



Higher education students' information literacy skills in engaging with AI-generated content



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ABSTRACT

This study examines the information literacy (IL) skills of higher education students in using AI-generated content. Using the DigComp 2.2 framework, a descriptive quantitative approach was applied through a validated 40-item survey completed by 444 students from private universities in three major urban areas in the Philippines. The results indicate high levels of IL skills across all dimensions, with mean scores of 3.79 for browsing, 3.78 for searching, 3.76 for filtering, and 3.83 for evaluating digital content. The findings suggest that students value the efficiency, personalization, and credibility support offered by AI tools while remaining aware of potential risks such as bias and misinformation. A main limitation of the study is its focus on private universities, where better digital infrastructure and access to AI technologies may have contributed to higher results. The study emphasizes the need to include AI-related competencies in information literacy programs and recommends further research in more diverse educational settings.

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1. Introduction

Enabled by the development and increased use of artificial intelligence (AI) systems that collect, process, and react to data in ways that stimulate human intelligence, information systems have become increasingly automated, adaptive, personalized, and easy to use (Elliott, 2019). For decades, continuing technological progress has been transforming how people live, work, and learn (Tiernan et al., 2023). It is within this context that information literacy features prominently in policy documentation and educational literature, all of which recognize it as an essential skill for critical engagement with information in the 21st century.

Information literacy, a core competency in higher education, enables students to locate, evaluate, and use information responsibly, a skill that has become even more critical with the rise of generative AI tools like ChatGPT, DeepSeek, Gemini, etc. (Akakpo, 2024). While traditionally focused on human-generated content, information literacy now demands the

ability to assess the credibility, validity, and ethical implications of AI-generated information. As digital transformation accelerates, students must develop the critical skills necessary to engage with both traditional and AI-generated sources to uphold academic integrity and make informed decisions in scholarly and professional contexts.

Higher education students in the world are facing a strong wave of digital transformation and information literacy as a central competence in the current digital age (Guo and Huang, 2021). The skill to identify books in a library through a stack of well-arranged volumes in large halls is giving way to the use of keywords in search engines and lately, interaction with generative AI systems (Popenici and Kerr, 2017; Qadir, 2023).

Despite the vast literature on information literacy, however, in the context of information literacy in the use of generative AI among higher education students remains scarce (Adarkwah et al., 2023). While AI tools are increasingly used by students to support academic tasks, there remains a critical research gap in understanding how this reliance affects the development of core information literacy skills (Wilkes et al., 2015). Specifically, there is limited empirical evidence on how students engage in browsing, searching, filtering, and evaluating AI-generated content (Zhai et al., 2024).

Exploring the following factors of DigComp2.2, namely browsing, searching, filtering, and evaluating

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AI-generated content, is essential in understanding information literacy within AI-mediated environments (van Audenhove et al., 2024). As artificial intelligence increasingly determines how information is accessed, ranked, and presented, users must develop the ability to navigate algorithm-driven systems, refine queries, and critically assess the credibility and accuracy of content (Sundar, 2020). These skills are crucial for identifying misinformation, recognizing algorithmic bias, and ensuring the ethical use of AI outputs (Wineburg and McGrew, 2019). Studying these factors supports the design of targeted literacy programs that equip individuals to engage responsibly and effectively with AI-generated content in both academic and real-world contexts (Almatrafi et al., 2024).

Thus, this study aimed to examine the extent of information literacy skills among higher education students in relation to the growing influence of AI-generated content. It aspires to provide insights into how AI impacts students' critical engagement with information, thereby contributing to the broader discourse on information literacy development in the age of artificial intelligence.

2. Literature survey

Information Literacy (IL) has become an increasingly valuable skill in today's world. With the rapid advancements in technology and the ever-changing landscape of information, the ability to critically evaluate and effectively utilize information is more important than ever. In a world where information is abundant and easily accessible through libraries, digital media, and the internet, the issue of the authenticity, accuracy, and reliability of information has become a growing concern.

Information literacy (IL) plays a pivotal role in academic, professional, and personal settings (Kozikoglu and Onur, 2019). Moreover, IL skills are requisite for research in higher education, decision-making in the workplace, and navigating everyday choices at home (Martoukou et al., 2020; Al-Azri et al., 2025). These skills rest on five foundational pillars: Recognizing information needs, locating and accessing information, evaluating information sources, integrating information, and using information responsibly. However, with the rapidly changing role of Artificial Intelligence (AI) in the creation and accessibility of information, the skills needed by students to navigate their information ecosystem evolve beyond the traditional realms of IL. Students, even at a rudimentary level of IL, are faced with added complexity in differentiating between what is credible and what is not, more so for AI-generated content (Falloon, 2020).

AI models can generate content that sounds accurate but may be factually incorrect, known as hallucination or misinformation. It may also produce false references and sources, adding to the issue of misinformation (Benzie and Montasari, 2022). Several studies have noted the trend of overreliance on AI tools by students, who tend to believe AI-

generated information is inherently correct or unbiased (Vieriu and Petrea, 2025). Although it is assumed that higher IL will help people deal with false information, studies have found a lack of strong evidence for this notion (Jones-Jang et al., 2021), which is a further indication of a gap in IL instruction in AI-related contexts.

The increased AI application for academic work also highlights IL-related ethical concerns. Students might incorporate AI-generated content without proper attribution, raising issues of academic dishonesty (Qadir, 2023). Moreover, broader concerns related to algorithmic bias, data privacy, and equitable access to AI tools must be considered and addressed. In addition, the responsible use of AI in information production, dissemination, and citation practices is emerging as a new component of IL instruction (Khalifa and Albadawy, 2024). As digital literacy evolves to include values like responsibility, sustainability, and safety, the new frameworks, such as DigComp 2.2, also include an ethics and sustainability component.

AI tools like search engines and recommendation systems often work through a "black box" of algorithms that can perpetuate or create bias (Nazer et al., 2023). Students might only receive information that reinforces their beliefs instead of seeing diverse content (Newstead et al., 2023). Understanding these algorithms and questioning the data is important for students to have a robust understanding of information literacy (Seymoens et al., 2020).

Lack of transparency is another ethical issue in AI systems (Balasubramaniam et al., 2023). It is usually hard or impossible for users to see the reasoning behind an AI's decision. Solyst et al. (2024) showed that the perception of transparency is a significant predictor of how credible AI-generated information is considered by users. Communicating information is also a core component of information literacy (Yamaguchi et al., 2025). In AI, this would mean clearly presenting information from AI systems and explaining their limits so that the generated content is received and understood within the intended scope.

Recent investigations into the influence of AI on learning outcomes have utilized a review methodology called Preferred Reporting Items for Systematic Reviews and Meta-Analyses to examine topics such as student attitudes, ethical considerations, and educational impacts (Almasri, 2024). Chatikobo and Pasipamire (2024) gathered data via focus group discussions about students' perspectives on AI and utilized a mixed-methods design of survey and case study to assess the preparedness of individuals to employ AI in the context of information literacy instruction. These studies have aided in the understanding of this phenomenon, but they typically either focus on technological implications or general educational impacts.

Based on the existing literature, the current study addresses a specific gap that has not been fully explored: The application of core information

literacy (IL) competencies—particularly browsing, searching, filtering, and evaluating—in the context of AI-generated content. While previous research has emphasized the importance of IL in general academic, professional, and personal domains (Mughari et al., 2025) and acknowledged the ethical and cognitive challenges brought about by AI, most studies either focus on broad information literacy themes or student perceptions of AI in education (Slimi et al., 2025). Existing studies do not empirically assess how students operate IL skills when interacting specifically with AI-curated or AI-generated information. Furthermore, many IL models currently in use were developed before the emergence of generative AI and do not account for the influence of opaque algorithms on how information is ranked and presented (Carroll and Borycz, 2024; Chaudhuri and Terrones, 2025). In contrast, the current study investigates how higher education students apply foundational IL processes, such as browsing, searching, and filtering content shaped by AI systems, and how they evaluate the credibility and accuracy of AI-generated content. By focusing on actual student engagement with AI-generated information, this study contributes empirical evidence needed to inform the revision of IL instruction and framework development tailored for AI-mediated contexts.

3. Methodology

3.1. Research design

This study employed a descriptive quantitative research design to determine the level of information literacy skills among higher education students in engaging with AI-generated content. The study was guided by the Digital Competence Framework (DigComp 2.2), focusing specifically on two core areas: (1) Browsing, Searching, and Filtering Data, and (2) Evaluating Information and Digital Content (van Audehove et al., 2024). These dimensions served as the analytical framework for assessing students' competencies in locating, verifying, and critically engaging with AI-generated content.

Data were gathered with the use of a structured survey questionnaire informed by the DigComp 2.2 indicators. The responses enabled measurement of students' self-reported practices and proficiencies with regard to information literacy in relation to the use of AI-generated materials. The instrument was designed to enable an in-depth exploration of the current information literacy skills of students in higher education.

3.2. Study respondents

This descriptive study involved a random sample of 444 private university students in three major urbanized areas in the Philippines. All students in the sample were given an orientation of the study in

which they were made aware of the study's procedures, the benefits, and the potential risks involved with the research. The participants all gave their consent to take part in the study, explicitly and with full understanding.

3.3. Research instrument

The survey instrument was a researcher-made questionnaire consisting of 40 items. The 20 items measuring browsing, searching, and filtering were categorized as: 6 items measuring browsing, 5 items measuring searching, 9 items measuring filtering, and 20 items measuring evaluating. To guarantee the quality of the items, the questionnaire underwent validation by subject matter experts. Furthermore, its reliability was assessed through testing with 30 non-respondents from a non-participating higher education institution, resulting in Cronbach's alpha values of 0.846 for browsing, searching, and filtering data using AI and 0.821 for evaluating information and digital content. The survey instrument employed a 5-point Likert scale, encompassing response options of very low (1.00-1.50), low (1.51-2.50), moderate (2.51-3.50), high (3.51-4.50), and very high (4.51-5.00). The scale was strategically chosen to gauge the participants' perceived satisfaction with the library services and resources under investigation.

4. Results

4.1. Browsing, searching, and filtering data using AI

Table 1 shows that higher education students demonstrate high information literacy skills when browsing AI-generated content, with a mean score of 3.79 and a standard deviation of 0.76. This reflects moderate variability in responses, indicating general agreement with slight differences among participants. For searching using AI, students also exhibit a high level of information literacy, with a mean score of 3.78 and a standard deviation of 0.78. This underscores broad agreement with some variability in perceptions. On filtering, students again report a high level of literacy, with a mean score of 3.76 and a standard deviation of 0.77. The consistency of responses indicates that students share similar views on the role of AI in filtering information.

The findings reveal that students recognize AI's influence on digital information environments, particularly in browsing tasks. They value efficiency and personalization through features such as autocomplete, recommendation systems, and result customization (Gerlich, 2025). This reflects alignment with previous studies in Arab States emphasizing convenience and accessibility (Mattar et al., 2022). Consistent with earlier work by Schilke and Reimann (2025), there is evidence that students may overestimate their ability to critically assess AI

outputs (Oliveira et al., 2025), particularly regarding algorithmic bias and personalization effects (Ekström et al., 2022). While students report awareness of AI's role, they appear less attuned to issues of sponsored content, echo chambers (Dwivedi et al., 2023), and content manipulation in search results.

In searching, the high mean score indicates that students see AI as improving search accuracy and content discovery. They acknowledge the role of algorithms in ranking results, though their limited awareness of algorithmic constraints indicates a need for deeper critical evaluation. The findings also suggest growing use of advanced search techniques (Lowe et al., 2020). These results reinforce earlier calls for embedding strategic search instruction

within higher education (Gross et al., 2018). With respect to filtering, the results confirm that students see AI as useful for assessing credibility and distinguishing between human- and AI-generated content (Santos, 2023; Suppadungsuk et al., 2023). At the same time, they recognize risks associated with AI optimization for engagement rather than accuracy, including bias, misinformation, and clickbait (Al-Zahrani, 2024). This dual perception, trust in AI tools coupled with awareness of their limitations, suggests that students are developing a balanced view. It also reflects the epistemological concerns raised in current scholarship (Archambault et al., 2024). The implication is that critical engagement with AI filtering must remain central to information literacy education.

Table 1: Browsing, searching, and filtering data using AI

Browsing	Mean	SD	Interpretation
AI adjusts search results based on my past browsing behavior.	3.80	0.80	High
AI personalizes search results through recommendation systems.	3.87	0.76	High
AI distinguishes between sponsored and organic search results.	3.65	0.77	High
AI tools (e.g., ChatGPT) assist me in retrieving relevant information and should be transparent about how search results are generated.	3.90	0.77	High
AI exposes me to a range of perspectives to avoid filter bubbles.	3.73	0.73	High
AI suggests autocompleting options that can influence my search behavior.	3.76	0.75	High
Total	3.79	0.76	High
Searching			
AI helps me effectively locate content.	3.85	0.76	High
AI uses advanced search techniques (e.g., Boolean operators, filters) to refine results.	3.61	0.83	High
AI ranks and prioritizes search results based on algorithms.	3.84	0.76	High
AI allows me to cross-check information using multiple sources or databases.	3.76	0.76	High
AI improves accuracy when I use specific or targeted keywords.	3.84	0.78	High
Total	3.78	0.78	High
Filtering			
AI distinguishes between human-created and AI-generated content.	3.89	0.76	High
AI can produce results that may contain bias or misinformation.	3.75	0.75	High
AI helps me filter search results to find credible or peer-reviewed sources.	3.68	0.77	High
AI supports the evaluation of search result reliability.	3.88	0.74	High
AI may optimize search results for engagement rather than factual accuracy.	3.82	0.73	High
AI-generated content may include clickbait or sensational headlines.	3.66	0.79	High
AI-generated search results may reflect commercial or political influences.	3.62	0.80	High
AI can reinforce existing biases in search results.	3.70	0.79	High
AI presents results that I must assess for accuracy and credibility, and these tools should clearly disclose their sources to support transparent evaluation.	3.86	0.78	High
Total	3.76	0.77	High

SD: Standard deviation

4.2. Evaluating information and digital content

Table 2 shows that students reported a relatively high level of confidence in evaluating information and digital content, with a mean score of 3.83 and a standard deviation of 0.77. This indicates that, on average, they believe they are capable of critically assessing AI-generated outputs, verifying the accuracy of sources, and addressing ethical considerations when engaging with AI-generated material. However, the standard deviation suggests variability across respondents, pointing to uneven mastery of specific skills.

These findings suggest that students believe they are capable of critically assessing AI outputs, identifying misinformation, verifying sources, and considering ethical implications when engaging with AI-generated digital content (Chan and Hu, 2023). This perception aligns with the DigComp 2.2 framework, which underscores the importance of equipping individuals with the skills to locate,

evaluate, and manage digital information effectively in technologically mediated environments. Moreover, students perceive themselves as competent in managing AI-generated content, which emphasizes critical evaluation and ethical use of digital information. Students' recognition of the need for human scrutiny of AI results, as well as their value for transparency in source attribution, highlights a degree of critical awareness (Werdiningsih et al., 2024; Fiedler and Döpke, 2025). This shows that students are not entirely passive consumers of AI outputs but are attentive to issues of reliability and accountability (Lim and Schmälzle, 2024; Resnik and Hosseini, 2025).

The results also reinforce arguments that information literacy today extends beyond traditional skills to include understanding the nature of algorithmic content production and its implications (Lo, 2024). Students' perceptions converge with recent research showing that higher education learners are increasingly conscious of the

digital contexts in which their academic and professional work is situated (Slimi, 2023). The inclusion of AI literacy components in university curricula further underscores the timeliness of these findings (Southworth et al., 2023).

Furthermore, self-reported confidence should be interpreted with caution. Prior studies demonstrate that users often overestimate their ability to identify misinformation or disinformation, particularly when

such content is well-structured and linguistically fluent (McGrew et al., 2018). Even students with advanced literacy skills may struggle to detect fabricated references, manipulated content, or subtle ethical concerns embedded in AI outputs (Dwivedi et al., 2023; Park et al., 2024; Spearing et al., 2025). Limited understanding of how AI systems generate, remix, and frame information can lead to unrecognized ethical risks (Mumtaz et al., 2025).

Table 2: Evaluating information and digital content

Evaluating	Mean	SD	Interpretation
I critically assess the credibility of AI-generated content before using it.	3.97	0.74	High
I compare AI-generated information with multiple reliable human-written sources.	3.92	0.77	High
I recognize the limitations of AI in generating fact-based content.	3.92	0.76	High
I can identify misinformation, bias, or fabricated content in AI-generated texts.	3.75	0.75	High
I evaluate whether an AI-generated article cites credible sources.	3.77	0.77	High
I can determine if AI-generated content is opinion-based or supported by evidence.	3.79	0.76	High
I fact-check AI-generated summaries before incorporating them into research or decision-making.	3.87	0.76	High
I analyze the consistency of AI-generated content across different sources and platforms.	3.79	0.74	High
I am aware that AI-generated content may contain outdated or inaccurate information.	3.88	0.79	High
I ensure that AI-generated content aligns with current and verified data before using it.	3.88	0.74	High
I can identify when AI-generated content lacks citations or verifiable sources.	3.71	0.79	High
I assess whether AI-generated content presents a balanced perspective or reflects biases.	3.73	0.75	High
I verify AI-generated news articles with independent fact-checking sources.	3.76	0.76	High
I am aware that AI-generated content can be manipulated, and I rely on transparent labeling and sourcing to help identify misleading content.	3.85	0.80	High
I recognize when AI-generated digital content is plagiarized or lacks originality.	3.70	0.79	High
I understand how AI-generated images and videos can be altered to misrepresent reality.	3.87	0.80	High
I differentiate between AI-generated content meant for general knowledge and content requiring expert validation.	3.80	0.76	High
I take steps to ensure that the AI-generated content I use is accurate, credible, and aligned with ethical information practices, including transparency about the content's origin, purpose, and creation process.	3.86	0.75	High
I educate myself on responsible use of AI-generated content in academic and professional settings.	3.93	0.80	High
I critically reflect on the impact of AI-generated content on knowledge formation and decision-making.	3.86	0.83	High
Total	3.83	0.77	High

5. Conclusion

The high levels of information literacy skills of the students are indicative of their growing capacity to navigate AI-mediated information environments with confidence and adaptability. This serves as a resounding acknowledgment that students are increasingly adapting to digital ecosystems where AI functions as a mediator of information access and knowledge construction. Their reported competence highlights not only a functional understanding of digital search and evaluation but also an emerging awareness of the added value that AI brings to information-seeking processes.

Students' information literacy levels illustrate their recognition of AI's capacity to enhance efficiency by streamlining searches through autocomplete and predictive algorithms, to support personalization by tailoring recommendations to individual needs, and to improve credibility assessment by offering structured cues that help distinguish between reliable and questionable information. These perceptions indicate that students are positioning AI as a supportive partner in the information-seeking process, integrating its features into their existing literacy practices rather than viewing it as a replacement for human judgment.

The study affirms that students perceive AI as a tool that complements and extends their information literacy practices, creating a bridge between traditional competencies and the evolving demands of algorithmically mediated knowledge systems. This underscores the need to reconceptualize information literacy education so that it not only reinforces foundational skills but also develops the capacity to critically interrogate the functions, benefits, and limitations of AI in shaping how information is produced, organized, and accessed.

The findings of this study should be interpreted within their contextual limitations, as it was conducted in private universities located in urban areas where students have greater access to digital infrastructure and AI technologies, which may have contributed to their higher information literacy scores. Such results may not fully represent the experiences of students in rural or less-resourced institutions. Nonetheless, the study underscores the urgent need for higher education institutions, particularly academic libraries, to update and expand information literacy programs to address the challenges posed by AI-generated content. Core components of these programs must integrate AI-related competencies, such as understanding algorithmic processes, evaluating ethical implications, and applying effective source

verification techniques, with frameworks like DigComp 2.2 providing a strong foundation for curriculum development.

Future research should include student populations from diverse educational contexts and refine assessment instruments to strengthen the validity, reliability, and generalizability of findings in the context of AI-mediated information literacy.

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Compliance with ethical standards

Ethical considerations

This research adhered to the ethical guidelines of Northern Iloilo State University and followed the principles outlined in the 1964 Helsinki Declaration, including its subsequent revisions or equivalent ethical standards. All participants provided informed consent before taking part in the study. They were fully briefed on the research purpose, procedures, possible risks, and their rights to confidentiality and voluntary withdrawal without any consequences. Written consent was secured prior to their participation.

Conflict of interest

The author(s) declared no potential conflicts of interest with respect to the research, authorship, and/or publication of this article.

References

- Adarkwah MA, Amponsah S, van Wyk MM et al. (2023). Awareness and acceptance of ChatGPT as a generative conversational AI for transforming education by Ghanaian academics: A two-phase study. *Journal of Applied Learning and Teaching*, 6(2): 78-93. <https://doi.org/10.37074/jalt.2023.6.2.26>
- Akakpo MG (2024). Skilled for the future: Information literacy for AI use by university students in Africa and the role of librarians. *Internet Reference Services Quarterly*, 28(1): 19-26. <https://doi.org/10.1080/10875301.2023.2280566>
- Al-Azri HM, Alharrasi N, and Al-Aufi AS (2025). Information literacy and relation to workplace: A review of the literature. *Global Knowledge, Memory and Communication*, 74(1-2): 502-514. <https://doi.org/10.1108/GKMC-08-2022-0191>
- Almasri F (2024). Exploring the impact of artificial intelligence in teaching and learning of science: A systematic review of empirical research. *Research in Science Education*, 54(5): 977-997. <https://doi.org/10.1007/s11165-024-10176-3>
- Almatrafi O, Johri A, and Lee H (2024). A systematic review of AI literacy conceptualization, constructs, and implementation and assessment efforts (2019–2023). *Computers and Education Open*, 6: 100173. <https://doi.org/10.1016/j.caeo.2024.100173>
- Al-Zahrani AM (2024). Unveiling the shadows: Beyond the hype of AI in education. *Heliyon*, 10(9): e30696. <https://doi.org/10.1016/j.heliyon.2024.e30696>
- PMid:38737255 PMCID:PMC11087970
- Archambault SG, Ramachandran S, Acosta E, and Fu S (2024). Ethical dimensions of algorithmic literacy for college students: Case studies and cross-disciplinary connections. *The Journal of Academic Librarianship*, 50(3): 102865. <https://doi.org/10.1016/j.acalib.2024.102865>
- Balasubramaniam N, Kauppinen M, Rannisto A, Hiekkanen K, and Kujala S (2023). Transparency and explainability of AI systems: From ethical guidelines to requirements. *Information and Software Technology*, 159: 107197. <https://doi.org/10.1016/j.infsof.2023.107197>
- Benzie A and Montasari R (2022). Artificial intelligence and the spread of mis- and disinformation. In: Montasari R (Ed.), *Artificial intelligence and national security*: 1-18. Springer, Cham, Switzerland. https://doi.org/10.1007/978-3-031-06709-9_1
- Carroll AJ and Borycz J (2024). Integrating large language models and generative artificial intelligence tools into information literacy instruction. *The Journal of Academic Librarianship*, 50(4): 102899. <https://doi.org/10.1016/j.acalib.2024.102899>
- Chan CKY and Hu W (2023). Students' voices on generative AI: Perceptions, benefits, and challenges in higher education. *International Journal of Educational Technology in Higher Education*, 20: 43. <https://doi.org/10.1186/s41239-023-00411-8>
- Chatikobo MV and Pasipamire N (2024). Readiness to embrace artificial intelligence in information literacy instruction at a Zimbabwean university. *Cogent Education*, 11(1): 2425209. <https://doi.org/10.1080/2331186X.2024.2425209>
- Chaudhuri J and Terrones L (2025). Reshaping academic library information literacy programs in the advent of ChatGPT and other generative AI technologies. *Internet Reference Services Quarterly*, 29(1): 1-25. <https://doi.org/10.1080/10875301.2024.2400132>
- Dwivedi YK, Kshetri N, Hughes L et al. (2023). Opinion paper: "So what if ChatGPT wrote it?" Multidisciplinary perspectives on opportunities, challenges and implications of generative conversational AI for research, practice and policy. *International Journal of Information Management*, 71: 102642. <https://doi.org/10.1016/j.ijinfomgt.2023.102642>
- Ekström AG, Niehorster DC, and Olsson EJ (2022). Self-imposed filter bubbles: Selective attention and exposure in online search. *Computers in Human Behavior Reports*, 7: 100226. <https://doi.org/10.1016/j.chbr.2022.100226>
- Elliott A (2019). *The culture of AI: Everyday life and the digital revolution*. 1st Edition, Routledge, London, UK. <https://doi.org/10.4324/9781315387185>
- Falloon G (2020). From digital literacy to digital competence: The teacher digital competency (TDC) framework. *Educational Technology Research and Development*, 68: 2449-2472. <https://doi.org/10.1007/s11423-020-09767-4>
- Fiedler A and Döpke J (2025). Do humans identify AI-generated text better than machines? Evidence based on excerpts from German theses. *International Review of Economics Education*, 49: 100321. <https://doi.org/10.1016/j.iree.2025.100321>
- Gerlich M (2025). AI tools in society: Impacts on cognitive offloading and the future of critical thinking. *Societies*, 15: 6. <https://doi.org/10.3390/soc15010006>
- Gross M, Latham D, and Julien H (2018). What the framework means to me: Attitudes of academic librarians toward the ACRL framework for information literacy for higher education. *Library & Information Science Research*, 40(3-4): 262-268. <https://doi.org/10.1016/j.lisr.2018.09.008>
- Guo J and Huang J (2021). Information literacy education during the pandemic: The cases of academic libraries in Chinese top universities. *The Journal of Academic Librarianship*, 47(4): 102363.

- <https://doi.org/10.1016/j.acalib.2021.102363>
PMid:36415449 PMCID:PMC9671645
- Jones-Jang SM, Mortensen T, and Liu J (2021). Does media literacy help identification of fake news? Information literacy helps, but other literacies don't. *American Behavioral Scientist*, 65(2): 371-388.
<https://doi.org/10.1177/0002764219869406>
- Khalifa M and Albadawy M (2024). Using artificial intelligence in academic writing and research: An essential productivity tool. *Computer Methods and Programs in Biomedicine Update*, 5: 100145. <https://doi.org/10.1016/j.cmpbup.2024.100145>
- Kozikoglu I and Onur Z (2019). Predictors of lifelong learning: Information literacy and academic self-efficacy. *Cypriot Journal of Educational Sciences*, 14(4): 492-506.
<https://doi.org/10.18844/cjes.v11i4.3460>
- Lim S and Schmälzle R (2024). The effect of source disclosure on evaluation of AI-generated messages. *Computers in Human Behavior: Artificial Humans*, 2(1): 100058.
<https://doi.org/10.1016/j.chbah.2024.100058>
- Lo LS (2024). Evaluating AI literacy in academic libraries: A survey study with a focus on US employees. *College and Research Libraries*, 85(5): 635-668.
<https://doi.org/10.5860/crl.85.5.635>
- Lowe MS, Stone SM, Maxson BK, Snajdr E, and Miller W (2020). Boolean redux: Performance of advanced versus simple boolean searches and implications for upper-level instruction. *The Journal of Academic Librarianship*, 46(6): 102234.
<https://doi.org/10.1016/j.acalib.2020.102234>
- Martzoukou K, Fulton C, Kostagiolas P, and Lavranos C (2020). A study of higher education students' self-perceived digital competences for learning and everyday life online participation. *Journal of Documentation*, 76(6): 1413-1458.
<https://doi.org/10.1108/JD-03-2020-0041>
- Mattar J, Santos CC, and Cuque LM (2022). Analysis and comparison of international digital competence frameworks for education. *Education Sciences*, 12(12): 932.
<https://doi.org/10.3390/educsci12120932>
- McGrew S, Breakstone J, Ortega T, Smith M, and Wineburg S (2018). Can students evaluate online sources? Learning from assessments of civic online reasoning. *Theory and Research in Social Education*, 46(2): 165-193.
<https://doi.org/10.1080/00933104.2017.1416320>
- Mughari S, Naveed MA, and Rafique GM (2025). Information literate students are more engaged and successful: Role of information literacy in higher education. *Online Information Review*, 49(2): 418-437.
<https://doi.org/10.1108/OIR-09-2023-0478>
- Mumtaz S, Carmichael J, Weiss M, and Nimmon-Peters A (2025). Ethical use of artificial intelligence based tools in higher education: Are future business leaders ready? *Education and Information Technologies*, 30: 7293-7319.
<https://doi.org/10.1007/s10639-024-13099-8>
- Nazer LH, Zatarah R, Waldrip S et al. (2023). Bias in artificial intelligence algorithms and recommendations for mitigation. *PLOS Digital Health*, 2(6): e0000278.
<https://doi.org/10.1371/journal.pdig.0000278>
PMid:37347721 PMCID:PMC10287014
- Newstead T, Eager B, and Wilson S (2023). How AI can perpetuate—or help mitigate—gender bias in leadership. *Organizational Dynamics*, 52(4): 100998.
<https://doi.org/10.1016/j.orgdyn.2023.100998>
- Oliveira L, Tavares C, Strzelecki A, and Silva M (2025). Prompting minds: Evaluating how students perceive generative AI's critical thinking dispositions. *Electronic Journal of E-Learning*, 23(2): 1-18. <https://doi.org/10.34190/ejel.23.2.3986>
- Park PS, Goldstein S, O'Gara A, Chen M, and Hendrycks D (2024). AI deception: A survey of examples, risks, and potential solutions. *Patterns*, 5(5): 100988.
<https://doi.org/10.1016/j.patter.2024.100988>
PMid:38800366 PMCID:PMC11117051
- Popenici SA and Kerr S (2017). Exploring the impact of artificial intelligence on teaching and learning in higher education. *Research and Practice in Technology Enhanced Learning*, 12: 22.
<https://doi.org/10.1186/s41039-017-0062-8>
PMid:30595727 PMCID:PMC6294271
- Qadir J (2023). Engineering education in the era of ChatGPT: Promise and pitfalls of generative AI for education. In the IEEE Global Engineering Education Conference (EDUCON), IEEE, Kuwait City, Kuwait: 1-9.
<https://doi.org/10.1109/EDUCON54358.2023.10125121>
- Resnik DB and Hosseini M (2025). Disclosing artificial intelligence use in scientific research and publication: When should disclosure be mandatory, optional, or unnecessary? *Accountability in Research*.
<https://doi.org/10.1080/08989621.2025.2481949>
PMid:40126451
- Santos FCC (2023). Artificial intelligence in automated detection of disinformation: A thematic analysis. *Journalism and Media*, 4(2): 679-687.
<https://doi.org/10.3390/journalmedia4020043>
- Schilke O and Reimann M (2025). The transparency dilemma: How AI disclosure erodes trust. *Organizational Behavior and Human Decision Processes*, 188: 104405.
<https://doi.org/10.1016/j.obhdp.2025.104405>
- Seymoens T, Van Audenhove L, Van den Broeck W, and Mariën I (2020). Data literacy on the road: Setting up a large-scale data literacy initiative in the DataBuzz project. *Journal of Media Literacy Education*, 12(3): 102-119.
<https://doi.org/10.23860/JMLE-2020-12-3-9>
- Slimi Z (2023). The impact of artificial intelligence on higher education: An empirical study. *European Journal of Educational Sciences*, 10(1): 17-33.
<https://doi.org/10.19044/ejes.v10no1a24>
- Slimi Z, Benayoune A, and Alemu AE (2025). Students' perceptions of artificial intelligence integration in higher education. *European Journal of Educational Research*, 14(2): 471-484.
<https://doi.org/10.12973/eu-jer.14.2.471>
- Solyst J, Yang E, Xie S, Hammer J, Ogan A, and Eslami M (2024). Children's overtrust and shifting perspectives of generative AI. In the ICLS 2024 Proceedings: 18th International Conference of the Learning Sciences, Buffalo, New York: 905-912. <https://doi.org/10.22318/icls2024.307401>
- Southworth J, Migliaccio K, Glover J et al. (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: 100127.
<https://doi.org/10.1016/j.caeai.2023.100127>
- Spearing ER, Gile CI, Fogwill AL, Prike T, Swire-Thompson B, Lewandowsky S, and Ecker UK (2025). Countering AI-generated misinformation with pre-emptive source discreditation and debunking. *Royal Society Open Science*, 12: 242148.
<https://doi.org/10.1098/rsos.242148>
PMid:40568555 PMCID:PMC12187399
- Sundar SS (2020). Rise of machine agency: A framework for studying the psychology of human-AI interaction (HAI). *Journal of Computer-Mediated Communication*, 25(1): 74-88.
<https://doi.org/10.1093/jcmc/zmz026>
- Suppadungsuk S, Thongprayoon C, Krisanapan P et al. (2023). Examining the validity of ChatGPT in identifying relevant nephrology literature: Findings and implications. *Journal of Clinical Medicine*, 12(17): 5550.
<https://doi.org/10.3390/jcm12175550>
PMid:37685617 PMCID:PMC10488525
- Tiernan P, Costello E, Donlon E, Parysz M, and Scriney M (2023). Information and media literacy in the age of AI: Options for

- the future. *Education Sciences*, 13(9): 906.
<https://doi.org/10.3390/educsci13090906>
- van Audenhove L, Vermeire L, Van den Broeck W, and Demeulenaere A (2024). Data literacy in the new EU DigComp 2.2 framework how DigComp defines competences on artificial intelligence, internet of things and data. *Information and Learning Sciences*, 125(5-6): 406-436.
<https://doi.org/10.1108/ILS-06-2023-0072>
- Vieriu AM and Petrea G (2025). The impact of artificial intelligence (AI) on students' academic development. *Education Sciences*, 15(3): 343.
<https://doi.org/10.3390/educsci15030343>
- Werdiningsih I, Marzuki, and Rusdin D (2024). Balancing AI and authenticity: EFL students' experiences with ChatGPT in academic writing. *Cogent Arts and Humanities*, 11(1): 2392388. <https://doi.org/10.1080/23311983.2024.2392388>
- Wilkes J, Godwin J, and Gurney LJ (2015). Developing information literacy and academic writing skills through the collaborative design of an assessment task for first year engineering students. *Australian Academic & Research Libraries*, 46(3): 164-175. <https://doi.org/10.1080/00048623.2015.1062260>
- Wineburg S and McGrew S (2019). Lateral reading and the nature of expertise: Reading less and learning more when evaluating digital information. *Teachers College Record*, 121(11): 1-40.
<https://doi.org/10.1177/016146811912101102>
- Yamaguchi S, Oshima H, Watanabe T, Osaka Y, Tanihara T, Inoue E, and Tanabe S (2025). An analysis of literacy differences related to the identification and dissemination of misinformation in Japan. *Global Knowledge, Memory and Communication*, 74(11): 121-139.
<https://doi.org/10.1108/GKMC-07-2024-0419>
- Zhai C, Wibowo S, and Li LD (2024). The effects of over-reliance on AI dialogue systems on students' cognitive abilities: A systematic review. *Smart Learning Environments*, 11: 28.
<https://doi.org/10.1186/s40561-024-00316-7>