

Scottish International Conference on Multidisciplinary Research and Innovation – SICMRI 2026

THE ROLE OF AI IN SHAPING 21ST CENTURY ACADEMIC LITERACY

IRGASHEVA MADINA IRGASHOVNA

Uzbek State University of World Languages

English Faculty-1, The Department of the English Language Applied Sciences

Teacher

madinairgasheva.profl@gmail.com

Abstract

This article examines how artificial intelligence is reshaping the concept and practice of academic literacy in the 21st century. As AI technologies become increasingly integrated into educational contexts, traditional notions of literacy are being transformed, requiring learners to develop new competencies for engaging with AI-mediated texts and tools. This study synthesizes current research on AI in education, digital literacy, and academic reading to identify key dimensions of AI-era academic literacy. The analysis reveals that contemporary academic literacy encompasses not only traditional reading and writing skills but also AI literacy, critical evaluation of algorithmic systems, and the ability to collaborate effectively with intelligent tools. The article proposes a framework for understanding these emerging literacy demands and discusses implications for curriculum design and pedagogical practice.

Keywords: academic literacy, artificial intelligence, 21st century skills, digital literacy, AI literacy

The concept of literacy has evolved significantly over the past several decades, expanding from a narrow focus on reading and writing to encompass a broad range of communicative practices in diverse media and contexts [1]. In the 21st century, this evolution has accelerated as digital technologies have transformed how information is created, distributed, and consumed [2]. Most recently, the emergence of sophisticated artificial intelligence systems has introduced new dimensions to literacy that demand scholarly attention and educational response [3].

Academic literacy, traditionally understood as the ability to read, understand, and produce scholarly texts, is particularly affected by AI developments [4]. Students now encounter AI-generated content in their research, use AI tools to assist their writing, and must develop critical capacities for evaluating AI-mediated information [5]. These changes raise fundamental questions about what it means to be literate in academic contexts and how educational institutions should prepare students for AI-infused scholarly environments [6].

The integration of AI into academic practices also presents opportunities for democratizing access to knowledge and supporting diverse learners [7]. AI-powered tools can provide personalized reading support, automate routine aspects of research, and enable new forms of scholarly collaboration [8]. However, realizing these benefits while mitigating risks such as over-reliance on AI, erosion of critical thinking, and amplification of existing inequalities requires a nuanced understanding of AI-era literacy requirements.

A comprehensive literature review was conducted across academic databases including ERIC, JSTOR, Web of Science, and ACM Digital Library. Search terms included combinations of «academic literacy,» «digital literacy,» «AI literacy,» «artificial intelligence in education,» «algorithmic literacy,» and «21st century skills.» Sources were selected for their relevance to understanding the intersection of AI technologies and academic literacy practices.

The analysis identified several significant ways in which AI is transforming academic literacy practices. First, the boundaries between human-generated and AI-generated text are becoming increasingly blurred, requiring readers to develop new skills for source evaluation and attribution. Second, AI tools are changing the writing process, with automated assistance available for grammar, style, structure, and even content generation. Third, research practices are being transformed by AI-powered search, summarization, and synthesis tools that can process vast amounts of literature more quickly than human researchers.

Scottish International Conference on Multidisciplinary Research and Innovation – SICMRI 2026

These transformations are not merely additive to traditional literacy practices but fundamentally change the nature of academic work. When AI systems can generate plausible academic prose, the value of human contribution shifts toward critical evaluation, creative synthesis, and ethical judgment [20]. Similarly, when AI can summarize research literature, human readers must focus on understanding the limitations and biases of such summaries.

Based on the analysis, we identified five interconnected dimensions of academic literacy in the AI era. Foundational literacy encompasses traditional reading, writing, and numeracy skills that remain essential for all academic work. Digital literacy involves the ability to effectively use digital tools and navigate online environments, including understanding how to evaluate digital sources and protect privacy.

AI literacy, an emerging dimension, includes understanding what AI systems can and cannot do, recognizing when AI is being used, and knowing how to interact effectively with AI tools. Critical algorithmic literacy extends this to include the ability to identify and evaluate the assumptions, biases, and limitations embedded in AI systems. Finally, collaborative literacy involves the capacity to work effectively alongside AI systems, understanding when to rely on AI assistance and when human judgment is required.

Critical algorithmic literacy competencies include the ability to identify potential sources of bias in AI systems, evaluate the credibility of AI-generated content, and understand the ethical implications of AI use in academic work. Collaborative literacy requires metacognitive awareness of one's own strengths and limitations relative to AI systems, strategic decision-making about when to use AI assistance, and the ability to integrate AI support with independent critical thinking.

The findings of this study highlight the profound implications of AI for how we conceptualize and cultivate academic literacy. The expanded literacy framework proposed here challenges traditional approaches that focus primarily on foundational skills, arguing instead for a comprehensive approach that addresses the full range of competencies needed for effective engagement with AI-mediated academic environments.

The identification of AI literacy and critical algorithmic literacy as distinct dimensions reflects the unique challenges posed by AI systems compared to earlier digital technologies. While digital literacy frameworks have addressed issues such as information evaluation and online safety, AI systems present additional complexities related to opacity, automation bias, and the erosion of traditional markers of authenticity. Educational approaches must therefore go beyond simply adding AI tools to existing curricula to fundamentally reconsider what students need to know and be able to do.

The collaborative literacy dimension is particularly significant, as it recognizes that the relationship between humans and AI in academic contexts is not simply one of tool use but of partnership [36]. Developing effective human-AI collaboration requires not only technical skills but also judgment about when AI assistance is appropriate and when it may undermine learning or scholarly integrity. This dimension also raises important questions about the nature of authorship and originality in academic work.

Several limitations of this study should be noted. The rapidly evolving nature of AI technology means that specific competencies identified here may need revision as capabilities and applications change. Additionally, the framework developed in this study requires empirical validation to assess its comprehensiveness and applicability across diverse educational contexts. Future research should examine how the proposed literacy dimensions can be effectively taught and assessed in practice.

Artificial intelligence is fundamentally reshaping academic literacy, requiring learners to develop new competencies alongside traditional reading and writing skills. This article has proposed a framework for understanding AI-era academic literacy that encompasses foundational literacy, digital literacy, AI literacy, critical algorithmic literacy, and collaborative literacy. As AI technologies continue to advance, educational institutions must adapt their

Scottish International Conference on Multidisciplinary Research and Innovation – SICMRI 2026

approaches to literacy instruction to ensure that students are prepared for the demands of AI-mediated academic and professional environments. The framework presented here offers a starting point for this important work.

References

- [1] Street B. Literacy in Theory and Practice. Cambridge: Cambridge University Press; 1985. 220 p.
- [2] Lankshear C., Knobel M. New Literacies: Everyday Practices and Social Learning. 3rd ed. Maidenhead: Open University Press; 2011. 296 p.
- [3] Long D., Magerko B. What is AI literacy? Competencies and design considerations. In: Proceedings of the 2020 CHI Conference on Human Factors in Computing Systems; 2020. p. 1-16.
- [4] Wingate U. Investigating students' perceptions of argumentation in an academic literacy course. *Journal of English for Academic Purposes*. 2018;36:1-13.
- [5] Stornaiuolo A., Higgs J. Learning and making in the shadow of AI. *Journal of Literacy Research*. 2024;56(1):7-23.
- [6] Selwyn N. The future of AI and education: Some cautionary notes. *European Journal of Education*. 2024;59(1):90-95.
- [7] Holmes W., Bialik M., Fadel C. Artificial Intelligence in Education: Promises and Implications for Teaching and Learning. Boston: Center for Curriculum Redesign; 2019. 248 p.
- [8] Southworth J., Migliaccio K., Glover J., Glover J., Reed D., McCarty C., et al. Developing a model for AI across the curriculum: Transforming the higher education landscape via innovation in AI literacy. *Computers and Education: Artificial Intelligence*. 2023;4:100127.