72.3
	Post Graduate Diploma (PGD)	41	9.4
	Graduate (Master's or equivalent)	57	13.0
	Graduate student (PhD or equivalent)	23	5.3
English Language Competency	Beginner (A1-A2)	32	7.3
	Intermediate (B1)	141	32.3
	Upper-Intermediate (B2)	140	32.0
	Advanced (C1-C2)	110	25.2
	Near-native	14	3.2

Table 3. Sociodemographic Status of the Respondents (*n* = 437)

Participants' English competency was important in this research, as proficiency is indispensable for navigating the predominantly English-language AI tool ecosystem in order to facilitate self-directed learning and crafting precise, effective prompts. Most respondents self-rated their ELC ranges between 'Intermediate (B1) and Upper Intermediate (B2) levels.

AI literacy of LIS students

To determine the AI literacy levels of LIS students by country, the study utilised a self-reported assessment, allowing participants to situate themselves on a continuum from 'No Experience' to 'Expert' in AI. Not only are Uganda's participant numbers the lowest of the participating countries, but they also have less AI literacy at this time, as indicated by the ranking in AI capacity in the 'Government AI Readiness Index 2024 from Oxford Insights', as shown in Table 1.

The findings of this study reveal a nuanced picture of AI literacy. While Ghana tops the list in terms of the percentage of LIS students who self-describe their AI literacy at the 'Advanced' or 'Expert' levels (as shown in Figure 1), the overall mean AI literacy scores, as presented in Table 5, show a different ranking. Uganda ($\bar{x}$ 3.5) and Rwanda ($\bar{x}$ 3.2) demonstrate higher mean scores, followed by South Africa ($\bar{x}$ 2.7), Ghana ($\bar{x}$ 2.5) and Nigeria ($\bar{x}$ 2.3). This suggests a possible disconnect between self-perception and actual competency, which is a subject for further research.

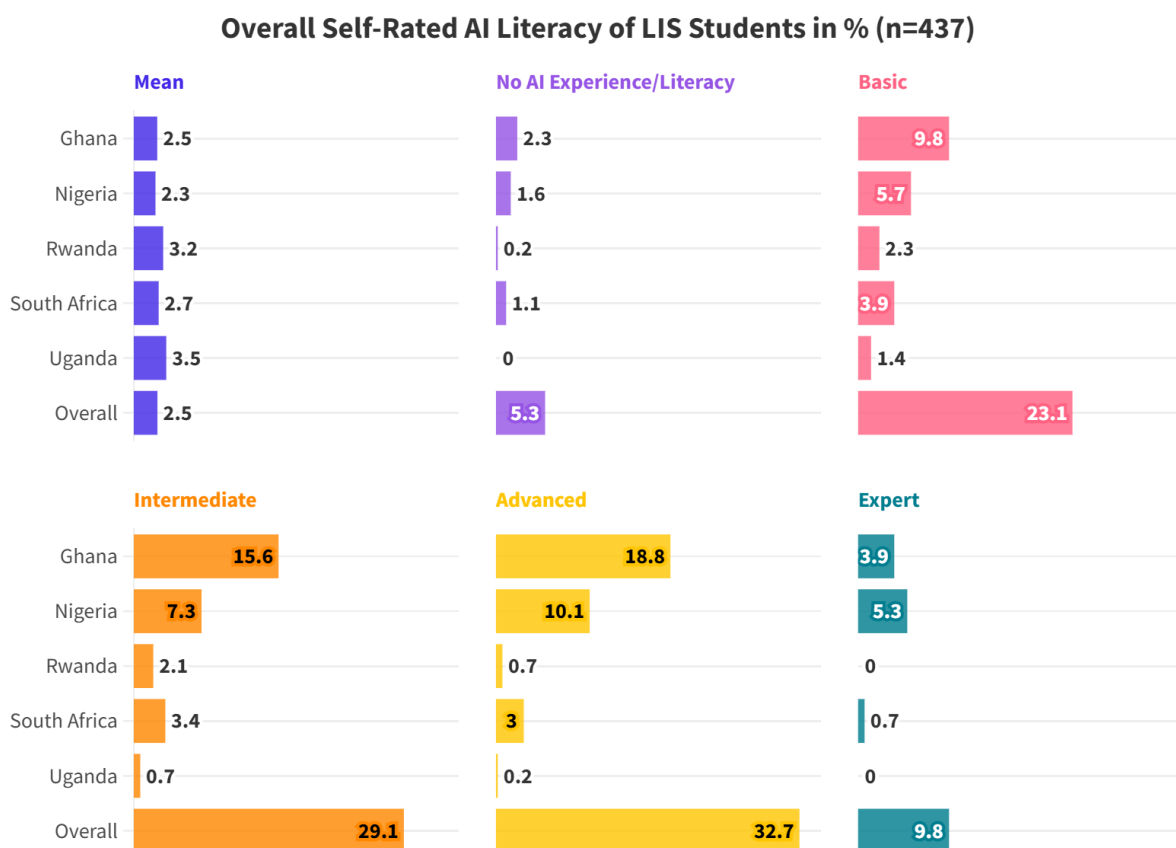


Figure 1. Self-rated AI literacy of LIS students by country (n = 437).

Table 4 shows the results of one-way ANOVA revealing significant AI literacy differences among the five participating countries ($F = 5.196, p < 0.001, \eta^2 = 0.046$) and respondents' gender ($F = 10.497, p = 0.001, \eta^2 = 0.024$) and ELC ($F = 9.583, p < 0.001, \eta^2 = 0.082$), whereas the results also reveal no significant differences based on respondents' university type ($F = 1.835, p = 0.161, \eta^2 = 0.008$) and/or level of study ($F = 1.234, p = 0.297, \eta^2 = 0.008$). The effect size (η^2) indicates that ELC has the strongest influence among the significant variables. Based on the results, it is observed that demographic variables such as country, gender and ELC play crucial roles in AI literacy differences, while university and study level have limited influences.

Variable	df	SS	MS	<i>F</i>	Sig.	η^2
Country	4	24.521	6.130	5.196	0.000	0.046
University	2	4.479	2.239	1.835	0.161	0.008
Gender	1	12.587	12.587	10.497	0.001	0.024
Level of Study	3	4.529	1.510	1.234	0.297	0.008
ELC	4	43.538	10.885	9.583	0.000	0.082

Note: SS = Sum of Square; MS = Mean Square; η^2 = Eta squared

Table 4. One-way ANOVA of AI literacy differences based on country, university, gender, level of study and ELC ($n = 437$).

Further analysis (as shown in Table 5) was carried out using the Games-Howell post hoc test of pairwise comparisons for AI literacy across participating countries. The analysis, which includes mean differences, standard errors, significance levels and 95% confidence intervals, reveals statistically significant disparities at the $\alpha = 0.05$ level. Specifically, Ghana and Nigeria demonstrated significantly lower mean AI literacy scores compared to Rwanda and Uganda. Comparatively, Ghana exhibited a significantly lower mean score than Rwanda ($M = -0.642, p = 0.045$) and Uganda ($M = -0.968, p = 0.012$). Similarly, Nigeria's mean score was significantly lower than Rwanda's ($M = -0.830, p = 0.008$) and Uganda's ($M = -1.156, p = 0.003$).

In contrast, pairwise comparisons (see Table 5) involving South Africa did not yield statistically significant differences at the $\alpha = 0.05$ level, indicating that South Africa's AI literacy scores were not significantly different from those of the other countries examined. These findings underscore significant inter-country variations in AI literacy, suggesting a requirement for targeted educational and developmental initiatives to address observed disparities and enhance digital competence, particularly in Ghana and Nigeria.

Multiple Comparisons						
Dependent Variable: AI Literacy Games-Howell						
(I) Country	(J) Country	Mean Difference (I-J)	Std. Error	Sig.	95% Confidence Interval	
					Lower Bound	Upper Bound
Ghana (220)	Nigeria (131)	0.188	0.121	0.529	-0.14	0.52
	Rwanda (23)	-0.642*	0.217	0.045	-1.27	-0.01
	South Africa (53)	-0.147	0.186	0.931	-0.67	0.37
	Uganda (10)	-0.968*	0.234	0.012	-1.73	-0.21
Nigeria (131)	Ghana (220)	-0.188	0.121	0.529	-0.52	0.14
	Rwanda (23)	-0.830*	0.228	0.008	-1.49	-0.17
	South Africa (53)	-0.336	0.199	0.445	-0.89	0.22
	Uganda (10)	-1.156*	0.245	0.003	-1.93	-0.38
Rwanda (23)	Ghana (220)	0.642*	0.217	0.045	0.01	1.27
	Nigeria (131)	0.830*	0.228	0.008	0.17	1.49
	South Africa (53)	0.495	0.268	0.358	-0.26	1.25
	Uganda (10)	-0.326	0.303	0.818	-1.22	0.57
South Africa (53)	Ghana (220)	0.147	0.186	0.931	-0.37	0.67
	Nigeria (131)	0.336	0.199	0.445	-0.22	0.89
	Rwanda (23)	-0.495	0.268	0.358	-1.25	0.26
	Uganda (10)	-0.821	0.282	0.057	-1.66	0.02
Uganda (10)	Ghana (220)	0.968*	0.234	0.012	0.21	1.73
	Nigeria (131)	1.156*	0.245	0.003	0.38	1.93
	Rwanda (23)	0.326	0.303	0.818	-0.57	1.22
	South Africa (53)	0.821	0.282	0.057	-0.02	1.66

* The mean difference is significant at the 0.05 level.

Table 5. Pairwise Comparisons of AI Literacy among Different Countries Using Games Howell Post Hoc Test (n = 437).

Table 6 presents a multinomial logistic regression analysis examining factors influencing AI literacy levels, with "No Experience" as the reference category. Key findings indicate that country and university enrollment significantly impact AI literacy at the Expert level ($p = 0.042$ and $p = 0.006$, respectively), with university attendance greatly increasing the likelihood of expert-level proficiency (Exp (B) = 4.564). For Advanced AI literacy, country ($p = 0.017$) has a negative association, while ELC is a strong positive predictor ($p < 0.001$, Exp(B) = 2.552).

Similarly, ELC remains a significant factor at the Intermediate level ($p = 0.026$, $\text{Exp}(B) = 2.051$), whereas country, university, gender and level of study show no significant effects. At the Basic literacy level, no variables reach statistical significance, though ELC ($p = 0.063$) shows a potential positive influence. Overall, these findings emphasise the role of national context, university education and language proficiency in shaping AI literacy levels, while gender and level of study appear to have limited effects.

		Parameter Estimates					
AI Literacy ^a		B	Std. Error	Sig.	Exp(B)	95% Confidence Interval for Exp(B)	
						Lower Bound	Upper Bound
Expert	Intercept	-0.826	1.386	0.551			
	Country	-0.587	0.289	0.042	0.556	0.315	0.979
	University	1.518	0.576	0.008	4.564	1.476	14.110
	Gender	-0.458	0.534	0.392	0.633	0.222	1.803
	Level of Study	-0.013	0.273	0.963	0.987	0.578	1.686
	ELC	0.412	0.293	0.160	1.509	0.850	2.681
Advanced	Intercept	0.196	1.229	0.873			
	Country	-0.525	0.219	0.017	0.592	0.385	0.909
	University	0.684	0.514	0.183	1.982	0.724	5.426
	Gender	-0.212	0.464	0.648	0.809	0.326	2.009
	Level of Study	-0.351	0.251	0.161	0.704	0.431	1.150
	ELC	0.937	0.263	0.000	2.552	1.524	4.274
Intermediate	Intercept	0.062	1.231	0.960			
	Country	-0.190	0.206	0.357	0.827	0.552	1.239
	University	0.123	0.509	0.809	1.131	0.417	3.068
	Gender	0.069	0.463	0.881	1.072	0.432	2.656
	Level of Study	-0.076	0.244	0.756	0.927	0.574	1.496
	ELC	0.718	0.262	0.006	2.051	1.227	3.428
Basic	Intercept	-0.504	1.265	0.690			
	Country	0.020	0.203	0.922	1.020	0.686	1.517
	University	-0.019	0.513	0.971	0.981	0.359	2.684
	Gender	0.690	0.475	0.147	1.993	0.785	5.059
	Level of Study	-0.287	0.259	0.268	0.751	0.452	1.247
	ELC	0.515	0.266	0.053	1.674	0.994	2.819

^a The reference category is: No Experience.

Table 6. Multinomial logistic regression ($n = 437$).

LIS students' use of AI tools and applications, their purposes and challenges

This study also aims to identify the specific AI tools and applications that LIS students find most beneficial for their studies and professional development. Additionally, it examines the barriers

they encounter when integrating AI technologies into their academic and anticipated professional work.

Table 7 delineates the distribution of AI tool utilisation among respondents, presenting both absolute user counts (*n*) and corresponding percentage distributions. ChatGPT exhibits the highest adoption rate with 39.6% of total AI tool usage, signifying its preeminent position. Google Bard (Gemini) and Bing demonstrate substantial usage, with 20.6% and 19.0% of respondents respectively employing these platforms. Quillbot, a tool designed for paraphrasing and writing assistance, is utilised in 28.6% of cases. Scholarcy and Perplexity AI show moderate usage, facilitating academic summarisation and information retrieval. Elicit and Sourcely exhibit lower adoption rates, indicating limited engagement. Notably, 39 respondents (4.9%) reported non-usage of AI tools, accounting for 8.9% of cases. Moreover, the respondents also use "Other AI tools" (1.6%), including Grammarly, Snapchat, Claude AI, Siri, Systran, Undetectable.ai, Consensus, AI Chat, Wordtune, Jenni AI, Question AI, etc.

AI Tools	Frequency (<i>n</i>)	Percentage (%)	% of Cases
Bing	83	10.5	19.0
ChatGPT	314	39.6	71.9
Elicit	20	2.5	4.6
Google Bard (Gemini)	90	11.4	20.6
Perplexity AI	42	5.3	9.6
Quillbot	125	15.8	28.6
Scholarcy	49	6.2	11.2
Sourcely	17	2.1	3.9
Other	13	1.6	3.0
I don't use AI	39	4.9	8.9

Table 7. Commonly used AI tools among LIS students (*n* = 437).

Table 8 analyses the purpose and frequency of AI usage among respondents, categorised into four levels: Never (1), Rarely (2), Occasionally (3) and Frequently (4), presenting mean values ($\bar{x}$) and standard deviations (σ). Information searching is the most frequent use ($\bar{x}=2.02$, $\sigma=0.858$), with 78.5% of respondents using AI at least occasionally. Understanding concepts ($\bar{x}=1.84$, $\sigma=0.894$) and answering questions ($\bar{x}=1.71$, $\sigma=0.913$) are also common. Generating research ideas ($\bar{x}=1.68$, $\sigma=0.921$) and finding related sources ($\bar{x}=1.72$, $\sigma=0.922$) show substantial engagement. Translation ($\bar{x}=1.37$, $\sigma=1.013$) and article summarisation ($\bar{x}=1.39$, $\sigma=0.974$) are less frequent, with more respondents selecting "Never" or "Rarely." Proofreading ($\bar{x}=1.54$, $\sigma=1.104$) and improving research productivity ($\bar{x}=1.58$, $\sigma=0.965$) are moderately used. Overall, AI is primarily used for retrieving and understanding information, while translation and summarisation are less common, highlighting varying adoption rates across different research tasks.

AI Usage	Never (<i>n</i> and %)	Rarely (<i>n</i> and %)	Occasionally (<i>n</i> and %)	Frequently (<i>n</i> and %)	$\bar{x}$ (σ)
Answering questions	50 (11.4)	112 (25.6)	188 (43.0)	87 (19.9)	1.71 (0.913)
Information searching	31 (7.1)	63 (14.4)	209 (47.8)	134 (30.7)	2.02 (0.858)
Finding related sources	52 (11.9)	109 (24.9)	187 (42.8)	89 (20.4)	1.72 (0.922)
Article/reading summariser	96 (22.0)	135 (30.9)	147 (33.6)	59 (13.5)	1.39 (0.974)
Understanding concepts	39 (8.9)	98 (22.4)	194 (44.4)	106 (24.3)	1.84 (0.894)
Generating (research) ideas	58 (13.3)	104 (23.8)	196 (44.9)	79 (18.1)	1.68 (0.921)
Improving research productivity	74 (16.9)	111 (25.4)	176 (40.3)	76 (17.4)	1.58 (0.965)
Translation	111 (25.4)	116 (26.5)	148 (33.9)	62 (14.2)	1.37 (1.013)
Proofreading (grammar or spelling)	87 (19.9)	111 (25.4)	156 (35.7)	83 (19.0)	1.54 (1.014)

Table 8. Purpose and frequency of AI usage (*n* = 437).

The key challenges faced by African LIS students in AI adoption revolve around ethical concerns, technical complexities and resource limitations as illustrated in Table 9. The most significant issue is understanding the ethical implications of AI application and usage in library services, with 14.5% of responses highlighting this concern, including privacy issues (7.4%). A lack of AI learning resources and limited exposure to real-world AI applications further hinder students' abilities to effectively engage with AI. Technical barriers, such as grasping AI concepts and understanding AI's mathematical foundations, add to the difficulty. Additionally, integrating AI into traditional library practices (9.8%) and interpreting AI-generated data for decision-making (9.2%) pose practical challenges. Furthermore, assessing AI's impact on user experience and managing AI-related ethical dilemmas indicates the need for structured AI ethics training.

Major challenges faced by LIS students	Frequency (<i>n</i>)	Percentage (%)	% of Cases
Grasping the technical concepts of AI algorithms	173	11.8	39.6
Understanding the ethical implications of AI in library and information services	212	14.5	48.5
Integrating AI technologies into traditional library practices	143	9.8	32.7
Lack of resources for learning about AI	202	13.8	46.2
Limited exposure to real-world AI applications in libraries	158	10.8	36.2
Difficulty in interpreting AI-generated data for decision-making	135	9.2	30.9
Assessing the impact of AI on user experience in library services	110	7.5	25.2
Addressing privacy concerns related to AI in libraries	108	7.4	24.7
Grasping the mathematical concepts behind AI algorithms	100	6.8	22.9
Managing AI-related ethical dilemmas in the library settings	124	8.5	28.4

Table 9. Major challenges faced by LIS Students (*n* = 437).

LIS students' ethical perspectives on AI use

An objective of this study was to examine LIS students' ethical perspectives on AI use, including their understanding of privacy, bias and misinformation concerns. Of surveyed LIS students (Figure 2), most (69.8%) expressed moderate to significant ethical concerns, with a notable minority reporting extreme apprehension. A small fraction noted minimal or no concerns. Results underscore a general recognition of AI-related ethical challenges among LIS students, with varying degrees of concern, thereby emphasising the necessity for the development and implementation of ethical frameworks and guidelines for the integration of AI in library service environments.

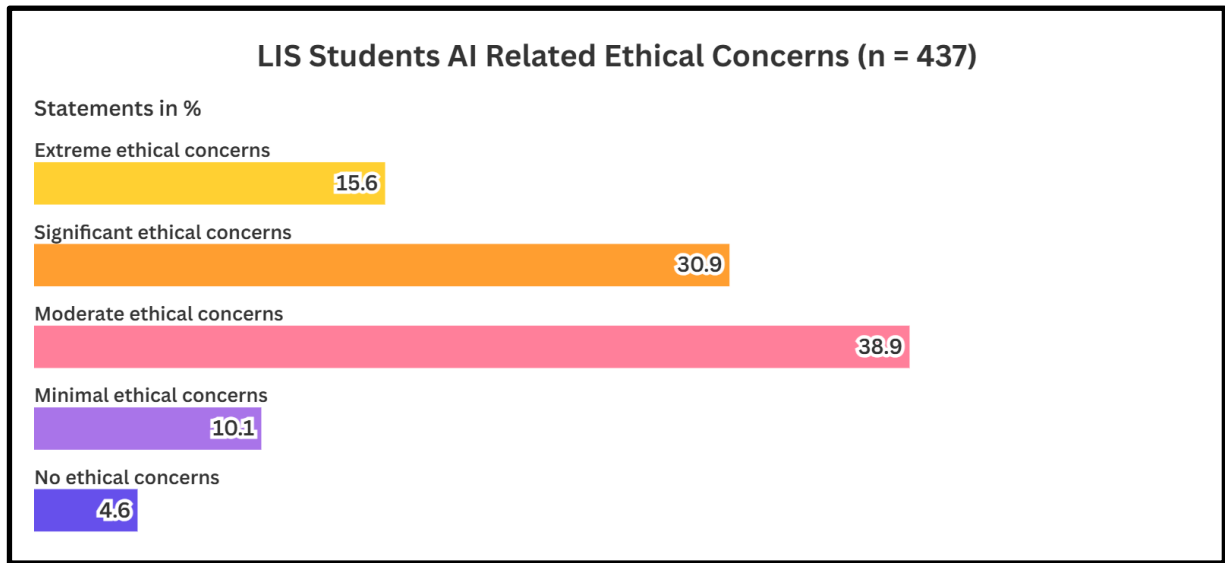


Figure 2. Lis students' AI-related ethical concerns (n=437)

The data presented in Table 10 highlight critical ethical concerns in implementing AI for library services, emphasising privacy, security and fairness. Key issues include risks to system security and patron data privacy, alongside ethical challenges in AI-driven personalised recommendations and algorithmic bias in information retrieval. Transparency of AI decisions, equitable access to information, ethical cataloguing practices and legal/copyright complexities further underscore the need for robust ethical frameworks to guide responsible AI adoption in libraries.

Ethical concerns	Frequency (n)	Percentage (%)	% of Cases
Privacy of patron data in AI-driven library services	173	14.5	39.6
Security risks associated with AI implementation in library systems	192	16.0	44.0
Ethical implications of using AI for personalised recommendation services in libraries	170	14.2	38.9
Bias and fairness in AI algorithms used for information retrieval	145	12.1	33.2
Transparency and explainability of AI-driven decision-making in library services	127	10.6	29.1
Impact of AI on information access and equity in library services	122	10.2	27.9
Ethical considerations in using AI for cataloguing and metadata management in libraries	107	8.9	24.5
Legal and ethical issues related to copyright and intellectual property in AI-enhanced library services	161	13.5	36.8

Table 10. LIS students' ethical concerns of AI integration in the LIS profession (n = 437)

Discussion

The findings of this study reveal critical insights into the state of AI literacy among LIS students in the five sub-Saharan African nations, contextualising earlier scholarly debates (Chigwada & Pasipamire, 2024) about AI adoption in libraries and its ethical, infrastructural and pedagogical challenges.

In relation to RQ1, which examined the levels and cross-country variations of AI literacy, the observed disparities across Ghana, Nigeria, Rwanda, South Africa and Uganda align with the Oxford Insights AI Readiness Index (2024), which highlights uneven digital capacities and governance frameworks in these nations. For instance, Rwanda's relatively higher AI literacy scores correlate with its stronger performance in governance and digital infrastructure, while Ghana's and Nigeria's lower scores mirror infrastructural and policy gaps (Oxford Insights, 2024). These variations underscore the need for context-specific interventions tailored to national AI readiness levels.

Findings related to RQ2, which explored the influence of demographic factors on AI literacy, further demonstrate that English language competency had the strongest effect ($\eta^2 = 0.082$), underscoring the linguistic barriers inherent in Africa's AI ecosystem, where most tools are designed for English-speaking users. This aligns with Nyakundi et al.'s (2024) call for localised AI solutions to bridge digital and linguistic inequities. Gender disparities in AI literacy ($\eta^2 = 0.024$) also persisted, echoing Fasola's (2024) findings in Nigeria, where sociocultural norms and access gaps disproportionately affect women's education and engagement with emerging technologies.

With respect to RQ3, which examined students' use of AI tools and the ethical concerns associated with their adoption, the prominence of ChatGPT as the most widely used AI tool (71.9% of participants) reflects global trends in GenAI adoption (Cox, 2023a; Hossain et al., 2025; Lee et al., 2025). However, the limited use of specialised tools like Elicit (4.6%) and Scholarcy (11.2%) suggests a reliance on general-purpose AI applications rather than domain- or function-specific solutions. There is also the possibility of subscription costs. This aligns with Chigwada and Pasipamire's (2024) findings in Zimbabwe, where LIS students gravitate toward accessible tools despite gaps in technical proficiency. The emphasis on AI for tasks such as information searching (47.8% usage) and question-answering (43.0%) mirrors Cox's (2023b) assertion that AI's value in libraries lies in augmenting, rather than replacing, human expertise.

Ethical concerns also emerged as a central theme under RQ3, with privacy (39.6%) and algorithmic bias (33.2%) ranking highest among participants. These findings resonate with Ibrahim's (2025) argument that AI adoption in African libraries represents an 'ethical maze', requiring nuanced governance to mitigate risks. The persistent anxiety about AI-driven job displacement, particularly in Nigeria (Ajani et al., 2022), further reflects broader institutional resistance documented by Molaudz and Marutha (2025) in South Africa. Such concerns highlight the tension between AI's operational benefits and its perceived threats to traditional LIS roles—a dichotomy requiring reconciliation through targeted advocacy and training (Okojie & Awoyemi, 2024).

Limitations of the study

The findings of this study need to be interpreted with caution in light of methodological constraints. First, the survey relied on self-reported measures of AI literacy, which are inherently subjective and may not accurately reflect actual competencies. Prior research has shown that self-assessments often misestimate knowledge and skills (Lintner, 2024; Zhang et al., 2025). Second, although 437 responses were collected across five countries, the purposive, voluntary sampling approach limits the generalisability of the findings. Students with limited internet access or lower exposure to AI tools may be underrepresented, potentially skewing results toward more digitally engaged participants. Third, the cross-sectional design provides only a snapshot in time and does not capture how AI literacy may evolve with continued exposure, training, or curricular reforms. Fourth, the relatively small samples from South Africa ($n = 53$) and Uganda ($n = 10$) constrain the generalisability of findings for those contexts and in relation to the other countries, which should therefore be interpreted cautiously and viewed as indicative rather than representative. Finally, the questionnaire was distributed broadly to all universities in the participating countries offering LIS or related degrees, rather than to a targeted set of institutions.

These limitations suggest that subsequent studies should address the methodological limitations identified in this research. Mixed-methods approaches—combining surveys with in-depth interviews or focus groups—could capture more nuanced insights into students’ ethical concerns and lived experiences with AI. Performance-based assessments, such as concept inventories or scenario-based tasks (Zhang et al., 2025), may complement self-reported data and provide more objective measures of competence. Longitudinal designs would also allow researchers to trace how AI literacy develops over time and in response to curricular reforms. Incorporating these approaches would align with recent calls for this in the AI literacy literature (e.g., Lintner, 2024; Zhang et al., 2025) and strengthen the evidence base for integrating AI literacy into LIS curricula. Importantly, these methodological considerations would strengthen the case for curricular reform: embedding project-based and experiential AI training in LIS education would not only help close the observed gap between conceptual knowledge and applied practice but would also provide more reliable, observable evidence of competencies for both researchers and educators.

Implications and recommendations

Given that LIS students represent future library professionals, their AI literacy levels have direct implications for the evolving role of librarianship in Africa and beyond. Libraries are increasingly incorporating AI technologies for cataloging, research support, and user services (Ibrahim, 2025; Molaudz & Marutha, 2025). However, the study suggests that current LIS training does not adequately prepare students for AI-integrated library environments. Without structured AI competency development, future LIS professionals may struggle to leverage AI’s full potential in transforming library services. To bridge this gap, LIS programmes must embed practical AI training into curricula, ensuring that students graduate with the ability to critically engage with and implement AI solutions in professional settings. AI does not function in isolation but requires Human-Computer Interaction (HCI) to produce optimal outputs, for example, when engineering prompts. Thus, upskilling could serve to address current concerns around AI eliminating jobs (Cox, 2023b) as AI usage requires skilled knowledge workers who can support their communities to become more proficient with the new AI-driven systems.

Curriculum development and pedagogical reform

- **Integrate AI Literacy into LIS Curricula:** The integration of AI literacy into Library and Information Science (LIS) curricula is essential for preparing future professionals to operate effectively in an AI-driven environment. As recommended by Hossain et al. (2025), Mills et al. (2024), and UNESCO (2022), universities should develop structured modules that address AI fundamentals, tool applications, and ethical considerations. Where resources allow, these modules should include hands-on training with platforms (e.g., Elicit, SciSpace, LitMaps, ResearchRabbit) that support library workflows, knowledge discovery and research optimisation.
- **In contexts where introducing new modules is not feasible,** institutions can leverage existing resources by embedding AI content into established courses such as Information Retrieval, Digital Libraries, and Research Methods. Libraries can also integrate AI awareness into their ongoing digital literacy programmes, while IT and academic policies can be adapted to guide ethical AI use (Akakpo, 2024; Cox, 2023b). Complementary approaches, including short-term certification and professional workshops, can further strengthen both student and faculty competencies, ensuring that AI literacy development aligns with institutional capacity and existing pedagogical frameworks.
- **Contextualise Content:** Align AI education with local infrastructural realities. For instance, low-resource institutions could prioritise offline AI tools or collaborative platforms to mitigate connectivity challenges (Alam et al., 2024).
- **Ethics-Centric Training:** Embed ethical AI frameworks into coursework, using case studies from African contexts (e.g., data privacy in public and academic libraries) to foster critical thinking (Ibrahim, 2025).

Policy and institutional advocacy

- Develop National AI Literacy Strategies: Governments and LIS associations should adopt UNESCO-EARFAI's (2024) recommendations, establishing AI competency frameworks or AI Citizenship frameworks (Hossain, 2024) and funding regional research hubs (e.g., Kenya's CIPIT) to address skills gaps.
- Promote Multilingual AI Tools: Advocate for AI developers to localise interfaces and training datasets in African and some European languages, in particular French and Portuguese, in countries where these are official languages, reducing dependency on English proficiency (Nyakundi et al., 2024).
- Gender-Inclusive Programmes: Partner with organisations like the African Library and Information Association (AfLIA) to create scholarships and mentorship programmes for women in AI-driven LIS roles (Fasola, 2024).

Ethical governance and infrastructure investment

- Adopt Responsible AI Use Policies: Libraries should implement transparent AI governance frameworks, and with that perform bias audits, address data privacy protocols and ensure algorithmic accountability (Ibrahim, 2025).
- Leverage Open-Source Solutions: Prioritise cost-effective, open-source AI tools to circumvent budgetary constraints, as demonstrated in Zambia (Alam et al., 2024).

Conclusion

This study explored AI literacy among LIS students in selected African countries, examining their understanding, engagement with AI tools, and the ethical challenges associated with AI adoption. The findings reveal significant disparities in AI literacy, influenced by factors such as digital infrastructure, gender gaps, and linguistic development and diversity. While these LIS students demonstrate a growing interest in AI applications, their proficiency in critically assessing AI-generated content remains limited, raising concerns about misinformation, plagiarism and ethical AI use.

The study underscores the urgent need to prepare African LIS students for an AI-driven future—one where their roles as ethical stewards of information will hinge on technical proficiency, critical thinking, and advocacy. By aligning curricula with local circumstances, advocating for inclusive policies and focusing on ethical governance, stakeholders can transform current literacy gaps into opportunities for equitable innovation. As the African Union's (2024) AI Strategy emphasises, investing in LIS education today is not merely an academic imperative but a societal one, ensuring AI serves as a bridge—not a barrier—to Africa's knowledge-driven future.

Future research directions should include assessing the long-term impact of AI literacy interventions and identifying strategies to foster equitable AI engagement across diverse LIS communities in Africa. By prioritising AI education, ethical governance and professional capacity-building, LIS institutions can ensure that future librarians are prepared to navigate and lead in an evolving digital information landscape. Subsequent research should adopt complementary approaches, such as longitudinal designs, single-institution case studies, more balanced sample sizes, performance-based assessments, or mixed-methods designs, to provide a more comprehensive understanding of AI literacy among LIS students. Incorporating these approaches would align with recent calls for stronger methodology in the AI literacy literature (e.g., Lintner, 2024; Zhang et al., 2025) and strengthen the evidence base for integrating AI literacy into LIS curricula.

About the authors

Zakir Hossain* is a teacher-librarian and independent researcher with a strong interest in academic integrity and AI literacy. Born in Bangladesh, Zakir has lived and worked in

Vietnam, Saudi Arabia, Switzerland and the Netherlands. He is currently serving as Vice-President (Advocacy & Promotion) of IASL.

Md. Sakib Biswas is an Assistant Professor at the Institute of Information Sciences, Noakhali Science and Technology University, Bangladesh. His research interests include AI and information literacy, information behaviour and reading habits, with a focus on improving information practices in academic and social contexts.

Sophia V. Adeyeye is a Lecturer in Library, Archival and Information Science at Lead City University, Nigeria. She holds a PhD from the University of Ibadan and serves in various positions at IFLA, IASL and the Nigerian School Library Association. Her research interests include bibliotherapy, school library innovation, indigenous knowledge, research data management and LIS pedagogy.

Monica M. Danquah is a Senior Lecturer in the Department of Information Studies at the University of Ghana and Editor-in-Chief of the Ghana Library Journal. She serves as Public Relations Officer and Newsletter team member for AFLIA LETIS and is Chair of the IFLA Sub-Saharan Africa Regional Division Committee.

Berthilde Uwamwezi is an Academic and Digital Library Services Specialist at the University of Rwanda. She holds a PhD and has over 15 years of experience in LIS education, digital innovation, and open access, contributing to the advancement of academic libraries, research accessibility and global knowledge exchange.

Margaret Sraku-Lartey is a professional librarian from Ghana with over 40 years of experience in LIS and scientific communication. She holds a PhD in Geography and Rural Development, and advocates for the development of clear standards for managing indigenous knowledge systems.

Corinne Hertel is a LIS professional and library advocate with 25 years of experience, currently serving at the International School of Zug and Luzern, Switzerland. She is the IASL Regional Director for International Schools and the Group Lead for the Swiss Group of International Schools Librarians.

References

- Adeleke, A. A., Godwin, S. L., & Uthman, K. O. (2024). An assessment of the patterns and issues with AI development in university libraries in Nigeria. *FUGUS International Journal of Library and Information Science*, 1(1), 1-12. <https://doi.org/10.57233/fjilis.v1i1.01>
- African Union. (2013). *Agenda 2063: The Africa we want*. <https://au.int/en/agenda2063/overview> (Archived by the Internet Archive at <https://web.archive.org/web/20251222162801/https://au.int/en/agenda2063/overview>)
- African Union. (2024). *Continental Artificial Intelligence Strategy: Harnessing AI for Africa's Development and Prosperity*. https://au.int/sites/default/files/documents/44004-doc-EN-Continental_AI_Strategy_July_2024.pdf (Archived by the Internet Archive at https://web.archive.org/web/20251222162807/https://au.int/sites/default/files/documents/44004-doc-EN-Continental_AI_Strategy_July_2024.pdf)

- Ajakaye, J. E. (2022). Applications of artificial intelligence (AI) in libraries. In I. I. Ekoja, E. F. Ogbomo & O. Okuonghae (Eds.), *Handbook of research on emerging trends and technologies in librarianship* (pp. 73-90). IGI Global. <https://doi.org/10.4018/978-1-7998-9094-2.ch006>
- Ajani, Y. A., Tella, A., Salawu, K. Y., & Abdullahi, F. (2022). Perspectives of Librarians on Awareness and Readiness of Academic Libraries to Integrate Artificial Intelligence for Library Operations and Services in Nigeria. *Internet Reference Services Quarterly*, 26(4), 213-230. <https://doi.org/10.1080/10875301.2022.2086196>
- Akakpo, M. G. (2024). Skilled for the future: information literacy for AI use by university students in Africa and the role of librarians. *Internet Reference Services Quarterly*, 28(1), 19-26. <https://doi.org/10.1080/10875301.2023.2280566>
- 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), 20220166. <https://doi.org/10.1515/opis-2022-0166>
- Alzubi, A.A.F. (2024). Generative Artificial Intelligence in the EFL Writing Context: Students' Literacy in Perspective. *Qubahan Academic Journal*, 4(2), 59-69. <https://doi.org/10.48161/qaj.v4n2a506>
- Appleton, L. (2024). AI and academic libraries: what's all the fuss about?. *New Review of Academic Librarianship*, 30(1), 1-3. <https://doi.org/10.1080/13614533.2024.2356474>
- Artificial Intelligence Act (2024) (EU AI Act). <https://eur-lex.europa.eu/eli/reg/2024/1689/oj> (Archived by the Internet Archive at <https://web.archive.org/web/20251222163348/https://eur-lex.europa.eu/eli/reg/2024/1689/oj>)
- Biagini, G., Cuomo, S., & Ranieri, M. (2024). Developing and validating a multidimensional AI literacy questionnaire: Operationalizing AI literacy for higher education. *CEUR Workshop Proceedings*, 3605, 1-15. <https://flore.unifi.it/handle/2158/1349235> (Archived by the Internet Archive at <https://web.archive.org/web/20251222164045/https://flore.unifi.it/handle/2158/1349235>)
- Chigwada, J., & Pasipamire, N. (2024). Perception and Use of Large Language Models by Library and Information Science Students. *International Journal of Librarianship*, 9(3), 75-89. <https://doi.org/10.23974/ijol.2024.vol9.3.385>
- Choukou, M.A., Alkhamis, M.A., Syed-Abdul, S., Alshawaf, H. & Alfadhli, S. (2024). Perspectives on the use of artificial intelligence: an online survey of health sciences students and faculty members. *Health and Technology*, 1-13. <https://doi.org/10.1007/s12553-024-00908-w>
- Chun Ru, K., & Tang, R. (2025). Promoting AI literacy through U.S. academic libraries: an analysis of LibGuides from ARL and Oberlin group libraries using the EDUCAUSE AI literacy framework. *Information Research an International Electronic Journal*, 30(iConf), 847-865. <https://doi.org/10.47989/ir30iConf47182>
- Cox, A. (2023a). *Developing a library strategic response to artificial intelligence*. IFLA. <https://www.ifla.org/developing-a-library-strategic-response-to-artificial-intelligence/> (Archived by the Internet Archive at

<https://web.archive.org/web/20251222164557/https://www.ifla.org/developing-a-library-strategic-response-to-artificial-intelligence/>)

- Cox, A. (2023b). How artificial intelligence might change academic library work: Applying the competencies literature and the theory of the professions. *Journal of the Association for Information Science and Technology*, 74(3), 367–380. <https://doi.org/10.1002/asi.24635>
- 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>
- Etikan, I., Musa, S. A., & Alkassim, R. S. (2016). Comparison of convenience sampling and purposive sampling. *American journal of theoretical and applied statistics*, 5(1), 1–4. <https://doi.org/10.11648/j.ajtas.20160501.11>
- Fasola, O. S. (2024). Awareness, perception and use of Artificial Intelligence tools by LIS educators in Nigerian Higher institutions. *Cybrarians Journal*, (72), 1–20. <https://doi.org/10.70000/cj.2024.72.591>
- Hossain, Z. (2023). Unlocking tomorrow's potential by integrating AI literacy into school curriculum: ICS initiatives and future directions. *Connections - The ICS School Magazine*, 2(33), 16–19. <https://resources.finalsite.net/images/v1762866020/icszurich/drnwx3m5ujjo57050tda/ConnectionsIssue33.pdf> (Archived by the Internet Archive at <https://web.archive.org/web/20251223022429/https://resources.finalsite.net/images/v1762866020/icszurich/drnwx3m5ujjo57050tda/ConnectionsIssue33.pdf>)
- Hossain, Z. (2024). School librarians developing AI literacy for an AI-driven future: leveraging the AI Citizenship Framework with scope and sequence. *Library Hi Tech News*, 42(2), 17–21. <https://doi.org/10.1108/LHTN-10-2024-0186>
- Hossain, Z., Biswas, M. S., & Khan, G. (2025). AI literacy of library and information science students: A study of Bangladesh, India and Pakistan. *Journal of Librarianship and Information Science*, 09610006241309323. <https://doi.org/10.1177/09610006241309323>
- Ibrahim, S. E. A. (2025). Lost in the algorithm: navigating the ethical maze of AI in libraries. *South African Journal of Libraries and Information Science*, 91(1), 1–11. <https://doi.org/10.7553/91-1-2477>
- Law, N., Woo, D., de la Torre, J., & Wong, G. (2018). A global framework of reference on digital literacy skills for indicator 4.4.2. UNESCO Institute for Statistics. <https://unesdoc.unesco.org/ark:/48223/pf0000265403> (Archived by the Internet Archive at <https://web.archive.org/web/20251222180628/https://unesdoc.unesco.org/ark:/48223/pf0000265403>)
- Lee, C. S., Tan, L. E., & Goh, D. H.-L. (2025). Examining generation Z's use of generative AI from an affordance-based approach. *Information Research an International Electronic Journal*, 30(iConf), 1095–1102. <https://doi.org/10.47989/ir30iConf47083>

- Lee, S. H. (2014). Digital literacy education for the development of digital literacy. *International Journal of Digital Literacy and Digital Competence (IJDLC)*, 5(3), 29-43.
<https://doi.org/10.4018/ijdlc.2014070103>
- Lintner, T. (2024). A systematic review of AI literacy scales. *npj Science of Learning*, 9(1), 50.
<https://doi.org/10.1038/s41539-024-00264-4>
- Long, D., & Magerko, B. (2020, April). What is AI literacy? Competencies and design considerations. In *Proceedings of the 2020 CHI conference on human factors in computing systems* (pp. 1-16). <https://doi.org/10.1145/3313831.3376727>
- McKee, A. (2024). Section 2.10: AI Literacy. Docmckee.com.
<https://docmckee.com/oer/encyclopedia-of-the-future/> (Archived by the Internet Archive at <https://web.archive.org/web/20251222175753/https://docmckee.com/oer/encyclopedia-of-the-future/>)
- Mills, K., Ruiz, P., Lee, K., Coenraad, M., Fusco, J., Roschelle, J. & Weisgrau, J. (2024). AI Literacy: A Framework to Understand, Evaluate, and Use Emerging Technology.
<https://doi.org/10.51388/20.500.12265/218>
- Molaudzi, A. I., & Marutha, N. (2025). Contributory factors to attitudes towards the adoption of artificial intelligence technology in public academic libraries in South Africa. *Information Development*, 41(3), 615-625. <https://doi.org/10.1177/02666669241304704>
- Molaudzi, A. I., & Ngulube, P. (2025). Use of artificial intelligence innovations in public academic libraries. *IFLA Journal*. <https://doi.org/10.1177/03400352241301780>
- Ng, D. T. K., Wu, W., Leung, J. K. L., Chiu, T. K. F., & Chu, S. K. W. (2024). Design and validation of the AI literacy questionnaire: The affective, behavioural, cognitive and ethical approach. *British Journal of Educational Technology*, 55(3), 1082-1104.
<https://doi.org/10.1111/bjet.13411>
- Nyakundi, D., Oginga, A., & Omar, S. (2024). *The Role of Artificial Intelligence in African Education Systems Case Study: The Use of Automated Decision-Making in Form One Placements in Kenya*. Centre for Intellectual Property and Information Technology Law, Strathmore University. <https://cipit.org/wp-content/uploads/2024/09/The-Role-of-Artificial-Intelligence-in-African-Education-Systems-The-Use-of-Automated-Decision-Making-in-Form-One.pdf> (Archived by the Internet Archive at <https://web.archive.org/web/20251222174841/https://cipit.org/wp-content/uploads/2024/09/The-Role-of-Artificial-Intelligence-in-African-Education-Systems-The-Use-of-Automated-Decision-Making-in-Form-One.pdf>)
- Okojie, V., & Awoyemi, R. A. (2024). The future of research in Africa: Appraising the need for artificial intelligence (AI)-driven policy and advocacy in academic libraries. *Journal of ICT Development, Applications and Research*, 6(1), 20-33.
<https://doi.org/10.47524/jictdar.v6i1.21>
- Oxford Insights. (2024). *Government AI Readiness Index 2024*. Oxford Insights.
<https://oxfordinsights.com/ai-readiness/government-ai-readiness-index-2025/> (Archived by the Internet Archive at

- <https://web.archive.org/web/20251221042652/https://oxfordinsights.com/ai-readiness/government-ai-readiness-index-2025/>)
- Oyetola, S. O., Oladokun, B. D., & Dogara, K. (2024). LIS Educators' Perception Towards the Adoption of AI Tools in Nigerian Library Schools. *Metaverse Basic and Applied Research*, (3), 6. <https://doi.org/10.56294/mr202465>
- Pedro, F., Subosa, M., Rivas, A., & Valverde, P. (2019). *Artificial intelligence in education: Challenges and opportunities for sustainable development*. <https://repositorio.minedu.gob.pe/handle/20.500.12799/6533> (Archived by the Internet Archive at <https://web.archive.org/web/20251222170150/https://repositorio.minedu.gob.pe/handle/20.500.12799/6533>)
- Ta, R., & West, D. M. (2023). *Should schools ban or integrate generative AI in the classroom?* Policy Commons. <https://coilink.org/20.500.12592/0tx81q> (Archived by the Internet Archive at <https://web.archive.org/web/20250000000000/https://coilink.org/20.500.12592/0tx81q>)
- UNESCO. (2022). *International Forum on AI and Education: Ensuring AI as a Common Good to Transform Education*, 7-8 December 2021 (synthesis report). UNESDOC Digital Library. <https://unesdoc.unesco.org/ark:/48223/pf0000381226> (Archived by the Internet Archive at <https://web.archive.org/web/20251222170957/https://unesdoc.unesco.org/ark:/48223/pf0000381226>)
- UNESCO-EARFAI. (2024). *Nairobi Statement on Artificial Intelligence and Emerging Technologies in Eastern Africa*. UNESCO-Eastern Africa Sub-Regional Forum on Artificial Intelligence (EARFAI). <https://unesdoc.unesco.org/ark:/48223/pf0000390381> (Archived by the Internet Archive at <https://web.archive.org/web/20251222171343/https://unesdoc.unesco.org/ark:/48223/pf0000390381>)
- Weinryb-Grohsgal, L. (2020, July 22). *Machine Learning + Libraries: A Report on the State of the Field*. The Signal, Digital Happenings at the Library of Congress. <https://blogs.loc.gov/thesignal/2020/07/machine-learning-libraries-a-report-on-the-state-of-the-field/> (Archived by the Internet Archive at <https://web.archive.org/web/20251222171942/https://blogs.loc.gov/thesignal/2020/07/machine-learning-libraries-a-report-on-the-state-of-the-field/>)
- World Economic Forum. (2024, January 18). *7 principles on responsible AI use in education*. <https://www.weforum.org/stories/2024/01/ai-guidance-school-responsible-use-in-education/> (Archived by the Internet Archive at <https://web.archive.org/web/20251222172450/https://www.weforum.org/stories/2024/01/ai-guidance-school-responsible-use-in-education/>)
- Yang, W. (2022). Artificial Intelligence education for young children: Why, what, and how in curriculum design and implementation. *Computers and Education: Artificial Intelligence*, 3, 100061. <https://doi.org/10.1016/j.caeai.2022.100061>
- Zhang, H., Perry, A., & Lee, I. (2025). Developing and validating the artificial intelligence literacy concept inventory: An instrument to assess artificial intelligence literacy among middle

school students. *International Journal of Artificial Intelligence in Education*, 35(1), 398-438.
<https://doi.org/10.1007/s40593-024-00398-x>

Zondi, N. P., Epizitone, A., Nkomo, N., Mthalane, P. P., Moyane, S., Luthuli, M., Khumalo, M., & Phokoye, S. (2024). A review of artificial intelligence implementation in academic library services. *South African Journal of Libraries and Information Science*, 90(2), 1-8.
<https://doi.org/10.7553/90-2-2399>

Copyright

Authors contributing to *Information Research* agree to publish their articles under a [Creative Commons CC BY-NC 4.0 license](#), which gives third parties the right to copy and redistribute the material in any medium or format. It also gives third parties the right to remix, transform and build upon the material for any purpose, except commercial, on the condition that clear acknowledgment is given to the author(s) of the work, that a link to the license is provided and that it is made clear if changes have been made to the work. This must be done in a reasonable manner, and must not imply that the licensor endorses the use of the work by third parties. The author(s) retain copyright to the work. You can also read more at: <https://publicera.kb.se/ir/openaccess>