See discussions, stats, and author profiles for this publication at: https://www.researchgate.net/publication/384250983

Integrating Artificial Intelligence Literacy in Library and Information Science Training in Kenyan Academic Institutions

Conference Paper · August 2024

CITATIONS		READS 13		
2 author	5:			
	Rachel Kagoiya The Technical University of Kenya		Sally Chepchirchir Karatina University	
	5 PUBLICATIONS 2 CITATIONS		4 PUBLICATIONS 2 CITATIONS	
	SEE PROFILE		SEE PROFILE	



RE-IMAGINING LIBRARY AND Information Services in the Digital Era

Proceedings of the

26th Standing Conference of Eastern, Central and Southern African Library and Information Associations (SCECSAL XXVI) held on 22nd — 26th April 2024 in Mombasa, Kenya

> **Editors** Tom Kwanya, Irene Muthoni Kibandi, Peter Gatiti

RE-IMAGINING LIBRARY AND Information Services in the Digital Era

Proceedings of the 26th Standing Conference of Eastern, Central and Southern African Library and Information Associations (SCECSAL XXVI) held on 22nd — 26th April 2024 in Mombasa, Kenya

Editors Tom Kwanya, Irene Muthoni Kibandi, Peter Gatiti



LIBRARY OF CONGRESS CATALOGING-IN-PUBLICATION DATA

Author: SCECSAL (26th : 2024 : Mombasa, Kenya)

Editors: Kwanya, Tom, Kibandi, Irene Muthoni, Gatiti, Peter.

Title: Re-Imagining Library and Information Services in the Digital Era / editors, Tom Kwanya, Irene Muthoni Kibandi, Peter Gatiti.

Description: Nairobi : Kenya Library Association, 2024.

Identifiers: ISBN 9789914771480

Subjects: LCSH: Information services—Africa, Eastern--Congresses. | Information services—Africa, Central--Congresses. | Information services—Africa, Southern--Congresses. | Information storage and retrieval systems--Library education--Congresses | Computer literacy--Africa, Eastern--Congresses. | Computer literacy--Africa, Southern--Congresses. |

Classification: LCC ZA3159.A354

CONTENTS

Library of Congress Cataloging-in-Publication Data
Peer Reviewers
Acknowledgements
Preface
Best Practices in Records and Information Management1
 Records Management Practices and Service Delivery: A Case of Academic Registrar's Department at the All-Saints University Lango Kenneth Abong*; David Luyombya**
 Digitising Murumbi Africana Collection at the Kenya National Archives and Documentation Service for Posterity and Ubiquitous Access Wekalao Ben Namande
Emerging LIS Roles in the Digital Era19
 Bridging the Digital Gap: Digital Literacy for Maximising E-Resource Usage at Kenya Revenue Authority Library Mwendwa Mary*; Surtan Faith**; Wekalao Ben Namande***
 Awareness of Professional Ethics in the General Publishing Industry in Uganda Joachim Bibuli*; Alice Gitta Kutyamukama**; Sarah Kaddu***
5. The Use of Technology in the Preservation of Institutional Memory of Libraries Lilian Gisesa41
6. A Competency Index for Health Librarians in Kenya Nelly Muhonja*;Tom Kwanya**
Information Ethics and Practices
7. The Awareness of Copyright Laws at the University of Venda Library Maropene Thomas Ramabina*; Zawedde Nsibirwa**
8. The Perceptions of Law Students on the Information and Digital Literacy Programme at the University of Namibia Chiku Mnubi-Mchombu*; Linda Ndapandula Mbangula**
 Information Ethics Adoption in Managing Open Access Electronic Resources by Zimbabwean University Libraries Howard Hogo*; Ruth Hoskins**
10. Exploring eResearch Knowledge and Practices of Information Specialists at a South African Private Higher Education Institution Edmont Pasipamire*; Brenda van Wyk**
11. Managing Open Access Institutional Repositories in Higher Learning and Research Institutes in Tanzania: Prospects and Challenges Wulystan Pius Mtega*; Grace Emmanuel Msoffe**

12	. Integrated Information Governance Framework for Air Traffic Navigation Services in South Africa Reflee Mabaso
13	Optimising Library Policies as an Ethical Principle for Successful Management of Libraries in Kenya: A Content Analysis Benjamin Opicho Kemboi
14	. Futuristic View of Robotics in Enhancing Library Accessibility for Differently-Abled Users in Kenya and South Africa Villary Atieno Abok*; Daniel Rankadi Mosako**
15	. Copyright Practices in Academic Libraries: Insights from the Aga Khan University Esther Wanyingi*; Arnold Mwanzu**; Peter Gatiti***
Resea	arch and Digital Literacy144
16	. Information Technology Trends, Challenges and Opportunities in Libraries Naomy Mwaurah*; Nyambura Gathama**; Ben Namande***
17	. Transformative Initiatives in Scholarly Communication: A Comprehensive Analysis of Crossref's Research Nexus, GEM Program, and PLACE Mercury Shitindo
18	. Effectiveness of Reference Management Software in Enhancing Research Quality in Universities in Nairobi County, Kenya Samuel Kairigo*; Everlyn Anduvare**
LIS E	Education and Training in a Digital Era183
19	. Framework for Knowledge Management Curriculum in Africa Joseph Kiplang'at*; Elisam Magara*
20	. Integrating Artificial Intelligence Literacy in Library and Information Science Training in Kenyan
	Academic Institutions Rachel Kagoiya*; Sally Chepchirchir**
21	Academic Institutions Rachel Kagoiya*; Sally Chepchirchir**
21	Academic Institutions Rachel Kagoiya*; Sally Chepchirchir**
21 Resp	Academic Institutions Rachel Kagoiya*; Sally Chepchirchir**
21 Resp 22	Academic Institutions Rachel Kagoiya*; Sally Chepchirchir**
21 Resp 22 23	Academic Institutions Rachel Kagoiya*; Sally Chepchirchir**
21 Resp 22 23 24	Academic Institutions 203 Rachel Kagoiya*; Sally Chepchirchir** 203 Information Literacy Skills Curricula and Policy for Medical Undergraduate Students at Moi 203 University and University of Nairobi 203 Evans Motari Momanyi*; Emily Ng'eno**; Joseph Kiplang'at*** 213 onsive Information Service and Products 227 Using the Scholarly Communication Service to Enhance Research Support to UKZN Academics Nonhlanhla Ngcobo 228 A Bibliometric Analysis of Academic Writing and Scholarly Communication in Sub-Saharan African Institutions of Higher Learning Augustine Gitonga*; Peter Gatiti** 236 Attitude of Undergraduate Students Towards the use of E-Resources at Sokoine University of Agriculture, Tanzania Ronald Benard*; Grace Msoffe** 245

26. Provision of Library Services to the Marginalised Population: A Case of Selected Namibian Community Libraries Esther Ndanewa Tobias	269
 Information Behaviour of African Immigrants in Sunnyside, Pretoria, South Africa Marjorie Mandu Molaudi	279
28. Awareness of Linked Data Among Professional Librarians in Uganda Winny Akullo*; Zawedde Nsibirwa**	284
29. The Role of Internet of Things in Shaping TVET Libraries in Kenya Benjamin Opicho Kemboi*; Kentrone Mercy Ayilo**	293
30. Frameworks for Enhancing Access to Information Resources in Public Institutions in Ugan Sylvia Namujuzi*; David Luyombya**	.da 300
31. Care and Inclusion of Users with Special Needs in Kenya's Academic Libraries Janet Njoora*; Thomas Oluoch**	309
32. The Role of Academic Libraries in Supporting Research and Postgraduate Services in Kenys Universities Wamahiga M. George	an 317
Technology and Innovation	326
33. The Implementation of Research Findings for LIS Professional Practices in Selected Acader Libraries in Sub-Saharan Africa	mic
Jackline Kiwelu*; Justina E. Ogbonna CLN, SOMAC*; Gadiel Ketto***	327
34. Applying SWOT Analysis to Assess Drivers and Barriers to Using E-resources Among Selec Academic Libraries in Uganda Bosco Apparatus Buruga*; Ali, Guma**; Ronald Izaruku***	cted
35. Integration of Expert Systems in TVET Libraries Amidst 4IR Era in Kenya Wilson Kabucho Wambui*; Ben Wekalao Namande**	361
36. Policy Challenges in Establishing Institutional Repository: Business Process Modelling of Universities in Uganda Kizito Ongava*: Emily Bagarukavo*** Benedict Ovo***: David Okello Owiov****	367
The set of	

PEER REVIEWERS

Prof. Joseph Kiplang'at, Africa International University Prof. Constantine Nyamboga, Lukenya University Prof. Tom Kwanya, the Technical University of Kenya Prof. Peter Gatiti, Aga Khan University Prof. Paul Gichohi, Kenya Methodist University Prof. Naomi Mwai, the Technical University of Kenya Dr. Peter Wamae, Kenyatta University Dr. Ben Namande, Kisii University Dr. Peter Gichiri, St Paul's University Dr. Wanyenda Chilimo, Technical University of Mombasa Dr. Naftal Chweya, Ministry of Culture Dr. Arnold Mwanzu, Aga Khan University Dr. Azenath Ateka, United States International University - Africa Dr. Sarah Kibugi, the Technical University of Kenya Dr. Carolyne Musembe, the Technical University of Kenya Dr. Ashah Owano, the Technical University of Kenya Dr. Damaris Odero, Moi University Dr. Duncan Amoth, Moi University Dr. Emily Bosire - Ogechi, Moi University Dr. Emily Ngeno, Moi University Dr. Jane Maina, Kisii University Dr. Grace Kamau, the Technical University of Kenya

ACKNOWLEDGEMENTS



The twenty-sixth edition of the Standing Conference of Eastern, Central, and Southern African Libraries (SCECSAL XXVI) would not have been held successfully without the tireless and selfless contributions of many individuals and organisations. First and foremost, I wish to acknowledge and appreciate the contribution of the following local organising committee members:

- Irene Muthoni Kibandi Chairperson
- Jacinta Were Vice Chairperson
- Dr Sarah Kibugi Treasurer
- James Nyakundi Secretary
- Prof Constantine Nyamboga
- Prof Tom Kwanya
- Dr Arnold Mwanzu
- Dr Naftal Chweya

- Stephen Mau
- Lilian Momanyi
- Christine Tuitoek
- Alfred Odhiambo
- Mary Kinyanjui
- Evan Njoroge
- Isaac Nyarigoti

I also appreciate the keynote speaker, Prof Clara Chu, for her exciting, inspiring and informative address. Prof Chu also facilitated a workshop on strengthening library leadership for innovative and sustainable institutional development. I also acknowledge Prof Bosire Onyancha who conducted a workshop on the impact of bibliometrics on academic libraries. I also recognise the support of the SCECSAL Secretariat, particularly Dr. Justin Chisenga, in coordinating diverse aspects of the conference.

As the Kenya Library Association, we are forever grateful to the delegates, sponsors, volunteers, and other service providers who contributed in any way to making the conference a success. We hope that the conference experience was memorable and that the networks initiated will be maintained and maximised for the benefit of our profession and user communities, fostering future collaboration and growth.

Prof Peter Gatiti

Chair, Kenya Library Association & Chair SCECSAL Council

PREFACE

The information universe, within which libraries currently operate and offer services, is not just dynamic and volatile, but also brimming with transformative potential. Rapid technological advancement, technology-savvy and impatient patrons, vast volumes of information, and increasing pressure on libraries to demonstrate return on investment are some factors catalysing this change. Information professionals have been pushed back to the drawing board. To remain relevant, they must re-imagine the substance and delivery of information services and products. The digital era offers diverse opportunities and channels for tailored, proactive and prompt information products and services. How well information professionals harness these opportunities depends on their creativity.

This publication is a comprehensive resource, a collection of 36 creative cases that provide invaluable insights on how to deliver information products and services in the digital era. Each of the 37 papers in these proceedings is a treasure trove of knowledge, discussing issues crucial to mastering the ropes of service design and delivery in the digital information era. The papers are grouped into seven categories and sections, providing a structured and comprehensive approach to the topic.

The papers on the best practices in the records and information management category present invaluable insights on redesigning organisational records and archives through emerging information and communication technology tools and techniques. These technologies facilitate the strategic collection, classification, preservation and dissemination of organisational records and national archives. This transformation turns records and archives from costly to valuable assets for operational and strategic endeavours, underscoring the potential benefits of adopting new technologies and techniques.

Information workers have always been the bridges between information and its users. Their role has been crucial in identifying, collecting, organising, and disseminating materials for users who visited the information centres. However, the situation has evolved, and so have their roles. The focus of the information centres has shifted from collections to connections, and information professionals are at the forefront of this change. The second set of papers in this publication elaborates on the changing and increasingly important roles that library and information sciences professionals have to shoulder in this digital era, making them feel valued and integral to the industry.

Information is power and should be handled with utmost care. Ethical, legal, and moral guidelines regulate information production, organisation, dissemination, and preservation. As information users become more aware of their rights, information professionals and service providers need to stay abreast of their obligations. The papers on information ethics share ideas on how to avoid ethical, legal, and moral conflicts in information service design and delivery.

Research is the source of new ideas and innovations driving socioeconomic development. Available evidence shows that many people currently do not begin or complete their information-seeking with libraries. Therefore, it is incumbent on libraries and information centres to reposition themselves in the core of the information universe as sources of credible research data. Skills and competencies to contribute and manage research data are essential for contemporary information professions. Papers in this collection highlight essential research insights for the progressive information worker.

There are papers on education and training programmes and approaches that build the digital-era capacities of information workers to conceptualise, develop, and deliver responsive and futuristic information services and products in this age and into the future using both conventional and technological platforms.

All the papers were peer-reviewed using a double-blind approach. The editors have made all efforts to ensure that the papers are of the highest scholarly standard possible. However, we apologise for any errors which may have escaped undetected. We wish you an insightful reading.

Tom Kwanya, Irene Muthoni Kibandi, Peter Gatiti

Editors

20. INTEGRATING ARTIFICIAL INTELLIGENCE LITERACY IN LIBRARY AND INFORMATION SCIENCE TRAINING IN KENYAN ACADEMIC INSTITUTIONS

Rachel Kagoiya*; Sally Chepchirchir** *Technical University of Kenya, Kenya gacecikagoiya@gmail.com

> **Karatina University, Kenya schepchirchir@karu.ac.ke

Abstract

With the rapid technological advancements, Library and Information Science (LIS) programs should evolve to equip students in academic institutions with Artificial Intelligence (AI) skills and knowledge to meet the demands of the information profession. The objectives of this paper were to establish the current state of AI literacy in LIS training in academic institutions in Kenya, examine the extent to which AI literacy has been integrated into LIS curricula in academic institutions, identify the challenges and opportunities associated with the integration of AI literacy in academic institutions in Kenya, and propose critical recommendations that the management in academic institutions should consider for integrating AI literacy in LIS training in Kenya. The study employed a mixed-methods approach, combining qualitative and quantitative data collection methods. Quantitative data was collected through bibliometrics analysis, while qualitative data was collected using a systematic literature review and observation. Data was collected from Google Scholar using Harzing's "Publish or Perish" software and academic institutional websites. It was analysed using Microsoft Excel, Notepad, and VOSviewer and presented using tables, graphs, and figures. The findings reveal that LIS professionals must possess essential skills and competencies in AI to meet the evolving needs of the job market. The study highlighted valuable practical insights and recommendations to the management in academic institutions on a comprehensive understanding of the opportunities and challenges presented by AI literacy in LIS training, offering a foundation for future research, policy development, and pedagogical innovation in the field.

Keywords: Emerging trends, comparative advantage, professional development, digital technologies

1 Introduction

In the rapidly evolving landscape of information and technology, the infusion of Artificial Intelligence (AI) into various sectors has become inevitable (Xu et al., 2021). Libraries play a pivotal role in managing, organising, and disseminating information, making it imperative for professionals in this field to comprehensively understand AI - from its advantages, disadvantages and untapped potential. Library and information professionals have long offered their diverse users short courses on information literacy, computer literacy and digital literacy to assist them in navigating, accessing, analysing and retrieving required information resources (Landøy et al., 2020).

As academic institutions strive to equip their students with the knowledge and skills necessary for the 21st-century workforce, integrating AI literacy into education has become critical to academic curriculum development (Chen et al., 2020). Long et al. (2021) define AI literacy as a set of abilities to understand, use, monitor, and critically reflect on AI applications. AI literacy encompasses AI competencies that the general population should possess and accordingly focuses mainly on learners without a computer science background ("non-experts"). Scott-Branch et al. (2023) opined that AI literacy includes knowledge, abilities, and experience in understanding and using AI and a deep analysis of its detriments and readiness to explore untapped AI further.

Like many other nations, Kenya is witnessing AI's transformative impact across diverse industries. Libraries are not immune to the influence of AI, which has the potential to revolutionise traditional library services, automate routine tasks, and enhance information retrieval processes. Recognising the need to prepare LIS professionals for this paradigm shift, academic institutions are increasingly exploring ways to integrate AI literacy into their curricula (Munyoro & Mutula, 2018). This aims to empower future LIS professionals with the knowledge and skills required to harness the benefits of AI in their roles. It also means addressing the growing demand for LIS professionals to navigate the intersection of information science and cutting-edge technologies. This strategic move aligns with global trends in the field, ensuring that graduates from Kenyan academic institutions are well-versed in standard library practices and proficient in leveraging AI tools and techniques.

Laupichler et al. (2022) assert that as AI technology evolves, integrating AI literacy in LIS training in Kenyan academic institutions is not just a forward-looking strategy but a necessity as it aligns information professionals with the demands of the digital age. This integration represents a proactive measure in response to the dynamic global information landscape, fostering the development of a cohort of information professionals capable of adeptly navigating and contributing meaningfully to the evolving digital future. Further, the Global Student Survey (2023) on the impact of Generative AI on higher education indicates that nearly two-thirds (65%) of students from across 15 countries (including Kenya) would like their curriculum to include training in AI tools relevant to their future careers.

It is fundamental for academic institutions and LIS professionals to not only leverage the numerous capabilities of AI but, importantly, as Scott-Branch et al. (2023) point out, they must take precautions on its ethical use, deeply analysing its challenges. Sabzalieva and Valentini (2023) explore generative AI tools such as ChatGPT, highlighting their potential benefits and acknowledging the challenges and ethical implications. Concerns include issues related to academic integrity (particularly plagiarism and cheating), regulatory gaps, privacy concerns, accessibility barriers, and the inability to detect distorted or altered information. LIS professionals must evaluate the use of AI regarding privacy, mis/disinformation, ethical decision-making, diversity, and bias, which are imperative (Long et al., 2021).

Emphasising the importance of prioritising ethical considerations in AI literacy programs, Gong et al. (2020) underscores the need for academicians to strengthen the capacities of students' awareness in using AI responsibly and not just prioritise developing new AI technologies.

2 Rationale of the study

AI continues to provide numerous possibilities for innovation, improved decision-making, and costeffectiveness (Umer Sultan, 2023), as well as for transforming teaching and learning in academic institutions (Al Husseiny, 2023). Fundamentally, academic staff in charge of preparing future LIS professionals are required to build their own competencies and skills in AI so that they are equipped to integrate AI into the curriculum and teach it effectively (Scott-Branch et al., 2023).

However, Neupane and Sibal (2021) observe that although a few universities and educational institutions have introduced specialised capacity development courses for AI literacy to strengthen students' competencies, there is still a gap in human resource capacities and requisite infrastructure for teaching and learning AI.

In Kenya, the Commission for University Education (CUE), the Government agency mandated to regulate university education, listed 43 public and 36 private universities accredited and authorised to operate in the country (CUE, August 2023). Out of these 79 accredited universities, at least 25 offer undergraduate and postgraduate academic programmes in library studies, information science and knowledge management (CUE, December 2023). This paper sought to analyse these 25 universities and their integration and/or

preparedness to integrate AI literacy in their training of LIS professionals. Information and data in the existing literature on integrating AI literacy in academic institutions in Kenya were analysed from scholarly resources, including books, journals, reports, and academic institutional websites.

Specifically, the core objectives of this study were to (i) establish the current state of AI literacy in LIS training in academic institutions in Kenya (ii) examine the extent to which AI literacy has been integrated into LIS curricula in academic institutions in Kenya (iii) identify the challenges and opportunities associated with the integration of AI literacy in academic institutions in Kenya and (iv) propose critical recommendations that the management in academic institutions should consider for integrating AI literacy in LIS training in Kenya.

3 Methodology

This study employed a mixed-methods approach, combining qualitative and quantitative data collection methods. Quantitative data was collected through bibliometric analysis, while qualitative data was collected through a systematic literature review.

Data was collected from Google Scholar using Harzing's "Publish or Perish" software, analysed using Microsoft Excel, Notepad, and VOSviewer, and presented using tables, graphs, and figures. The publications on integrating AI literacy in LIS training in academic institutions in Kenya were analysed. The documents analysed included books, journal articles, theses, conference papers, and academic institutional websites. The documents were identified from Google Scholar using Harzing's "Publish or Perish" software.

The keywords and phrases used to retrieve data included "LIS training," "artificial intelligence," and "Kenya." Based on the identified gaps in the study and to improve the rigour and trustworthiness of the data and results, the researchers further used a purposive sampling technique to select a few academic institutions that were specifically investigated to align with the study's objectives.

The data was analysed using descriptive statistics and content analysis. This was done using Microsoft Excel, Notepad, and VOSviewer version 8.

The findings of this study will provide valuable practical insights and recommendations to academic institution management on the opportunities and challenges presented by AI literacy in LIS training. This would provide a comprehensive foundation for future research, policy development, and pedagogical innovation.

4 Findings

A systematic literature review was used to search Google Scholar using Harzing's Publish or Perish software program. The keywords used for the search included variables in the paper's title ("LIS training", "artificial intelligence", and "Kenya"). The search, conducted on 20th January 2024, resulted in a total of `nine publications. Further screening was conducted per the PRISMA checklist (see Appendix A) to refine the research scope and relevance. Four publications met the inclusion criteria and were deemed relevant to the study. One publication did not meet the inclusion criteria and was therefore excluded based on not having a date of publication, which meant they were ineligible by automation tools. The authors then added a limitation to the study, such that only materials published between 2019 and 2024 were included. Four publications were excluded since they were published between 2003-2018. Therefore, the authors selected four publications for a systematic literature review.

Further, the authors reviewed the undergraduate and postgraduate degree programmes offered in Kenya's accredited 79 academic institutions (CUE, August 2023). From this list, the authors noted that none of

the universities offered an explicit programme on artificial intelligence. On 20th January 2024, the authors deemed it fit to augment the findings by conducting a thorough search on selected academic institutional websites, which showed that some universities had started offering AI programmes and/or courses. These include the University of Nairobi (which offers a short course in AI and also offers a unit on AI applications under the Bachelor and Master of Science in Computer Science programmes), Jomo Kenyatta University of Agriculture and Technology (offering a Master of Science Artificial Intelligence), Strathmore University (that has a specialisation in Artificial Intelligence for their PhD in Computer Science programmes), Kenyatta University (offering a unit in AI for the Bachelor of Science in Information Technology programme) and Maseno University (Master of Science in Artificial Intelligence).

In line with the objectives of this study, particularly the scope of AI integration within LIS academic programs in Kenya, further investigation is needed to assess which of the 25 universities that offered undergraduate and postgraduate academic programmes in LIS and/or knowledge management (CUE, December 2023) have incorporated AI in their curricula.

4.1 Infometric analysis on the Integration of AI in LIS training in academic institutions in Kenya

Informetric analysis on the integration of AI in LIS training in academic institutions in Kenya serves as a valuable tool for assessing the current state, identifying trends, and informing future directions for advancing AI education within the field of LIS in the country, as shown in Figure 1.

4.1.1 Number of publications on LIS training in AI in Kenya

The data before screening had nine publications. As per the analysis, the findings showed that the first and oldest publication was published in the year 2003 and authored by M.K. Minishi-Majanja and D.N. Ocholla with the title Information and Communication Technologies in Library and Information Science Education in Kenya, as *shown* in Figure 1. One publication did not indicate the year of publication. Therefore, the cleaned data had eight research publications on LIS training in artificial intelligence in Kenya.



Figure 1: Number of publications on the integration of AI literacy in LIS training in academic institutions in Kenya

Figure 1 indicates that between 2003 and 2023, only eight publications were published, with 2014 being the only year with two publications. The other years, 2003, 2007, 2020, 2021, 2022, and 2023, each had one publication.

The authors thoroughly screened all eight publications published between 2003 and 2023 to assess the integration aspects of AI literacy in LIS programmes within academic institutions in Kenya. Table 1 critically analyses each publication's observations about the study's objectives. In summary, the collection of publications spans various formats, including conference proceedings, journal articles, and a newsletter. It explores pertinent themes within Library and Information Science (LIS) education and practice, primarily within the African context.

In the conference proceedings "Integration of ICTs in Library and Information Science Education in sub-Saharan Africa" by M.K. Minishi-Majanja, the author notably observes the inclusion of Artificial Intelligence (AI) modules in LIS programs in African universities, marking a significant advancement in the curriculum to align with technological trends.

Similarly, the journal article "Information and Communication Technologies in Library and Information Science Education in Kenya" by Minishi-Majanja and Ocholla underscores the integration of ICTs within LIS programs in Kenya, indicative of a broader trend towards incorporating technology in educational curricula to equip students with relevant skills.

Contrastingly, "Training of Library and Information Professionals for the 21st-century Job Market in Nigeria" by A.O. Simisaye critiques the Nigerian LIS education system, suggesting a curriculum redesign to bridge the gap between training and market demands. This aligns with the findings of "Examining the Gap between Employers' Skills Needs and Library and Information Science Education in Zimbabwe" by N. Pamsipamire, highlighting similar skills and competency gaps in Zimbabwe's LIS education system.

Furthermore, the journal article "Information Professionals of the Future and their Prospects in the Era of Fourth Industrial Revolution" by YA Ajani et al. emphasises the necessity for synergy between LIS training institutions and industry demands, advocating for a curriculum that encompasses Fourth Industrial Revolution characteristics, including AI literacy. Outside of Africa, "Video Games and Learning: What Boys Learn from Video Games and Can it Map to the Common Core Standards?" explores the potential of using AI characters in game-based learning, indicating a broader global interest in leveraging technology for educational purposes. In the context of digital resources, the conference proceedings "Use of E-Library and E-Resources by Staffs and Students in the Colleges" by M.P. Gupta and A. Sanvalia sheds light on the digital awareness and utilisation of electronic resources in educational institutions.

Lastly, the newsletter "Update CPDWL Newsletter, June 2021" serves as a platform for LIS professionals, providing updates and insights into ongoing discussions within the field and potentially fostering collaboration and knowledge sharing among practitioners. Collectively, these publications reflect the evolving landscape of LIS education and practice, highlighting technology integration, addressing skills gaps, and advocating for curriculum reforms to meet the demands of the digital era.

4.1.2 Popular sources on LIS training in AI literacy in Kenya

The analysis of keywords in the titles of the publications "LIS Training," "Artificial Intelligence," and "Kenya" revealed that the most common phrases were the terms "library" and "education." Additionally, the most highly used and cited sources were journals from websites (HTTP) and in the form of "pdf," as shown in Figure 2.



Figure 2: Popular sources on Lis training in AI literacy in Kenya

Figure 2 above indicates that there is no publication on AI literacy in academic institutions in Kenya.

4.2 Integration of AI literacy in LIS training in academic institutions in Kenya

As shown in Table 1, the study's findings show that no academic institution in Kenya has integrated AI literacy into the LIS curricula. However, the most cited source was a journal article titled "Integration of ICTs in library and information science education in sub-Saharan Africa" by MK Minishi-Majanja, published in 2007, with a citation mark of 89, as shown in Table 2.

Table 2: Citation metrics on integration of AI literacy in LIS training

~	Cites	Per year	Rank	Authors	Title	Year	Publication	Publisher	Туре
🗹 h	89	5.24	3	MK Minishi-Majanja	Integration of ICTs in library and in	2007	World library and informati	archive.ifla.org	PDF
🗹 h	31	7.75	5	TV Asubiaro, OM Bad	Collaboration clusters, interdiscipli	2020	Journal of Librarianship an	journals.sagepub.com	
🗹 h	19	0.90	1	MK Minishi-Majanja, D	Information and communication t	2003	Education for Information	content.iospress.com	
🗹 h	5	0.50	4	AO Simisaye	Training of library and information	2014	Journal of Education and P	core.ac.uk	PDF
🗹 h	5	0.50	6	N Pamsipamire	Examining the Gap between Empl	2014		library.ifla.org	
\sim	0	0.00	2	YA Ajani, T Adeyinka,	Information Professionals of the F	2022	Mousaion	journals.co.za	
	0	0.00	7	MP Gupta, A Sanvalia	Use of E-Library and E-Resources	2023	of Libraries in	govtpgcollegekhargone.org	PDF
\sim	0	0.00	8	S Hirsh, G Hallam, U La	Update CPDWL Newsletter, June 2	2021		repository.ifla.org	PDF
<u>~</u>	0	0.00	9	JA Engerman, A Carr-C	Video Games and Learning: What		thannual	ERIC	PDF

4.3 Key challenges and opportunities associated with the integration of AI literacy in academic institutions in Kenya

The four publications (Table 2) screened by the authors indicate that few studies highlight the challenges and opportunities associated with integrating AI literacy in academic institutions in Kenya.

However, from the Harzings publish or perish software search outcome, the authors observed a publication by Shukla et al. (2023) in the conference proceeding, titled "The Role of Artificial Intelligence in the Libraries of Law Institutes in Delivering of Legal E-Content and Services: An Overview" which highlighted critical challenges and ethical considerations for integrating AI literacy in academic institutions. These include:

- Ethical and privacy concerns, especially around bias and discriminatory practices of AI algorithms and issues on data protection.
- Training and skill gaps in staff managing and maintaining AI systems and tools, including lack of AI literacy.
- Integration challenges, especially in AI systems, with existing institutional systems.
- Ineffective and irregular maintenance and updates of AI models and systems.
- High costs and lack of resource allocation for AI adoption and maintenance.
- Low user acceptance and lack of trust in AI-driven tools and services.
- Lack of legal and regulatory compliance on AI-generated content and policies.

Furthermore, Gupta et al. (2023) note that LIS training programmes in Kenya fail to sufficiently address current job market requirements due to inadequate teaching resources in LIS training institutions, lack of adequate ICT content in the courses, courses that are irrelevant to the job market and inadequate length of industrial attachment. Regarding opportunities to integrate AI literacy in LIS training in academic institutions in Kenya, the authors noted that LIS curricula provide an opportunity to incorporate AI-tailored modules, courses and programmes.

The author also observed a Global Student Survey (2023), which, as indicated in the literature reviewed (see introduction section 1), emphasises that nearly two-thirds (65%) of students from across 15 countries (including Kenya) would like their curriculum to include training in AI tools relevant to their future career. In addition, Scott-Branch et al. (2023) highlight the critical role that librarians play in teaching AI literacy to enable users to create and analyse AI-generated content, hence the opportunity to improve LIS training in academic institutions in Kenya.

5 Discussion of findings

The findings showed limited literature on integrating AI literacy in LIS training in academic institutions in Kenya, as shown in Table 2. Wamba (2022) opines that the disruptive nature of AI tools and systems requires that AI literacy programmes be adopted promptly to respond to the information-seeking behaviour of AI users in academic institutions.

Scott-Branch et al. (2023) opine that the proficiency and expertise already possessed by LIS professionals in developing and delivering information literacy and digital literacy programmes are advantageous and timely when designing AI literacy initiatives.

However, recognising the accelerating impact of AI on the information landscape, it is imperative for academic institutions to swiftly adapt AI to educational technology (Ayanwale et al., 2022). This adaptation aims to equip LIS professionals with the skills, knowledge, and expertise necessary for comprehending and analysing both AI's benefits and potentially detrimental aspects. This includes enhancing abilities such as strengthening self-learning experiences, refining writing skills, and acquiring proficiency in fact-checking and verifying AI-generated resources. Moreover, training should include guidelines on appropriately citing AI sources to avoid copyright infringement or plagiarism (Carobene et al., 2023).

Omame and Alex-Nmecha (2020) observe that AI is already incorporated in some libraries in African countries, such as virtual assistants in reference services, virtual reality for user experiential learning, and robots for book shelving. Therefore, LIS professionals in Kenya should enrol in continuous development and learning programmes to navigate AI libraries.

6 Conclusion

In conclusion, this research has delved into the crucial role of integrating AI literacy into LIS training within Kenyan academic institutions. As the digital landscape rapidly evolves, AI technologies are becoming increasingly frequent, transforming various aspects of information management and retrieval. Therefore, LIS professionals must have the knowledge and skills to effectively navigate and leverage AI tools.

Through a comprehensive review of existing literature and insights from information gathered through institutional websites of Kenyan academic institutions, this research has highlighted the significance of incorporating AI literacy into LIS curricula. By doing so, academic institutions can better prepare future information professionals to harness the potential of AI in enhancing information services, facilitating knowledge discovery, and improving user experiences.

7 Recommendations

AI continues to revolutionise, disrupt and transform how students generate and access information and interact with one another. Training students within the field of LIS is currently facing the challenge of keeping pace with the rapid advancements in AI. Therefore, there is a need to integrate AI literacy in LIS training to prepare the future of LIS professionals. The following are the key recommendations from the findings of this study:-

- The literature reviewed by the authors reveals that there are no comprehensive research publications in Kenya on the integration of AI literacy in LIS training. More research is needed on AI integration in academic institutions in Kenya, highlighting the benefits, challenges, and opportunities for the academic community.
- Effective integration of AI literacy in LIS training in Kenya requires reviewing existing curricula to include basic AI concepts and incorporating AI modules and courses. The management of academic institutions in Kenya should provide guidelines for reviewing LIS curricula and developing policies on AI integration in general. In addition, management should set aside dedicated budgets to support acquiring requisite AI tools and systems in academic libraries so that LIS professionals can access relevant AI infrastructure.
- Based on this study's findings, the authors recommend further investigation to assess strategies that encourage collaboration across the different departments in academic institutions in Kenya; for example, LIS departments should collaborate with computer science, IT, and engineering departments to co-develop and deliver comprehensive AI literacy programmes.

References

- Al Husseiny, F. (2023). Artificial Intelligence in Higher Education: A New Horizon. In *Handbook of Research on AI Methods and Applications in Computer Engineering* (pp. 295-315). IGI Global.Ayanwale, M. A., Sanusi, I. T., Adelana, O. P., Aruleba, K. D., & Oyelere, S. S. (2022). Teachers' readiness and intention to teach artificial intelligence in schools. *Computers and Education: Artificial Intelligence, 3*, 100099.
- Carobene, A., Padoan, A., Cabitza, F., Banfi, G., & Plebani, M. (2023). Rising adoption of artificial intelligence in scientific publishing: evaluating the role, risks, and ethical implications in paper drafting and review process. *Clinical Chemistry and Laboratory Medicine (CCLM), (0).*
- Chen, L., Chen, P., & Lin, Z. (2020). Artificial intelligence in education: A review. *Ieee Access*, 8, 75264-75278.

- Commission for University Education (CUE). (August 2023). Universities Authorised to Operate in Kenya. Retrieved from https://www.cue.or.ke/images/Programmes/Accredited_Institutions_August2023. pdf
- Commission for University Education (CUE). (December 2023). Approved academic programmes offered at Chartered Universities in Kenya in accordance with the Universities Act. Retrieved from https://www.cue.or.ke/images/Approved_Academic_Programmes_Offered_Universities_in_Kenya_December_2023.pdf
- Gupta, M. P., Sanvalia, A., & Bamniya, D. S. (2023). Use of E-Library and E-Resources by Staff and Students in the Colleges. *Importance of Libraries in accessing e-contents related to Lam, p. 45.*
- Landøy, A., Popa, D., & Repanovici, A. (2020). *Collaboration in designing a pedagogical approach to information literacy* (p. 161). Springer Nature.
- Laupichler, M. C., Aster, A., Schirch, J., & Raupach, T. (2022). Artificial intelligence literacy in higher and adult education: A scoping literature review. *Computers and Education: Artificial Intelligence*, 100101.

Long, D., Blunt, T., & Magerko, B. (2021). Co-designing AI literacy exhibits for informal learning spaces. Proceedings of the ACM on Human-Computer Interaction, 5(CSCW2). https://doi.org/10.1145/3476034

Munyoro, P. K., & Mutula, S. (2018). Impact of ICT Integration into the LIS Curricula in Zimbabwe. *Mousaion*, *36*(1).

Neupane, B., & Sibal, P. (2021). Artificial intelligence needs assessment survey in Africa. UNESCO Publishing.

- Page, M. J., McKenzie, J. E., Bossuyt, P. M., Boutron, I., Hoffmann, T. C., Mulrow, C. D., ... & Moher, D. (2021). The PRISMA 2020 statement: an updated guideline for reporting systematic reviews. *International journal of surgery*, 88, 105906.
- Pedro, F., Subosa, M., Rivas, A., & Valverde, P. (2019). Artificial intelligence in education: Challenges and opportunities for sustainable development.
- Scott-Branch, J., Laws, R., & Terzi, P. (2023). The Intersection of AI, Information and Digital Literacy: Harnessing ChatGPT and Other Generative Tools to Enhance Teaching and Learning.
- Shah, A. (2024). Media and Artificial Intelligence: Current Perceptions and Future Outlook. Academy of Marketing Studies Journal, 28(2).
- Umer Sultan, C. (2023). Benefits of Artificial Intelligence in Education. *Social Science Research Network* 4546499.
- Wamba, S. F. (2022). Impact of artificial intelligence assimilation on firm performance: The mediating effects of organisational agility and customer agility. *International Journal of Information Management*, p. 67, 102544.
- Xu, Y., Liu, X., Cao, X., Huang, C., Liu, E., Qian, S., ... & Zhang, J. (2021). Artificial intelligence: A powerful paradigm for scientific research. *The Innovation*, 2(4).

Appendix A: PRISMA checklist



Source: Page et al. (2021)