

Project Report

Integrating basic artificial intelligence literacy into media and information literacy programs in higher education: A framework for librarians and educators

<http://dx.doi.org/10.11645/18.2.641>

Miriam W. Ndungu

University Librarian, The Co-operative University of Kenya. Email: mndungu@cuk.ac.ke.
ORCID: [0000-0002-4120-0899](https://orcid.org/0000-0002-4120-0899).

Abstract

This paper addresses the question of how to introduce basic artificial intelligence (AI) literacy skills to learners in higher education. It proposes that a feasible approach is to integrate AI literacy components into existing media and information literacy (MIL) programmes. The paper discusses elements of intersection between the two literacies, such as search techniques, evaluation, and responsible use of information. The author posits that the MIL curriculum needs to be updated by enhancing the intersecting elements and adding new concepts such as AI algorithm literacy, data literacy, AI ethics, and limitations of AI technologies. The author argues that libraries are best poised to take on the role of delivering basic AI literacy. To this end, MIL frameworks need to be reviewed, and librarians will be required to obtain additional skills through AI courses, workshops, and participation in communities of practice. Pioneering libraries such as the FIU Libraries (comprising the Green Library and Hubert Library) in Florida, US, and Massachusetts Library Systems are demonstrating that libraries have the capacity to deliver basic AI literacy to higher education learners. The author has analysed existing attempts at mapping AI literacy to the ACRL *Framework for Information Literacy for Higher Education* and built on these initiatives by mapping suggested new AI literacy-related knowledge practices and dispositions to the relevant frames of the framework. The paper concludes by making a clarion call to librarians to rise to the occasion and revamp existing MIL programs to include basic AI literacy.

Keywords

artificial intelligence; information literacy; information literacy model; media literacy

This [Open Access](#) work is licensed under a [Creative Commons Attribution-ShareAlike 4.0 International License](#), allowing others to share and adapt this content, even commercially, so long as the work is properly cited and applies the same license. Copyright for the article content resides with the authors, and copyright for the publication layout resides with the Chartered Institute of Library and Information Professionals, Information Literacy Group.

Ndungu. 2024. *Integrating basic artificial intelligence literacy into media and information literacy programs in higher education: A framework for librarians and educators*. *Journal of Information Literacy*, 18(2), pp. 122–139.
<http://dx.doi.org/10.11645/18.2.641>

1. Introduction

Artificial intelligence (AI) literacy has become a fundamental pillar in education. Future professionals will have to interact with AI technologies daily because the technologies have become an integral part of every industry (Fourtané, 2023). AI is used to simulate human intelligence via machines, which are programmed to think and learn like humans and to perform tasks that normally require human intelligence (Chita et al., 2023). In the realm of the information ecosystem, the technology influences how individuals locate and retrieve information, evaluate and create content, bringing a new dimension to what it means to be media and information-literate (A. M. Cox & Mazumdar, 2022). It is therefore critical for the general population to have basic AI literacy competencies (Kong et al., 2021). In particular, AI literacy skills must be incorporated into university curriculums to prepare students in all disciplines for in-demand graduate-level jobs (Fourtané, 2023). To achieve this goal, many universities have implemented strategies for introducing AI literacy. However, many of these initiatives focus on the technical aspects of AI and are domiciled in technical departments (Hornberger et al., 2023; Southworth et al., 2023).

The author posits that integrating AI literacy into the existing media and information literacy (MIL) curriculum is a viable route for fast-tracking the uptake of basic AI literacy by higher education learners. Indeed, there is a need to continuously review MIL to address new and emerging requirements in the information ecosystem because technologies and the literacies associated with their use are constantly evolving (Livingstone et al., 2008; Tuazon, n.d.). MIL brings together “information literacy and media literacy, and, more recently, has been described as a composite concept or an “ecosystem” consisting of additional elements such as news literacy, ICT literacy, digital literacy, films/cinema literacy, advertising literacy, and library literacy” (UNESCO Myanmar Project Office, 2020, p. 4). With the emergence of AI, the associated literacy needs to be mapped into the ecosystem. To this end, MIL frameworks require revamping and review. One of the frameworks that has shown the feasibility of the integration of AI literacy and MIL is the *ACRL Framework for Information Literacy for Higher Education* (James & Filgo, 2023; Coates & Garner, 2024; FIU Libraries, 2024). The author has referenced it in concurrence with the observation that there is no discernible distinction between information literacy (IL) and MIL (Livingstone et al., 2008; Rosenbaum et al., 2021).

1.2 Definition of AI literacy

There is currently no universally accepted definition of AI literacy. However, the most commonly cited definition refers to AI literacy as “a set of competencies that enables individuals to evaluate AI technologies critically; communicate and collaborate effectively with AI; and use AI as a tool online, at home, and in the workplace” (Long & Magerko, 2020, p. 2). Other skill sets included in AI literacy are the ability to understand the basics of how AI works, the ability to use AI ethically, and the ability to make informed decisions about using AI technologies (Hennig, 2023). An AI-literate person is one who can understand, use, monitor, and critically reflect on AI applications without necessarily being able to develop AI models (Fourtané, 2023).

2. Literature review

2.1 Approaches to introducing AI literacy in higher education

Although several approaches for introducing AI literacy have been proposed, there is still no globally accepted approach or even consensus on what an AI curriculum entails. It has been suggested that AI literacy courses should be interdisciplinary and woven into the existing curriculum (Walter, 2024). McCoy et al. (2020) advocate for a dual approach where AI literacies are added to baseline curricula and extracurricular programmes are used to build onto AI literacy foundations. In this case, educators in the discipline would need to build capacity in AI and deliver discipline-targeted content to learners. Other institutions have adopted decentralised, digitally available instructional courses or learning materials such as the AI Campus (2024), a learning platform for AI. Miao et al. (2021) propose that AI literacy should be integrated with existing foundational skills to prevent overloading the curricula. The choice of the programme best suited for the integration would be informed by, among other considerations, the assessment of how well-established the programme is.

2.2 The intersection of MIL and AI literacy

MIL is a set of knowledge, skills, attitudes, competencies, and practices that allow one to effectively access, analyse, critically evaluate, interpret, use, create, and disseminate information and media products with the use of existing means and tools creatively, legally, and ethically (Shnurenko et al., 2020). Some of the points at which MIL and AI literacies intersect include but are not limited to search techniques, evaluation and responsible use of information (Scott-Branch et al., 2023). The shared elements of AI literacy and MIL provide foundational blocks for an integrated MIL-AI literacy curriculum.

2.2.1 Search techniques and prompt engineering

MIL equips learners with skills for crafting search queries and evaluating the output. Anecdotally, people tend to search for information from a large language model (LLM) in a manner similar to how they seek information from a search engine like Google (Lund, 2023). Through MIL, instructional librarians teach students that their search queries will impact the output and the value of evaluating the quality of the output. Similarly, in an AI environment, the same skills can be mapped to quality prompts that are a result of careful, strategic, and detailed crafting of inputs to elicit desired responses or behaviours from AI systems (prompt engineering) followed by evaluation of the output (Lund, 2023). Prompt engineering, a relatively new discipline for developing and optimising prompts to efficiently apply and build with LLMs (DAIR.AI, 2024) is highlighted as a key component in any AI literacy program (Walter, 2024). However, a key difference in the outputs of the queries is that generative AI tools like ChatGPT provide an expert explanation of a topic or answers without the user having to scroll through dozens of responses (C. Cox & Tzoc, 2023). The prompt helps set the tone, style, and direction of the output (Ramlochan, 2023). The important role played by prompts is demonstrated by Anthropic's launch of a Prompt Library that has archived optimised prompts that users can draw from for use in different settings (Anthropic, 2024). Anthropic is an AI safety and research company. It is important to note that no discipline or profession has claimed the responsibility of educating users on prompt engineering skills. Librarians can therefore seize the opportunity and merge prompt engineering skills with the information search skills component of MIL content. This will entail assisting learners with tips and techniques about how to ask AI systems the right

questions to obtain the best output. However, like any other search results, learners must evaluate the content generated.

2.2.2 Evaluation of AI-generated content

Libraries have been at the forefront of championing the cause of guiding users in their search for relevant and reputable information (Adetayo & Oyeniyi, 2023). AI technologies have heightened the need for skills needed to evaluate information. In the context of an AI environment, MIL learning outcomes include the ability to assess, analyse, compare, and evaluate content; identify and debunk conspiracy theories, and critically evaluate information providers for authenticity, authority, credibility, and current purposes (UNESCO, 2019). In particular, AI LLMs generate output based on patterns and language associations. The absence of critical thinking, human insight, and thoughtful reasoning in the process may lead to AI hallucinations, a phenomenon in which generated information appears realistic, coherent, and fluent but does not correspond to any real-world context (Alkaiss & McFarlane, 2023). Additionally, the models may inherit biases present in their training data (Ray, 2023). Generative AI models are also prone to groupthink bias by generating content that reflects the consensus views found in their training data (Shnurenko et al., 2020). This can limit the diversity of perspectives and hinder the exploration of alternative or dissenting viewpoints. Updated MIL content would equip learners with skills and knowledge to critically analyse the generated content based on factors such as degree of authority and possibility of bias.

2.2.3 Responsible use of AI tools

The responsible use of information sources is a common denominator in both MIL and AI literacy. However, AI technologies have increased this concern. Specifically, there is increased concern about academic integrity, academic misconduct, and plagiarism (Sabzalieva & Valentini, 2023). The use of AI tools does not constitute plagiarism *per se*. The parameters for determining whether academic integrity requirements have been breached include considerations such as transparency where AI tools have been used and whether the use is consistent with the academic integrity principles and policies of the respective institution (Perkins, 2023). In this regard, an upgraded MIL program would guide higher education learners on the legitimate use of AI tools. It is, for example, important to note that AI tools should not replace human intelligence (Scott-Branch et al., 2023). One way to accomplish this is to emphasise that only tasks that have previously been performed by human research assistants may legitimately be outsourced to the tools. The tasks may include support in accessing relevant literature, data entry and formatting, writing assistance, and suggestions for phrasing, tone, and style (Kooli, 2023). Other legitimate roles that AI tools perform include the use of an AI tool as “a possibility engine to generate ideas, as a personal tutor to offer feedback, as a co-designer to assist with the design process, as a study buddy for reflection and learning, as a motivator to help extend knowledge” (Sabzalieva & Valentini, 2023, p. 9). The researcher retains the ultimate responsibility for the content and quality of academic papers.

3. What AI literacy components should be enhanced or added to MIL frameworks?

Despite the overlapping MIL and AI literacies, MIL programmes require enhancement of the elements of intersection such as data literacy, AI ethics, and limitations of AI technologies; as well as introduction of relatively new content such as algorithm literacy (AL). It is, however,

important to note that the issue of what content should be covered under AI literacy has not been conclusively determined (Laupichler et al., 2022).

3.1 AI Algorithm literacy

Algorithms are the foundation of AI. They are computer codes designed and written by humans, carrying instructions to translate data into information or outputs (United Nations General Assembly, 2018). Algorithm literacy (AL) refers to the competency to understand the features of AI algorithms, how they function, and the consequences of their use. Algorithm literacy also means the capacity to critically evaluate the ethics of principles used to determine the acceptability of using related applications (Rusanen, 2021). The literacy includes an understanding of the elements of the algorithm, types of the algorithms, and application of the algorithms such as in information retrieval and generation, a recommendation based on user's habits, and ranking of results (Elastic Platform Team, 2024; Frau-Meigs, 2024). Because AI search algorithms are the core of processing queries and generating optimal solutions to the queries, Frau-Meigs (2024) proposes that algorithm literacy can be considered a subset of MIL. The author concurs with the view to the extent that AL is an indispensable component of MIL but proposes that it would be more practical to treat it as one of the components of AI literacy. This approach would give context to the AL. The literacy can also be added to the twelve elements of MIL that were identified by participants of a workshop that was organised by the UNESCO Myanmar Office. They include "media literacy, social media literacy, information literacy, news literacy, digital literacy, internet literacy, computer literacy, library literacy, cinema literacy, archival literacy, advertising literacy, and freedom of expression/freedom of information literacy" (UNESCO Myanmar Project Office, 2020, p. 24). The participants were working towards a MIL competency framework.

3.2 Data literacy

Data has been described as the lifeblood that fuels AI algorithms enabling them to learn, adapt, and make decisions (Sehgal, 2023). Data has therefore increasingly become an important asset. A previous study posited that data literacy is as important as MIL (Prado & Marzal, 2013). Data literacy equips users with skills for creating, maintaining, and securing quality data and data sanitation (Alzubaidi et al., 2023). In an AI context, data literacy equips learners with the understanding that the quality of the data used in AI systems determines the degree of accuracy and validity of the output (Digital Curation Centre et al., 2020). The understanding disposes AI literate learners to be sceptical about AI-generated content and therefore critically evaluate it. Usova and Laws (2021) have made a convincing case for these skills to be offered within the MIL curriculum. The integration of MIL and AI literacy should address and build on content that covers issues such as the rights of data owners, the intellectual property rights of generated images and codes (Miao, 2023), and data governance and privacy (European Commission, 2019).

3.3 Ethical considerations of AI

The advancement of AI has intensified information-related ethical concerns. The development of AI literacy is key to addressing the concerns and making meaningful use of AI in higher education. Although there is no common definition of AI ethics (USAID, 2023), the concept can be unpacked as covering elements such as copyright, attribution, plagiarism, and authorship when AI produces academic text (Liebrenz et al., 2023), all of which fall within the purview of

MIL. When generative AI models such as ChatGPT contribute to the generation of research ideas, hypotheses, and even written content, the boundaries of intellectual property rights and authorship attribution are blurred. Other key AI-related ethical considerations that can be integrated into MIL content include transparency and accountability, bias, fairness, and explainability of the AI models (Ray, 2023). Several guidelines have been developed to clarify and mitigate the myriad range of ethical issues. An example is the OECD guidelines, which provide a list of overarching principles and policy recommendations geared toward designing and running AI systems in a way that prioritises people's best interests and ensures that designers and operators are held accountable for their proper functioning (OECD 2019). Such guidelines can provide direction for the updating and alignment of MIL content regarding ethical issues.

3.4 Limitations of AI

To optimise the power of AI technologies, higher education learners must be aware of the limitations of technology. For example, generative AI systems do not understand real-world contexts that underpin language and therefore cannot provide new ideas or solutions to real-world problems (Miao, 2023). Their lack of contextual comprehension compromises the reliability and accuracy of the data they produce (Megahed et al., 2024). It is also difficult to understand the logic they apply in generating content. This has led to widespread concerns in academia and society at large (Li et al., 2023; Miao, 2023). Therefore, an enhanced MIL curriculum should equip higher education learners with critical analytical skills to identify and mitigate inaccuracies and biases in AI-generated content.

4. Expert opinion

4.1 AI literacy as a subset of MIL

The author concurs with the recommendation of Miao et al. (2021) for the integration of AI literacy with existing foundational skills such as MIL. MIL is not only one of the most well-established and well-defined forms of literacy but it also offers many elements of integration with AI literacy (Scott-Branch et al., 2023). Furthermore, AI literacy still lacks pedagogical designs based on outlines of skills that students should acquire (Laupichler et al., 2022). However, based on the definition of MIL adopted in this paper, AI literacies can be treated as a subset of MIL by integrating the concepts into existing MIL content. Higher education institutions can therefore leverage existing MIL frameworks and progressively update them by infusing them with AI literacy components.

4.2 Review of MIL frameworks

To attain the integration of basic AI literacy into MIL, MIL frameworks need an urgent review and upgrade. Although the frameworks have been found to be slow in responding to the rapidly changing information ecosystem, Tiernan et al. (2023) recommend that developers retire the "report-style" nature of frameworks in favour of online frameworks that are maintained rather than published. This would allow for faster and easier updates in the form of, for example, annotations and links to sections affected by AI and any other development. Related to responsiveness, the 2015 ACRL *Framework for Information Literacy for Higher Education* has been described as flexible in accommodating new technologies (James & Filgo, 2023). Leveraging the flexibility and customisable approach of the framework, the FIU libraries

comprising the Green Library and Hubert Library have developed a LibGuide that explores the integration of generative AI with the framework (FIU Libraries, 2024). The ACRL framework consists of six threshold concepts. These are scholarship as conversation, research as inquiry, information creation as process, authority is constructed and contextual, searching as strategic exploration, and information has value (ACRL, 2015). To aid the repackaging of MIL, the University of Dakota Library has mapped standards for MIL to AI learning outcomes (University of Dakota Library, 2024). Kennedy (2023) has made another notable attempt at creating an AI Literacy Framework by mapping AI skills onto the UNESCO Digital Literacy Global Framework. The envisaged skills are mapped to the frames of hardware and software, information and data literacy, communication and collaboration, content creation, safety problem solving, and career competencies. This initiative provides useful insights on specific AI literacy outcomes in the envisaged enhanced MIL curriculum. The trailblazing initiatives underscore the feasibility of integrating AI literacy into the MIL curriculum.

4.3. An analysis of initiatives for mapping AI literacy to the ACRL Framework for Information Literacy for Higher Education

James & Filgo (2023) have made a significant effort to integrate AI literacy within the ACRL framework by assessing the role of ChatGPT across its six frames. While they successfully established several connections, they recognise that their analysis lacks comprehensiveness, indicating a need for further exploration. Notably, their analysis does not distinctly categorise knowledge practices and dispositions. The authors suggest that a more detailed analysis, including a list of knowledge practices and dispositions, would create a foundational framework that could be expanded upon. This structured approach would assist instruction librarians in developing effective AI literacy training tools such as lesson plans. The FIU Libraries (2024) have done a broad mapping of AI literacy and the frameworks with the aim of clarifying the contradistinction between generative AI and scholarly and crowdsourced information. However, they have not explicitly linked AI literacy to the knowledge practices and dispositions outlined in the ACRL framework. Additionally, Coates & Garner (2024) have developed what they call 'A real package deal - AI & the library instruction practitioner' which references the ACRL framework to examine the outputs of Generative AI technologies. They have identified several issues but have not connected them to the knowledge practices and dispositions as defined by the ACRL framework.

4.4 Proposed mapping of AI literacy to the ACRL frameworks

To demonstrate the viability of integrating AI literacy into the MIL frameworks, the author has built on the existing initiatives and mapped the literacy into the 2015 ACRL *Framework for Information Literacy for Higher Education*. While acknowledging the difference between IL and media literacy in their theoretical focus, the author justifies the choice of the framework by noting that there has been a growing recognition that there are inherent similarities between the two literacies. The media literacy tradition focusses on the understanding, comprehension, critique and creation of media materials, while the IL tradition stresses the identification, location, evaluation and use of information (Livingstone et al., 2008; Rosenbaum et al., 2021). Both literacies emphasise the evaluation and critique of the ways in which meanings are embedded in the information and media we consume and create. They are both centred on issues of power and influence (Rosenbaum et al., 2021). Brayton & Casey (2019) further argue that there is no significant difference between *information* and *media* in the digital age and conclude that the two literacies are natural allies. Additionally, the two literacies emphasise the

“development of inquiry-based skills and the ability to engage meaningfully with media and information channels in whatever form and technologies they are using” (Wilson et al., 2011, p. 18). Another reason for the choice is that the framework was established with a relatively more flexible and customisable route for the integration of new concepts into curricula than the ACRL *Information Literacy Competency Standards for Higher Education* that had previously been in use (James & Filgo, 2023). The standards have an enumerative and prescriptive approach that provides a set of learning outcomes with associated skills that students are expected to master. Contrary to this approach, the framework focuses on six threshold concepts (University of Toronto Libraries, 2015). This author has used a table to map suggested new AI literacy-related knowledge practices and dispositions to the relevant frames. The mapping is captured in table 1.

Table 1: Mapping AI literacy to the ACRL Framework for Information Literacy for Higher Education (2015)

Frame	Knowledge Practices	Dispositions
<p>Authority is Constructed and Contextual <i>Information resources reflect their creators' expertise and credibility, and are evaluated based on the information need and the context in which the information will be used. Authority is constructed in that various communities may recognise different types of authority. It is contextual in that the information need may help to determine the level of authority required.</i></p>	<p>*Use research tools and indicators of authority to determine the credibility of sources, understanding the elements that might temper this credibility</p> <p>Evaluate the degree of authority of the generated content</p> <p>Understand that first attempts at searching do not always produce adequate results</p> <p>Assess the efficacy of algorithms</p> <p>Determine what AI models were used to develop the AI tool</p> <p>Assess quality of data based on characteristics data quality and governance, representativeness, accuracy, completeness, accessibility, and coverage</p> <p>Evaluate AI-generated content for biases</p> <p>Identify limitations of the sources of AI-generated content (largely sourced from open access resources, political organisations, individuals and non-profit making organisations)</p> <p>Identify and debunk conspiracy theories</p> <p>Determine if generated content is factual</p> <p>Evaluate information providers for current purposes</p>	<p>*Develop awareness of the importance of assessing content with a sceptical stance and with a self-awareness of their own biases and worldview</p> <p>Use follow-up questions to add context</p> <p>Understand the elements that might tamper with the credibility of sources in an AI environment</p> <p>Awareness that the quality of output is determined by the quality of training datasets</p> <p>Awareness of inherent biases in AI-generated content</p> <p>Awareness of limitations of the sources AI-generated content</p> <p>Awareness that algorithms can be used for disinformation</p> <p>Awareness that certain LLMs parameters determine the reliability, validity & credibility of output</p> <p>Cognisant that Gen AIs use predictive language patterns and language associations. to generate content. The content may therefore not reflect real-world context</p> <p>Manage privacy and interaction with AI systems to reduce tracking and targeting (as less data are collected from your devices)</p> <p>Understand that AI models can adapt their perceived authority based on user interaction</p>

<p>Information Creation as a Process <i>Information in any format is produced to convey a message and is shared via a selected delivery method. The iterative processes of researching, creating, revising, and disseminating information vary, and the resulting product reflects these differences.</i></p>	<p>*Articulate the capabilities and constraints of information developed using AI systems *Assess the fit between AI-generated information and a particular information need Identify different parameters of authority in an AI environment Use concise, logical, and explicit language to craft prompts Create information with different Gen AI tools Evaluate the quality of training data Assess generated information and determine if there is a need for follow-up prompting Assess the factualness of generated content</p>	<p>*Are inclined to seek out characteristics of information products that indicate the underlying creation process of AI systems Are cognisant that AI-generated content has biases and limitations Probe AI systems through crafting and recrafting prompts to optimise output (Prompt Engineering) Set the scenario for queries for optimal outputs Awareness that the quality of output is determined by the quality of underlying training data Awareness that AI tools are prone to “hallucination” when generating content</p>
<p>Information has value <i>Information possesses several dimensions of value, including as a commodity, as a means of education, as a means to influence, and as a means of negotiating and understanding the world. Legal and socioeconomic interests influence information production and dissemination.</i></p>	<p>*Give credit to the original ideas of others through proper attribution and citation *Understand how and why some individuals or groups of individuals may be underrepresented or systematically marginalised within the systems that produce and disseminate information Understand the information economy in the age of AI Securing subscription-based information from mining by AI systems</p>	<p>Understand the need to verify citations when using AI-generated content Seek information from multiple sources to minimise the effect of underrepresentation of marginalised individuals Browse anonymously (use VPNs) Manage their privacy and interaction with AI systems to reduce tracking and targeting (less data are collected from your devices) Make informed choices regarding their online actions in full awareness of issues related to privacy and the commodification of personal information.</p>
<p>Research as Inquiry <i>Research is iterative and depends upon asking increasingly complex or new questions whose answers in turn develop additional questions or lines of inquiry in any field.</i></p>	<p>*Monitor gathered information and assess for gaps or weaknesses Use Gen AI systems to create concept maps Use GenAI to generate search terms Craft prompts that set the scope of investigation</p>	<p>*Seek multiple perspectives during information gathering and assessment *Maintain an open mind and a critical stance Awareness that AI-generated content has biases, and gaps in the diversity of perspectives</p>

<p>Scholarship as conversation <i>Communities of scholars, researchers, or professionals engage in sustained discourse with new insights and discoveries occurring over time as a result of varied perspectives and interpretations.</i></p>	<p>*Cite the contributing work of others in their own information production *Summarise the changes in scholarly perspective over time on a particular topic within a specific discipline *Recognise that a given scholarly work may not represent the only or even the majority perspective on the issue. Use an AI model to generate terms that are regularly deployed when responding to a prompt Evaluate representativeness of AI-generated content</p>	<p>Verify citations when using AI-generated content Use AI summarisers to summarise the changes in scholarly perspective over time on a particular topic within a specific discipline *Suspend judgment on the value of a particular piece of scholarship until the larger context for the scholarly conversation is better understood Cognisant of gaps in perspectives on an issue Awareness of the underrepresentation of marginalised groups in the conversation Awareness that AI generated is prone to groupthink bias. Explore alternative or dissenting viewpoints</p>
<p>Searching as Strategic Exploration <i>Searching for information is often nonlinear and iterative, requiring the evaluation of a range of information sources and the mental flexibility to pursue alternate avenues as new understanding develops.</i></p>	<p>*Use prompts to set the scope of the task required to meet an information need *Utilise divergent (e.g., brainstorming) and convergent (e.g., selecting the best source) thinking when searching *Match information needs and search strategies to the appropriate AI tools Use AI summarisers to summarise the changes in scholarly perspective over time on a particular topic within a specific discipline</p>	<p>Use quality prompts to contextualise and apply iterative search refinement Use Gen AIs for brainstorming Match the right AI tool to the information need Recognise that the features of AI tools keep shifting Evaluate and verify the output Browse anonymously (use VPNs)</p>

Notes to the table:

- AI literacy concepts are mapped to the framework by listing the applicable knowledge practices and dispositions
- *Represents existing knowledge practices and dispositions that are applicable to generative AI technology. Some of these have been customised to articulate the AI literacy aspect.
- Some knowledge practices and dispositions can be mapped to more than one frame
- The lists are not exhaustive
- The table does not directly link the knowledge practices to specific dispositions

4.4 Who should teach basic AI literacy?

With regard to who should take on the role of imparting basic AI literacy to higher education learners, libraries have the potential to make the most impact by championing the intersection of AI literacy and MIL. This is because librarians already possess well-established expertise in areas of AI literacy and MIL intersection (Adetayo & Oyeniya, 2023). They therefore only need to repackage the set of skills that encompass MIL (Jones, 2023) and build on the existing MIL frameworks by incorporating AI literacy (Scott-Branch et al., 2023). To accomplish this, librarians must build their capacity in AI knowledge and skills. This can be done through participation in AI programmes and workshops. The upgrading of skills can also be accelerated by the formation of and participation in AI communities of practice. CoPs bring together different players and stakeholders in the AI environment. This will help clarify cross-cutting issues and lend a diversity of voices from, for example, data scientists, ethicists, librarians, and intellectual property experts. It is however acknowledged that because MIL is both a disciplinary and transdisciplinary learning agenda, librarian-faculty collaboration coupled with student co-curricular programs have the potential to enrich and transform AI literacy (American Library Association, 2015).

4.5 Examples of libraries that have taken the lead in teaching basic AI literacy

Several libraries have pioneered the teaching of AI literacy. For instance, Northwestern University Library responded swiftly to student enquiries following the launch of ChatGPT by creating a dedicated resource page titled "Using AI Tools in Your Research". At the time, Northwestern University had yet to compile a resource page to address the issues that were emerging with the launch (Coffey, 2023). Other libraries, such as DePauw University Libraries, have created Libguides on topics such as Chatbots, ChatGPT, and generative AI (Gilson, 2024). The Massachusetts Library Systems on the other hand has included links to topics on AI literacy on their digital literacy webpage and introduced an online community chat dubbed "The AI Hour", which runs every second Friday of the month. The session covers news on AI tools as well as demonstrations of how to use specific AI tools (Stimpson, 2024). Other university libraries that have developed AI resource pages include Cowles Library at Drakes University whose resources include FAQs, a compilation of research articles on AI, and resources on best practices in the use of generative AI tools (Cowles Library, Drakes University, 2024). The FIU libraries have developed a resource page that has a compilation of LibGuides developed by different universities, resources on topics such as AI literacy, AI and IL, lesson plans for teaching AI, prompt engineering instruction, recording of AI workshops, AI tools and a reading list (FIU Libraries, 2024). To equip faculty members with AI literacy skills, librarians at the Madigan Library at Penn College have developed a resource page covering topics such as the implication of generative AI tools on instruction and academic integrity, and their use in industry (Madigan Library, 2024). These libraries have demonstrated that they are suitable and have the capacity to teach basic AI literacy to higher education learners.

5. Limitations of the study

This study has focused mainly on the content-related points at which MIL and AI literacy overlap. Although there has been discussion on what should and should not be part of AI literacy, this issue has not been conclusively resolved. The author therefore recommends further research on additional content that should form part of basic AI literacy for all higher education learners and the mapping of concepts to the ACRL *Framework for Information*

Literacy for Higher Education. These can be added to the proposed mapping of AI concepts onto the ACRL *Framework for Information Literacy for Higher Education* since it is not exhaustive.

The author has focused on LLMs because they impact the information processing, search, creation, and evaluation processes. The processes are within the purview of MIL. In particular, generative AIs (such as ChatGPT), a type of LLM, have implications for education, as they replicate the higher-order thinking that is the foundation of human learning (Miao, 2023). ChatGPT has caused significant interest in the use of generative AI in higher education since its release in November 2022 (Chan & Hu, 2023). A survey on the use of generative AI at Boston Northeastern University found that 80% of students had incorporated generative AI into their routine (citation needed). These observations make the topic a worthy focus point for the paper. AI is a rapidly changing field. The author may therefore not have covered pertinent issues that may have recently emerged. It is advisable to keep checking authoritative sources for updates and news.

6. Conclusion

AI promises to surpass all previous technological revolutions in how information is accessed, created, evaluated, and used. Some of the requisite key elements of AI literacy overlap with the core elements of MIL. This makes the integration of AI literacy into MIL programmes a viable route for introducing AI literacy to higher education learners. The points of convergence include but are not limited to search techniques, evaluation and responsible use of information. However, the integration requires the revamping of AI programmes through enhancements of the overlapping elements as well as the introduction of relatively new concepts such as algorithm literacy. The libraries that have pioneered the teaching of AI literacy demonstrate that librarians are not only capable of the task but are also best suited to teach basic AI literacy to higher education learners. This is because they already have expertise in teaching MIL which translates well in teaching AI literacy. They are therefore urged to seize the opportunity and revamp and repackage MIL programmes by incorporating AI literacies into their day-to-day workflows and reviewing of the MIL frameworks. The flexibility and customisable nature of the ACRL *Framework for Information Literacy for Higher Education* allows for relative ease of integration. Coates & Garner (2024) rightly observe that AI coupled with skilled library instruction practitioners is an engaging, winsome combination.

Declarations

Ethics approval

Ethical review was not considered necessary in alignment with the The Co-operative University of Kenya's guidance on the conduct of ethical research.

Funding

Not applicable.

AI-generated content

No AI tools were used.

References

- ACRL. (2015). [Framework for Information Literacy for Higher Education](#). The Association of College and Research Libraries.
- Adetayo, A. J., & Oyeniyi, W. O. (2023). [Revitalizing reference services and fostering information literacy: Google Bard's dynamic role in contemporary libraries](#). *Library Hi Tech News*, ahead-of-print.
- AI Campus. (2024). [About the AI campus](#). AI Campus.
- Alkaiss, H., & McFarlane, S. I. (2023). [Artificial hallucinations in ChatGPT: Implications in scientific writing](#). *Cureus*, 15(2), 1–4.
- Alzubaidi, L., Al-Sabaawi, A., Bai, J., Dukhan, A., Alkenani, A. H., Al-Asadi, A., Alwzway, H. A., Manoufali, M., Fadhel, M. A., Albahri, A. S., Moreira, C., Ouyang, C., Zhang, J., Santamaría, J., Salhi, A., Hollman, F., Gupta, A., Duan, Y., Rabczuk, T., Abbosh, A., & Gu, Y. (2023). [Towards risk-free trustworthy Artificial Intelligence: Significance and requirements](#). *International Journal of Intelligent Systems*, 2023(1), 1–41.
- American Library Association. (2015). [Framework for information literacy appendices](#). American Library Association.
- Anthropic. (2024). [Prompt library](#). Anthropic.
- Brayton, S., & Casey, N. (2019). [Reflections on adopting a critical media and information literacy pedagogy](#). In A. Pashia & J. Critten (Eds.), *Critical approaches to credit-bearing information literacy courses* (pp. 117–138). American Library Association.
- Chan, C. K. Y., & Hu, W. (2023). [Students' voices on generative AI: Perceptions, benefits, and challenges in higher education](#). *International Journal of Educational Technology in Higher Education*, 20(1), 1–18.
- Chita, E.-I., Dumitrescu-Popa, S., Motorga, B., & Panait, M. (2023). [Artificial Intelligence – Source of inspiration or a problem?](#) *Proceedings of the International Conference on Business Excellence*, 17(1), 895–903.
- Coates, K., & Garner, J. (2024, April 19). [A real package deal—AI & the library instruction practitioner](#) [Presentation]. Georgia International Conference on Information Literacy, Georgia Southern University.
- Coffey, L. (2023, November 3). [AI, the next chapter for college librarians](#). Inside Higher Ed.
- Cowles Library, Drake University. (2024). [ChatGPT/AI & library research: Resources](#). Drake University

- Cox, A. M., & Mazumdar, S. (2022). [Defining artificial intelligence for librarians](#). *Journal of Librarianship and Information Science*, 56(2), 330–340.
- Cox, C., & Tzoc, E. (2023). [ChatGPT: Implications for academic libraries](#). *College & Research Libraries News*, 84(3), 99–102.
- DAIR.AI. (2024). [Prompt Engineering Guide](#). DAIR.AI.
- Digital Curation Centre, Trilateral Research, School of Informatics at the University of Edinburgh. (2020). [The role of data in AI: report for the Data Governance working group of the global partnership of AI](#). School of Informatics, The University of Edinburgh.
- Elastic Platform Team. (2024). [Understanding AI search algorithms](#). Elastic Blog.
- European Commission. (2019). [Ethics guidelines for trustworthy AI](#). European Commission.
- FIU Libraries. (2024). [Artificial Intelligence + ACRL frameworks: Introduction](#). FIU Libraries.
- Fourtané, S. (2023, August 11). [AI Literacy is a fundamental pillar in higher education](#). Fierce Network.
- Frau-Meigs, D. (2024). [Algorithm literacy as a subset of media and information literacy: Competences and design considerations](#). *Digital*, 4(2), 512–528.
- Gilson, C. (2024). [Artificial intelligence & higher education: Chatbots, ChatGPT and generative AI: Resources](#). DEPAUW Libraries.
- Hennig, N. (2023, April 26). [A tech librarian explains how to build AI literacy](#) [Interview].
- Hornberger, M., Bewersdorff, A., & Nerdel, C. (2023). [What do university students know about artificial intelligence? Development and validation of an AI literacy test](#). *Computers and Education: Artificial Intelligence*, 5, 1–12.
- James, A. B., & Filgo, E. H. (2023). [Where does ChatGPT fit into the Framework for Information Literacy? The possibilities and problems of AI in library instruction](#). *College & Research Libraries News*, 84(9), 334–341.
- Jones, M. (2023, July 7). [AI and higher education: An opportunity for librarians?](#) LinkedIn.
- Kennedy, K. (2023, December 21). [AI literacy framework](#). Kennedy HQ.
- Kong, S.-C., Man-Yin Cheung, W., & Zhang, G. (2021). [Evaluation of an artificial intelligence literacy course for university students with diverse study backgrounds](#). *Computers and Education: Artificial Intelligence*, 2, 1–12.
- Kooli, C. (2023). [Chatbots in education and research: A critical examination of ethical implications and solutions](#). *Sustainability*, 15(7), 1–15.

- 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*, 3, 1–15.
- Li, B., Qi, P., Liu, B., Di, S., Liu, J., Pei, J., Yi, J., & Zhou, B. (2023). [Trustworthy AI: From principles to practices](#). *ACM Computing Surveys*, 55(9), 1–46.
- Liebrenz, M., Schleifer, R., Buadze, A., Bhugra, D., & Smith, A. (2023). [Generating scholarly content with ChatGPT: Ethical challenges for medical publishing](#). *The Lancet Digital Health*, 5(3), e105–e106.
- Livingstone, S., Couvering, E. V., & Thumin, N. (2008). [Converging traditions of research on media and information literacies: Disciplinary, critical, and methodological issues](#). In J. Coiro., M. Knobel., C. Lankshear., & D. J. Leu (Eds.), *Handbook of research on new literacies* (pp. 103–132), Routledge.
- Long, D., & Magerko, B. (2020, April 23). [What is AI literacy? Competencies and design considerations](#). *CHI '20: CHI Conference on Human Factors in Computing Systems*.
- Lund, B. (2023). [The prompt engineering librarian](#). *Library Hi Tech News*, 40(8), 6–8.
- Madigan Library. (2024). [Research guides: AI learning tools: Instruction implications](#).
- McCoy, L. G., Nagaraj, S., Morgado, F., Harish, V., Das, S., & Celi, L. A. (2020). [What do medical students actually need to know about artificial intelligence?](#) *npj Digital Medicine*, 3(1), 1–3.
- Megahed, F. M., Chen, Y. J., Ferris, J. A., Knoth, S., & Jones-Farmer, L. A. (2024). [How generative AI models such as ChatGPT can be \(mis\)used in SPC practice, education, and research?](#) An exploratory study. *Quality Engineering*, 36, 287–315.
- Miao, F. (2023). [Guidance for generative AI in education and research](#). UNESCO.
- Miao, F., Holmes, Huang, R., & Zhang, H. (2021). [AI and education: Guidance for policy-makers](#). UNESCO.
- OECD. (2019). [Recommendation of the council on artificial intelligence](#). OECD.
- Perkins, M. (2023). [Academic integrity considerations of AI large language models in the post-pandemic era: ChatGPT and beyond](#). *Journal of University Teaching and Learning Practice*, 20(2), 1–24.
- Prado, C., & Marzal, M. Á. (2013). [Incorporating data literacy into information literacy programs: Core competencies and contents](#). *Libri*, 63(2), 123–134.
- Ramlochan, S. (2023). [Master prompt engineering - The \(AI\) prompt](#). Prompt Engineering.

- Ray, P. P. (2023). [ChatGPT: A comprehensive review on background, applications, key challenges, bias, ethics, limitations and future scope](#). *Internet of Things and Cyber-Physical Systems*, 3, 121–154.
- Rosenbaum, J. E., Bonnet, J. L., & Berry, R. A. (2021). [Beyond 'fake news': Opportunities and constraints for teaching news literacy](#). *Journal of Media Literacy Education*, 13(3), 153–159.
- Rusanen. (2021, October 12). [Learning the basics of algorithmic literacy](#). University of Helsinki.
- Sabzalieva, E., & Valentini, A. (2023). [ChatGPT and artificial intelligence in higher education: Quick start guide](#). UNESCO.
- 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](#). IFLA.
- Sehgal, R. (2023). [AI needs data more than data needs AI](#). *Forbes*.
- Shnurenko, I., Murovana, T., & Kushchu, I. (2020). [Artificial Intelligence: Media and information literacy, human rights and freedom of expression](#). The NextMinds.
- Southworth, J., Migliaccio, K., Glover, J., Glover, J., Reed, D., McCarty, C., Brendemuhl, J., & Thomas, A. (2023). [Developing a model for AI Across the curriculum: Transforming the higher education landscape via innovation in AI literacy](#). *Computers and Education: Artificial Intelligence*, 4, 1–10.
- Stimpson, J. (2024). [ChatGPT and generative artificial intelligence](#). *Massachusetts Library System*.
- Tiernan, P., Costello, E., Donlon, E., Parysz, M., & Scriney, M. (2023). [Information and media literacy in the age of AI: Options for the future](#). *Education Sciences*, 13(9), 1–11.
- UNESCO Myanmar Project Office. (2020). [Towards a media and information literacy competency framework in Myanmar](#) (MM/DOC/20/050-4; p. 65). UNESCO.
- UNESCO. (2019). [Global standards for media and information literacy curricula development guidelines](#). UNESCO.
- United Nations General Assembly. (2018). [Human rights and international solidarity](#). United Nations General Assembly.
- University of North Dakota Libraries. (2024). [AI literacy as information literacy](#). University of North Dakota Libraries.
- University of Toronto Libraries. (2015). [ACRL Framework for Information Literacy in Higher Education](#). Ontario Library Association.

USAID. (2023). [Artificial intelligence \(AI\) ethics guide](#). USAID.

Usova, T., & Laws, R. (2021). [Teaching a one-credit course on data literacy and data visualisation](#). *Journal of Information Literacy*, 15(1), 84–95.

Walter, Y. (2024). [Embracing the future of artificial intelligence in the classroom: The relevance of AI literacy, prompt engineering, and critical thinking in modern education](#). *International Journal of Educational Technology in Higher Education*, 21(1), 1–29.

Wilson, C., Grizzle, A., Tuazon, R., Akyempong, K., & Cheung, C. K. (2011). [UNESCO Media and information literacy curriculum for teachers](#). UNESCO.