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Attributes of an Information-Literate Student of Higher Education in the AI Era

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Abstract

The rapid development of artificial intelligence (AI) — and of generative artificial intelligence in particular — has transformed the information environment of higher education. Students now enjoy unprecedented access to information through search engines, digital libraries, academic databases, social media, large language models, and AI-powered research tools. These technologies create opportunities for personalized learning, research assistance, content creation, and knowledge discovery, yet they also introduce significant challenges: misinformation, fabricated references, algorithmic bias, privacy concerns, intellectual-property questions, threats to academic integrity, and the risk of overdependence on automated systems. Information literacy in higher education can therefore no longer be understood merely as the ability to locate, evaluate, and use information. It increasingly requires the ability to critically interrogate AI-generated content, understand how AI systems produce their outputs, verify evidence, recognize limitations and biases, use AI ethically, protect personal data, and maintain human intellectual agency. Drawing on the Association of College and Research Libraries (ACRL) Framework for Information Literacy, UNESCO's AI competency and media and information literacy frameworks, NIST's guidance on trustworthy generative AI, and recent empirical research on AI literacy and academic integrity, this paper proposes a multidimensional model of the AI-era information-literate student. It argues that the ideal student is not simply an efficient consumer of information, but a critical evaluator, ethical user, responsible creator, reflective researcher, and informed human decision-maker who can collaborate with AI without surrendering intellectual responsibility.

Keywords: *information literacy; artificial intelligence; generative AI; higher education; AI literacy; critical thinking; academic integrity; digital literacy; information evaluation; students*

1. Introduction

Information has always been central to higher education. University students are expected to identify information needs, search scholarly sources, evaluate evidence, synthesize ideas, communicate knowledge, and contribute to academic conversations. Traditionally, information literacy has therefore been understood as the ability to discover, evaluate, and use information effectively and ethically. The emergence of artificial intelligence has fundamentally altered this information environment. Students can now ask generative AI systems to explain concepts, summarize documents, suggest research

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questions, generate outlines, translate texts, write computer code, identify potential sources, and produce apparently sophisticated academic prose. AI has thus lowered some of the barriers between students and information while simultaneously making the information environment more complex and less transparent. The Association of College and Research Libraries (ACRL) defines information literacy as an integrated set of abilities involving the reflective discovery of information, an understanding of how information is produced and valued, and the ethical use of information in creating new knowledge and participating in learning communities. The ACRL Framework organizes these abilities around six interconnected frames — authority is constructed and contextual, information creation as a process, information has value, research as inquiry, scholarship as conversation, and searching as strategic exploration — anchored in the educational theories of threshold concepts and metaliteracy (Fulkerson et al., 2017; Jamieson, 2016). These principles remain highly relevant in the AI era, but they must now be interpreted in relation to AI-generated information. A student may receive an apparently authoritative answer within seconds without knowing where the information originated, whether the claims are accurate, or whether the cited sources actually exist. Indeed, generative AI systems are known to produce persuasive but factually inaccurate output — a phenomenon variously described as hallucination or confabulation, which can extend to fabricated citations that appear to support claims but are themselves unreliable (Grimes et al., 2023; Zhai et al., 2024). NIST's Generative AI Profile, for example, specifically identifies confabulation — the confident production of erroneous or false content — as an important risk of generative AI.The central question, therefore, is no longer simply "Can the student find information?" It is also "Can the student determine whether information — whether human- or AI-generated — is trustworthy, relevant, ethical, and appropriate for the purpose?" This paper examines the attributes students require to answer that question effectively.

2. Review of Literature

***2.1 The Evolution of Information Literacy Frameworks*:** Contemporary thinking about information literacy in higher education is shaped by the shift from the behaviouristic ACRL Information Literacy Competency Standards to the concept-based ACRL Framework for Information Literacy for Higher Education. Where the Standards enumerated discrete, measurable skills, the Framework deliberately moves instruction from the "how" of information skills toward the "why" of information creation and use (Agee, 2015). Its six frames are grounded in threshold concepts — troublesome, transformative ideas that serve as portals to new ways of thinking and practicing within a discipline — and in metaliteracy, which foregrounds the affective and metacognitive dimensions of learning (Fulkerson et al., 2017; Hofer et al., 2012). This theoretical grounding matters for the AI era because it treats information literacy not as a fixed checklist of competencies but as a disposition toward inquiry, evaluation, and self-reflection that must adapt as the information ecosystem changes (Jamieson, 2016).

***2.2 From Information Literacy to AI Literacy*:** A parallel body of literature has grown around the construct of AI literacy. Long and Magerko define AI literacy as "a set of competencies that enables individuals to critically evaluate AI technologies, communicate and collaborate effectively with AI, and use AI as a tool" (Chan & Colloton, 2024). Ng and colleagues, in an analysis of thirty peer-reviewed articles, conceptualized AI literacy through four aspects: knowing and understanding AI, applying AI, evaluating and creating with AI, and addressing AI ethics (Chan & Colloton, 2024). More recent syntheses have extended these foundations; an integrative review of publications between 2021 and 2024 proposes an "AI Literacy Heptagon" comprising seven dimensions — technical, applicational, critical thinking, ethical, social, integrational, and legal (Hackl et al., 2026). At the policy level, UNESCO's AI Competency Framework for Students outlines competencies across four dimensions — human-centred mind-set, AI ethics, AI techniques and applications, and AI system

design — structured in three progression levels: understand, apply, and create (Chiu & Rospigliosi, 2026). Empirical work confirms both the need and the appetite for such frameworks: a survey of 1,667 students at a large Israeli university found moderate GenAI use and medium-to-high self-reported literacy, with 82 percent of students supporting formal GenAI instruction within the curriculum (Hershkovitz et al., 2025). Studies of media and information literacy similarly argue that universities must cultivate competencies such as critical discernment, academic integrity, cognitive independence, and qualitative judgment in students' engagement with AI (Rojo et al., 2025).

2.3 The Reliability of AI-Generated Information: A central concern in the literature is that generative AI systems are probabilistic text generators rather than truth engines. These models are trained to predict the most probable sequence of terms, not to evaluate the factual accuracy of their output (Sadeghpour et al., 2025; Vicent et al., 2025). The consequence is hallucination: the production of plausible but untrue statements that can mislead users and obscure the boundary between fact and fiction (Zhai et al., 2024). The problem extends to scholarly apparatus itself: systems may generate citations that appear credible but do not exist. In one analysis, among 178 references produced by AI dialogue systems, 69 lacked a Digital Object Identifier and 28 could not be located through a Google search (Zhai et al., 2024); another study found that ChatGPT-generated references are mostly fabricated, with only 7 percent of citations being accurate (Vicent et al., 2025). Controlled experiments using ChatGPT to obtain academic information have likewise revealed inconsistencies, factual errors, and non-existent references, leading researchers to conclude that rigorous verification is essential to preserving the integrity of scientific production (Barcellos & Albino, 2025). In academic contexts, unchecked hallucination carries serious consequences, including retractions, reputational damage, and the circulation of misleading findings — and generative AI also enables the fabrication of datasets and the manipulation of images (Grimes et al., 2023).

2.4 Academic Integrity in the Age of Generative AI: The relationship between GenAI and academic integrity is a dominant theme in recent scholarship. A scoping review of research on how generative AI transforms assessment in higher education found that 54 percent of the reviewed articles identified GenAI as a significant challenge to student academic integrity, with particular concern that tools such as ChatGPT may encourage cheating and academic dishonesty (Xia et al., 2024). Studies of perceptions reveal nuanced and sometimes divergent views: students and teachers both recognize that GenAI can exhibit bias and produce content of questionable accuracy, and both groups acknowledge the importance of ethical and responsible use and of clear institutional guidelines (Chan & Lee, 2023). Survey research with students further shows that AI-generated responses to academic writing prompts, while often original and topically relevant, can contain inappropriate references and lack the personal perspective that AI is structurally incapable of producing (Chan & Hu, 2023). Most plagiarism checkers fail to reliably detect AI-generated text, complicating determinations of authorship (Chan & Hu, 2023), and students' perceptions of what constitutes acceptable AI assistance are far from uniform — reinforcing calls for clearer institutional guidance and for instruction that builds judgment rather than simply prohibiting tools (Xia et al., 2024).

2.5 Cognitive Consequences: Overreliance, Cognitive Offloading, and Metacognition: A growing body of evidence warns that unstructured, habitual use of AI can weaken the very abilities higher education aims to cultivate. Frequent AI tool use has been significantly negatively correlated with critical thinking performance, with cognitive offloading identified as the mediating mechanism (Gerlich, 2025). Systematic reviews report that over-reliance on AI dialogue systems can impede the development of critical thinking, problem-solving, and effective communication, and may reduce creativity and innovation, as students delegate analysis, argument construction, and knowledge integration to the machine (Zhai et al., 2024). The concept of "metacognitive laziness" captures a further risk: because excessive reliance on AI-generated output deprives learners of the cognitive

difficulty that triggers deeper analytical reasoning, students may default to less effortful, more intuitive decision-making and disengage from critical self-regulation (Fan et al., 2024). Notably, however, these effects are contingent on pedagogical framing; when GenAI is embedded within inquiry-oriented, scaffolded instructional designs that promote metacognitive regulation and argumentative reasoning, it can support rather than erode higher-order thinking (Li et al., 2026). Design-oriented frameworks accordingly emphasize preserving "cognitive friction," positioning AI as a provisional thinking partner, and structuring evaluation throughout the learning process (Vendrell & Johnston, 2026). Teachers themselves report that enhancing students' critical thinking, information literacy, and capacity to assess the reliability and bias of AI-generated content is central to any successful integration of these technologies (Chan, 2023; Kim et al., 2024).

2.6 Students' Evaluation Skills and the Misinformation Environment: The AI challenge arrives in an information environment already saturated with misinformation. Research shows that even without AI mediation, students often struggle to evaluate online sources: many studies find that college students have difficulty discerning fact from fiction on the internet, though targeted instruction — for example, in "lateral reading," the practice of leaving an unknown site to consult other sources — produces significant improvements (Breakstone et al., 2021). Survey evidence indicates that while most university students are aware of criteria for evaluating online content, they do not consistently apply them, and differences by department and year of study are minimal, suggesting that critical evaluation must be taught deliberately across all fields (Georgopoulou et al., 2025). Studies in specific contexts report relatively low student ability to deal with misleading content on social media (Sari et al., 2025), while longitudinal comparisons confirm that information literacy and evaluation competence develop with sustained university experience (Dias et al., 2024). Finally, research on self-assessment shows that students' confidence in their information competencies frequently exceeds their objectively measured performance (Ivanitskaya et al., 2006), which matters in the AI era because confident but unverified acceptance of AI output poses a distinct risk to academic work.

3. Concept of Information Literacy in the AI Era

Information literacy may be understood as the capacity to recognize an information need, locate appropriate information, evaluate its quality and relevance, use it responsibly, and create new knowledge. In the AI era, this concept has expanded. Students interact not only with traditional information sources — books, journals, databases, and websites — but also with algorithmically generated information. UNESCO's work on media and information literacy recognizes the growing importance of critical engagement with information and digital technologies, particularly in an environment affected by misinformation, disinformation, declining trust, and artificial intelligence (Rojo et al., 2025). UNESCO's AI Competency Framework for Students identifies competencies across four dimensions: a human-centred mindset, the ethics of AI, AI techniques and applications, and AI system design, progressing through three levels: understand, apply, and create (Chiu & Rospigliosi, 2026). Information literacy and AI literacy thus increasingly overlap. An information-literate student must understand enough about AI to judge what an AI system can and cannot reliably do, while an AI-literate student must be capable of evaluating the information produced or mediated by AI. The two literacies are complementary facets of a single competence for the contemporary information environment.

4. Attributes of an Information-Literate Higher-Education Student in the AI Era

Some important attributes of an information literate higher education student in the AI Era are as shown in Figure 1 given below.

***4.1 Critical Thinking and Analytical Ability*:** The first and most important attribute is critical thinking. AI systems can generate fluent and convincing responses, but fluency does not guarantee truth, and students must not automatically accept information simply because it is presented confidently by an AI system, a search engine, a lecturer, a website, or a social-media platform (Chan & Lee, 2023). A critical student asks: Who produced this information? What evidence supports the claim? Is the evidence current? Is the source authoritative? Are alternative interpretations available? Does the information contain assumptions or bias? Can the claim be independently verified? Critical thinking of this kind functions as a safeguard against unquestioning dependence on AI — particularly important given evidence that higher-order questioning of AI outputs is associated with stronger learning outcomes (Kim et al., 2024).

4.2 Ability to Evaluate AI-Generated Information: A defining attribute of the AI-era student is the ability to critically evaluate AI-generated outputs. Generative AI does not function as a conventional academic database; because it generates text by predicting probable sequences rather than retrieving verified facts, it can produce plausible but inaccurate statements, incomplete explanations, biased representations, and fabricated references (Sadeghpour et al., 2025; Vicent et al., 2025). Students should therefore verify important factual claims, inspect original sources, check quotations against the original publication, verify DOI and bibliographic information, compare AI answers with authoritative sources, distinguish evidence from AI-generated interpretation, and recognize uncertainty rather than assuming that confidence equals accuracy (Barcellos & Albino, 2025; Zhai et al., 2024). Recent research on higher-education students similarly emphasizes the relationship between AI literacy, critical evaluation of AI-generated information, and academic integrity (Xia et al., 2024).

4.3 Strategic Searching and Research Skills: An information-literate student should possess strong information-searching skills. Although AI can provide quick answers, academic research requires more than obtaining an answer: students must identify the scope of a research problem, formulate appropriate research questions, select databases, develop search strategies, use keywords, evaluate results, and progressively refine their inquiry. This corresponds closely to the ACRL concept of searching as strategic exploration, which recognizes searching as a nonlinear and iterative activity (Jamieson, 2016). AI should therefore supplement — not replace — research strategies. An effective student might use AI to brainstorm keywords and research questions, but then move deliberately through: AI-assisted exploration → academic database searching → source evaluation → primary-source verification → synthesis → independent conclusion

Figure 1. Attributes of an information literate higher education student in the AI Era



.4.4 Source Evaluation and Authority Awareness: Traditional information literacy emphasizes that authority is contextual: information resources reflect their creators' expertise and credibility and should be evaluated according to the information need and context (Jamieson, 2016). This becomes especially important with AI, which should not automatically be treated as an authority but rather as a tool for accessing, transforming, or generating information. An information-literate student should be able to distinguish among peer-reviewed research, government publications, institutional reports, scholarly books, professional organizations, credible journalism, websites, social-media content, and AI-generated responses, and should understand that these sources carry different levels and types of authority.

4.5 Evidence Verification: The AI-era student must develop a strong verification habit. Before incorporating an AI-generated claim into academic work — particularly statistics, quotations, historical claims, scientific findings, legal information, or references — the student should trace it to reliable evidence. A useful operating principle is: *AI may suggest; evidence must establish.* Asking an AI tool whether its own answer is correct does not fulfil this responsibility; verification requires independent examination of appropriate sources. The value of explicit instruction in such verification practices is well documented, with students improving significantly when taught active strategies such as lateral reading (Breakstone et al., 2021).

4.6 AI Literacy and Technological Understanding: Information literacy now requires a basic understanding of how AI systems operate. Students do not necessarily need to become AI programmers, but they should understand concepts such as machine learning, large language models, training data, prompts, probabilistic generation, algorithmic bias, hallucination or confabulation, context limitations, privacy, and automated decision-making (Chan & Colloton, 2024). UNESCO's AI competency framework emphasizes foundational AI knowledge, critical judgment of AI solutions, responsible citizenship, and the ability to use AI safely and meaningfully (Chiu & Rospigliosi, 2026). AI literacy, in short, has become a component of contemporary information literacy (Hackl et al., 2026).

4.7 Ethical Use of Information and AI: An information-literate student demonstrates ethical responsibility. The ethical use of AI includes acknowledging AI assistance when required, following institutional AI policies, avoiding plagiarism, respecting copyright, protecting confidential information, not fabricating research findings, not misrepresenting AI-generated work as entirely one's own, and maintaining responsibility for submitted academic work (Chan, 2023). UNESCO's guidance on generative AI advocates a human-centred approach and highlights ethical, safe, equitable, and meaningful use of AI in education and research (Chiu & Rospigliosi, 2026). Academic integrity is therefore not simply a matter of avoiding AI; it involves understanding when, why, and how AI may appropriately be used.

4.8 Academic Integrity**:** The widespread availability of generative AI has created new questions about authorship, originality, assistance, and academic misconduct (Xia et al., 2024). An information-literate student understands that technological capability does not automatically imply academic permissibility: a student may technically be able to generate an essay using AI, but whether such use is acceptable depends on institutional rules, assignment requirements, discipline, transparency, and the student's actual intellectual contribution. Because students' perceptions of AI-assisted academic work and academic integrity are not always uniform, clearer institutional guidance and dedicated AI-literacy education are needed (Chan & Lee, 2023; Xia et al., 2024). Academic integrity in the AI era thus requires judgment rather than merely prohibition.

4.9 Awareness of Bias and Algorithmic Influence: AI systems are trained and developed through data, models, algorithms, and human decisions, and their outputs can therefore reflect limitations, biases, and unequal representations — with conversational models amplifying biases present in training data (Vicent et al., 2025). An information-literate student should ask: Whose perspectives are represented? Whose perspectives may be missing? Could the training data contain historical bias? Does the AI reproduce stereotypes? Is the answer culturally or geographically limited? Does another source provide a different perspective? Both students and teachers recognize that GenAI can exhibit such biases and that fact-checking is frequently necessary (Chan & Lee, 2023).

4.10 Digital and Data Privacy Awareness: AI literacy also involves understanding data privacy. Students frequently enter information into online AI systems without considering what they are sharing. An information-literate student should understand the risks of entering personal information, confidential institutional information, unpublished research, private correspondence, sensitive datasets, intellectual property, and examination materials into AI tools (Chan, 2023). UNESCO's guidance on generative AI emphasizes the protection of data privacy as part of a human-centred approach to AI in education (Chiu & Rospigliosi, 2026).

4.11 Intellectual Curiosity and Research Orientation: Information literacy is not merely a technical skill; it also involves intellectual curiosity. The ACRL framework conceptualizes research as inquiry and emphasizes asking increasingly complex questions, exploring information gaps, considering multiple perspectives, and remaining open to new knowledge (Jamieson, 2016). AI can provide immediate answers, but higher education should encourage students to ask better questions. The information-literate student therefore questions assumptions, identifies gaps in knowledge, explores competing explanations, develops research questions, seeks evidence, tolerates uncertainty, and revises conclusions when new evidence emerges.

4.12 Ability to Synthesize Information: AI makes information abundance easier, but abundance does not automatically produce knowledge. An information-literate student must be able to synthesize information from multiple sources and construct an original understanding. Synthesis involves moving from finding → comparing → evaluating → connecting → interpreting → concluding. The student's goal is not to collect as much information as possible but to determine how different pieces of evidence relate to one another — a process consistent with the ACRL conception of scholarship as conversation, in which knowledge develops through multiple perspectives and on-going academic exchange (Jamieson, 2016).

4.13 Human Intellectual Agency: Perhaps the most important new attribute is human intellectual agency. AI can generate text, images, code, summaries, ideas, and recommendations, but students remain responsible for deciding what question deserves investigation, which evidence is credible, what interpretation is justified, which ethical principles should guide action, and what conclusions should be accepted. The student should therefore remain the decision-maker rather than merely the output consumer — a stance reinforced by evidence that unstructured reliance on AI can erode critical thinking through cognitive offloading and reduced epistemic agency (Gerlich, 2025; Vendrell & Johnston, 2026). UNESCO's AI competency framework similarly emphasizes a human-centred mindset and the development of students as responsible users and co-creators of AI (Chiu & Rospigliosi, 2026).

4.14 Creativity and Responsible AI Collaboration: An information-literate student should not view AI solely as either a threat or a shortcut; used thoughtfully, AI can support creativity. Appropriate uses may include brainstorming, generating alternative perspectives, developing preliminary research questions, language improvement, coding assistance, creating study questions, receiving formative

feedback, and exploring unfamiliar concepts (Chan & Hu, 2023). However, the student's intellectual contribution must remain visible. The ideal relationship can be described as: human question → AI assistance → critical evaluation → human judgment → original synthesis. When integrated within scaffolded, inquiry-oriented designs, such collaboration can support rather than undermine creativity and critical thinking (Li et al., 2026).

***4.15 Metacognition and Self-Reflection*:** The final attribute is metacognition — the ability to reflect on one's own learning and information practices. The ACRL Framework places particular emphasis on metacognition and critical self-reflection as essential to becoming self-directed within a changing information ecosystem (Fulkerson et al., 2017; Jamieson, 2016). An AI-era student should regularly ask: Did AI makes me understand the topic or merely produce an answer? Did I independently verify the information? Have I relied too heavily on AI? Can I explain the argument without AI assistance? Have I preserved my own critical thinking? Did I follow the rules governing AI use? Such reflection helps prevent technological convenience from becoming intellectual dependence, countering the metacognitive disengagement associated with passive AI consumption (Fan et al., 2024).

5. Proposed Model of the AI-Era Information-Literate Student

On the basis of the attributes discussed above, a model of the AI- Era Information Literate Student (As Shown in Figure 2) consisting of six broad dimensions has been proposed as given below:

Figure2.Model of the AI-Era Information-Literate Student

Dimension	Key Attributes
1.Cognitive	Critical thinking, analysis, questioning, synthesis
2.Information	Searching, source evaluation, authority assessment, evidence verification
3.Artificial Intelligence (AI)	AI literacy, understanding limitations, evaluating AI outputs
4. Ethical	Academic integrity, responsible use, copyright, transparency
5. Digital	Privacy, security, data awareness, algorithmic bias
6. Personal/Social	Curiosity, creativity, metacognition, intellectual agency

These dimensions are interconnected rather than independent. A student may possess excellent searching skills and yet lack information literacy if they cannot evaluate AI-generated misinformation; similarly, a student may possess strong technical AI skills and yet remain academically irresponsible if they use AI to fabricate references or misrepresent authorship. The model therefore implies that developing the AI-era information-literate student requires coordinated attention to all six dimensions, not instruction in any single one.

6. Role of Higher-Education Institutions

Developing information-literate students cannot be the responsibility of students alone. Universities, faculty members, academic librarians, and educational-technology professionals all have important roles.

6.1 Curriculum Integration: AI and information literacy should be embedded throughout the curriculum rather than taught only in isolated library orientation sessions. Students themselves express strong support for integrating GenAI instruction within curricula (Hershkovitz et al., 2025), and teachers advocate for systematic attention to critical thinking, information literacy, and the evaluation of AI-generated content as core educational goals (Chan, 2023).

6.2 Collaboration Between Faculty and Librarians: Academic librarians possess expertise in information evaluation, research databases, citation practices, and scholarly communication, while faculty members provide disciplinary expertise. Collaboration between the two can produce more meaningful AI-era information-literacy instruction, aligning disciplinary expectations with evidence-based practices for evaluating and verifying information.

6.3 AI-Aware Assessment: Assessment should emphasize processes that demonstrate student thinking — for example, research journals, source evaluations, oral presentations, annotated bibliographies, drafts and revisions, reflective statements, and evidence-based projects. Such authentic forms of assessment make students' reasoning visible and are consistent with evidence that scaffolded, process-oriented designs help AI operate as a partner in learning rather than a substitute for it (Li et al., 2026).

6.4 Clear AI Policies: Universities should provide transparent guidance concerning permitted, restricted, and prohibited uses of AI. Students need to know not merely that AI is available but how its use relates to academic integrity — a need underscored by research showing divergent perceptions among students and teachers and by the prevalence of integrity concerns in the literature (Chan & Lee, 2023; Xia et al., 2024).

6.5 Development of AI and Information Literacy Programmes: The ACRL Framework already provides a conceptual foundation for information-literacy education, while UNESCO's AI competency framework can complement it with AI-specific competencies (Chiu & Rospigliosi, 2026). Institutions should deliberately combine the two, ensuring that AI literacy education builds upon, rather than displaces, established information-literacy instruction.

7. Challenges in Developing Information-Literate Students

Several challenges must be recognized as given below.

7.1 Rapid Technological Change: AI technologies develop faster than educational curricula and institutional policies can adapt. UNESCO has noted the rapid emergence of GenAI tools and the difficulty of aligning governance and educational systems at the same pace — a recurring theme in the literature on AI integration (Hershkovitz et al., 2025).

7.2 Information Overload: I increases rather than reduces the overall volume of accessible information. Students may experience greater difficulty distinguishing useful knowledge from low-quality content, and the coexistence of human- and machine-generated material complicates evaluation (Georgopoulou et al., 2025).

7.3 Automation Dependence: Excessive reliance on AI can reduce opportunities for students to practise independent reasoning, writing, searching, and problem-solving. The documented association between frequent AI use, cognitive offloading, and diminished critical thinking is a direct threat to the developmental goals of higher education (Gerlich, 2025; Zhai et al., 2024).

7.4 Unequal Access: Students do not necessarily have equal access to advanced AI tools, paid subscriptions, high-speed internet, or AI education. Institutions must therefore address digital inequality as an equity issue, ensuring that AI literacy education reaches students regardless of technological or socioeconomic background (Hershkovitz et al., 2025).

7.5 Academic Integrity: Unclear boundaries surrounding AI-assisted work can produce confusion for both students and educators. The literature highlights continuing uncertainty about what constitutes acceptable versus unacceptable AI assistance, and the persistence of divergent perceptions calls for sustained policy and pedagogical attention (Chan & Lee, 2023; Xia et al., 2024).

***7.6 Reliability of AI Detection*:** Institutions should be cautious about assuming that automated AI-detection systems can definitively establish authorship, particularly given evidence that plagiarism checkers fail to identify substantial amounts of AI-generated text (Chan & Hu, 2023). The educational priority should be developing students' responsible information practices rather than relying exclusively on detection technologies.

8. Recommendations

Based on the preceding discussion, the following recommendations are proposed:

- Integrate AI literacy into information-literacy programmes at both undergraduate and postgraduate levels (Chan & Colloton, 2024; Hershkovitz et al., 2025).
- Teach students to verify AI-generated information against authoritative primary and scholarly sources (Barcellos & Albino, 2025; Zhai et al., 2024).
- Develop critical AI-use guidelines rather than focusing exclusively on prohibition (Chan & Lee, 2023).
- Strengthen academic-integrity education covering authorship, citation, transparency, and responsible AI use (Xia et al., 2024).
- Teach algorithmic and data literacy, including bias, privacy, and the limitations of AI systems (Chan, 2023; Vicent et al., 2025).
- Use authentic assessments that emphasize reasoning, evidence, reflection, and intellectual contribution (Li et al., 2026).
- Strengthen faculty–librarian collaboration in AI-era research instruction.
- Encourage metacognitive reflection on students' use of AI and information sources (Fan et al., 2024).
- Promote human-centred AI use, ensuring that AI supports rather than replaces student judgment (Chiu & Rospigliosi, 2026; Vendrell & Johnston, 2026).
- Provide equitable access to AI literacy education regardless of students' technological or socioeconomic backgrounds.

Conclusion

The emergence of artificial intelligence has not made information literacy less important; it has made it more important and more complex. The information-literate higher-education student of the AI era is not simply a student who knows how to search Google, access an academic database, or write a prompt. Such a student must be able to navigate an environment in which information may be produced by humans, algorithms, institutions, automated systems, or combinations of these — and in which confident, fluent output may nonetheless be inaccurate or fabricated (Grimes et al., 2023; Zhai et al., 2024).The essential attributes include critical thinking, strategic searching, source evaluation,

evidence verification, AI literacy, ethical awareness, academic integrity, privacy awareness, bias recognition, research ability, synthesis, creativity, intellectual curiosity, human agency, and metacognition. The central principle is that AI should enhance human learning rather than replace human judgment: students should learn to work with AI while remaining responsible for the knowledge they use and create, and institutions must design instruction, assessment, and policy to make such responsible collaboration possible (Chan, 2023; Li et al., 2026).In this sense, the goal of information literacy in higher education is shifting from producing students who can find information to producing students who can question, verify, interpret, create, and ethically act upon information in an AI-mediated world. The future-ready higher-education student is therefore not the person who uses the most AI, but the person who can use AI intelligently without surrendering intellectual responsibility.

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