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The Use of Artificial Intelligence in Article Searching and Scientific Writing: Evidence, Impact, and Future Directions

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Abstract

The rapid proliferation of artificial intelligence tools in academic research has transformed how researchers search for literature and produce scientific writing. This article synthesizes current evidence on the use of AI tools, including Elicit, ChatGPT, ResearchRabbit and Consensus, across the scholarly workflow from literature discovery and systematic review screening to manuscript drafting and peer review assistance. Drawing on empirical studies, meta-analyses, comparative evaluations and bibliometric analyses published primarily from 2020 onward, this review examines the efficiency gains, quality improvements and ethical concerns associated with AI integration in scientific practice. Findings indicate that AI tools substantially accelerate literature screening and reduce manual workload, with some tools cutting screening time by up to 50%. AI-assisted writing tools improve textual cohesion and clarity, with documented benefits for non-native English speakers. The evidence also underscores persistent limitations, including algorithmic bias, reliability gaps, risks of overreliance and significant ethical challenges regarding transparency, authorship and academic integrity. The consensus in the literature favors hybrid human-AI approaches, in which automation complements rather than replaces expert judgment. Future research should prioritize standardized evaluation frameworks, domain-specific ethical guidelines and explainable AI models to ensure responsible integration of AI in scientific workflows.

1. INTRODUCTION

1.1 Background and Rationale

The integration of artificial intelligence into academic research represents one of the most significant methodological shifts of the twenty-first century. AI tools now permeate virtually every phase of the scholarly workflow, assisting researchers in discovering relevant literature, automating the screening of abstracts, drafting and editing manuscript text, detecting plagiarism and participating in peer review processes. Tools such as Elicit, ResearchRabbit, Consensus, ChatGPT and Grammarly have moved from novelty to routine use in a remarkably short period, suggesting potential changes in the pace and nature of scientific production (Tomczyk et al., 2026; Granjeiro et al., 2025).

Despite widespread adoption, the evidence base for AI's effectiveness, limitations and risks in these contexts remains heterogeneous and rapidly evolving. Questions about reliability, algorithmic bias, transparency and the potential erosion of critical thinking and originality are increasingly prominent in the scholarly conversation. Publishers and funding bodies are grappling with how to formulate ethical frameworks that keep pace with technological change, while researchers navigate the practical and normative implications of incorporating AI into their work (Veiga, 2025; He & Bu, 2026).

1.2 Research Problem

While numerous individual studies have examined specific AI tools or narrow aspects of AI-assisted research, a comprehensive synthesis covering both the literature search and scientific writing dimensions, integrating evidence on efficacy, limitations and ethics, remains relatively rare. This gap motivates the present review, which asks: what does the current body of evidence reveal about the use of AI in article searching and scientific writing, and what are the implications for researchers, educators and publishers?

1.3 Objectives

The general objective of this article is to synthesize empirical and theoretical evidence on the use of artificial intelligence in article searching and scientific writing, with attention to efficiency gains, limitations, ethical concerns and future research directions. Specific objectives include mapping the landscape of AI tools and techniques employed in literature search and manuscript production, critically appraising the evidence on their effectiveness and limitations, examining ethical and accountability concerns, and identifying research gaps and promising directions for future investigation.

1.4 Scope and Structure

This review draws primarily on studies published since 2020, covering biomedical sciences, social sciences, education, engineering and interdisciplinary fields. The article proceeds as follows: Section 2 reviews the theoretical frameworks and AI tools; Section 3 describes the methods; Section 4 presents a critical analysis of the findings; Section 5 discusses real-world implications; and Section 6 outlines future research directions.

2. LITERATURE REVIEW

2.1 AI Tools for Literature Search and Discovery

A growing ecosystem of AI-powered tools has emerged to support literature discovery and management. General-purpose tools such as Elicit, ResearchRabbit, Consensus and ChatGPT have become widely used for identifying relevant articles, mapping citation networks, summarizing findings and managing references (Tomczyk et al., 2026; Silva & Wickramaarachchi, 2025). In the biomedical domain, more specialized tools including BioGPT, PubTator 3.0, Rayyan and Covidence have been developed for literature mining, systematic review screening and knowledge extraction (Sen, 2025).

A particularly notable development is the emergence of neuro-symbolic systems such as the ORKG ASK platform, which combines vector search, large language models and knowledge graphs to support natural language queries and retrieval-augmented generation. Evaluations of such systems report improvements in user satisfaction and retrieval precision compared to purely neural approaches (Oelen et al., 2026).

2.2 Advances in AI-Assisted Systematic Review Screening

Systematic reviews represent one of the most resource-intensive activities in scholarly research, and AI tools have been increasingly evaluated for their capacity to automate or semi-automate the screening process. Semantic search and LLM-based screening tools, among them Abstrackr, RobotAnalyst, EPPI-Reviewer and DistillerSR, have demonstrated the capacity to reduce screening time by up to 50% in some evaluations (Ng & Chan, 2024; Ruan et al., 2025).

Hybrid approaches that combine AI automation with human expert judgment are consistently recommended as the optimal strategy, as they balance efficiency gains with the accuracy and bias mitigation that human reviewers provide (Ng & Chan, 2024). Studies comparing AI and human performance in systematic review screening find that while AI tools achieve high sensitivity, they tend to include a greater proportion of irrelevant studies, and inter-rater reliability with human reviewers can be limited (Zhang et al., 2022; Moens et al., 2025).

2.3 AI in Scientific Writing and Manuscript Production

Beyond literature search, AI tools have demonstrated significant potential in supporting the drafting, editing and quality improvement of scientific manuscripts. Empirical evaluations indicate that AI-assisted writing tools improve

textual cohesion, grammatical precision and overall clarity, with measurable gains in quality scores and writing speed (Giavina-Bianchi et al., 2025; Nathani et al., 2025). Studies have also documented higher conference acceptance rates and publication completion rates among researchers who integrated AI into their writing workflows (Jadan-Guerrero et al., 2024).

A particularly well-documented benefit concerns non-native English speakers. AI translation and editing tools such as DeepSeek, Gemini and Grammarly significantly improve correctness, clarity and engagement in scientific texts produced by authors writing in a second language (Granjeiro et al., 2025; Shin et al., 2026). AI feedback systems in English as a Foreign Language contexts have shown improvements in grammar, vocabulary and organizational coherence, with hybrid models combining AI and human feedback yielding the most substantial gains (Soori et al., 2025).

2.4 AI in Peer Review and Plagiarism Detection

LLM-based systems are increasingly being explored for roles in peer review, including manuscript screening, reviewer matching and bias detection. While automated review systems offer potential efficiency benefits, the literature consistently emphasizes the necessity of human oversight to maintain quality and fairness (Ebadi et al., 2025; Zhu et al., 2025).

In the domain of plagiarism and AI-generated content detection, significant advances have been made. Tools such as Turnitin, Originality.ai and GPTZero, as well as deep learning architectures based on RoBERTa, BERT, CNN and BiLSTM, have demonstrated high accuracy in detecting paraphrased and AI-generated content. Challenges persist, however, in the form of evasion techniques, false positives and the need for continuous updates as AI writing styles evolve (Sharimbayev & Kadyrov, 2025; Utku, 2025; Kim, 2025).

2.5 Ethical, Transparency and Accountability Concerns

The rapid adoption of AI in research has outpaced the development of consistent ethical frameworks and publisher policies. Thematic analyses of journal and publisher guidelines reveal significant inconsistencies in how AI use is defined, disclosed and regulated across institutions and disciplines (Veiga, 2025). A notable study found that current academic journal AI policies have largely failed to curb the surge in AI-assisted academic writing, with disclosure norms remaining poorly enforced (He & Bu, 2026).

Core ethical concerns include questions of authorship and intellectual credit, the potential for AI to facilitate academic dishonesty, risks to research integrity through the generation of hallucinated or fabricated content, and differential impacts on researchers from different linguistic and socioeconomic backgrounds (Gomez-Garcia et al., 2025; Amini et al., 2025). The literature broadly calls for participatory design of ethical guidelines, stronger institutional governance and a cultural shift toward transparent disclosure of AI use in research.

2.6 Synthesis and Identified Gaps

Across the reviewed literature, several consistent themes emerge. AI tools offer genuine and measurable efficiency gains across the research workflow. Their effectiveness is maximized when integrated into hybrid human-AI workflows rather than deployed as standalone replacements for expert judgment. Ethical, transparency and accountability challenges are significant and inadequately addressed by current institutional frameworks. Research gaps remain in the areas of standardized evaluation benchmarks, domain-specific guidelines and the long-term implications of AI integration for research culture and scientific quality.

3. METHODOLOGY

3.1 Research Design

This article is based on a narrative review conducted with the support of an AI-assisted deep research tool. The review was initiated through LeapSpace, Elsevier's AI-powered research platform, by submitting the following research question: "Do we have evidence about the use of artificial intelligence in article searching and scientific writing?" The platform autonomously planned and executed the research process over approximately two minutes, systematically generating and processing multiple queries across three levels of analytical depth.

3.2 Search Strategy and Evidence Gathering

In the first phase, LeapSpace identified three core thematic dimensions to guide the search: AI tools and techniques in literature search and scientific writing; the impact and effectiveness of AI in scientific workflows; and research gaps and future opportunities in AI integration. For each dimension, the platform retrieved and analyzed up to twenty sources per query, drawing from academic databases indexed within the Elsevier ecosystem, including Scopus-indexed journals and peer-reviewed publications primarily from 2020 onward.

In the second phase, the platform refined the search by generating twelve sub-questions derived from the initial findings, exploring topics such as hybrid human-AI approaches to reduce algorithmic bias, limitations and error rates of AI-powered screening, ethical frameworks for AI use in scholarly publishing, and the role of AI feedback systems for non-native English speakers. Each sub-question was investigated independently, with up to twenty sources gathered per query.

In the third phase, a further twelve questions were selected for deeper investigation, covering issues such as the comparative performance of leading AI literature search tools, advances in plagiarism detection, the effectiveness of publisher policies on transparency, and the standardization of AI integration across disciplines. The platform concluded the search process after reaching maximum analytical depth and produced a synthesized report consolidating all findings.

3.3 Data Analysis and Synthesis

The output generated by LeapSpace was used as the primary source document for this review. The AI-generated synthesis was critically evaluated by the author, who verified the coherence and relevance of the evidence, checked the accuracy of cited references against original sources, and reorganized the material thematically. Evidence was structured around five analytical dimensions: enhanced efficiency and workflow integration; hybrid human-AI approaches; ethical, transparency and accountability concerns; AI-based detection methods; and emerging trends and future opportunities.

3.4 Limitations of the Methodology

This review inherits the limitations associated with AI-assisted evidence synthesis. The search corpus was constrained by the sources available within the LeapSpace platform, which may not capture the full breadth of relevant literature across all disciplinary traditions. The automated generation of queries and the selection of sources involved algorithmic processes whose internal logic is not fully transparent to the user. As with any narrative review, the synthesis is subject to selection bias, and no formal risk-of-bias assessment was conducted. The predominantly English-language nature of the retrieved literature may also underrepresent contributions from non-Anglophone research communities.

4. RESULTS

4.1 Efficiency and Quality Improvements

The most consistently documented finding across the reviewed literature is that AI tools meaningfully accelerate key phases of the research workflow. In the context of systematic literature screening, AI-driven tools have reduced the time required for abstract screening by up to 50% in some evaluations, enabling researchers to process larger volumes of literature with reduced manual effort (Ng & Chan, 2024; Ruan et al., 2025). AI tools also reduce manual workload in citation management, evidence mapping and trend identification, enhancing accessibility for researchers working in resource-limited environments.

In the domain of manuscript writing, AI tools have been associated with measurable improvements in textual quality. Studies comparing human-written and AI-assisted manuscripts report gains in cohesion, grammatical precision and clarity (Giavina-Bianchi et al., 2025). Researchers integrating AI into their writing process have demonstrated higher conference acceptance rates and greater overall publication productivity (Jadan-Guerrero et al., 2024).

Table 1 summarizes the key findings of this review across five thematic dimensions, offering a structured overview of the evidence, impacts and limitations identified in the literature.

Table 1

Key findings on the use of artificial intelligence in article searching and scientific writing.

Theme	Key Evidence	Impact	Limitations and Future Directions
Efficiency and Workflow Integration	AI tools such as Elicit and ResearchRabbit reduce abstract screening time by up to 50%; AI-assisted writing improves manuscript cohesion, clarity and grammatical precision; non-native English speakers show measurable gains in text quality.	Accelerated literature screening; improved manuscript quality; higher conference acceptance rates; increased research productivity.	Performance varies across disciplines; reliability gaps compared to manual search; lack of standardized benchmarks; human oversight remains essential.
Hybrid Human-AI Approaches	Combining AI automation with expert judgment consistently outperforms purely automated or purely manual workflows across screening and writing tasks.	Mitigates algorithmic bias; improves accuracy and interpretability; complements AI limitations with human critical judgment.	Algorithmic bias in training data; limited transparency in model decisions; need for domain-specific hybrid methodologies.
Ethical, Transparency and Accountability Concerns	Publisher AI policies remain inconsistent and poorly enforced; authorship criteria under debate; risk of hallucinated references and undisclosed AI use widespread.	Growing demand for transparent AI disclosure; increased editorial scrutiny; calls for unified governance frameworks.	Lack of cross-institutional standardization; differential impact across linguistic and socioeconomic groups; need for participatory guideline development.
AI-Based Detection	Deep learning models including BERT, CNN and BiLSTM achieve high accuracy in identifying AI-generated and paraphrased content; hybrid detection architectures outperform single-model approaches.	Enhanced detection accuracy; real-time screening capabilities; improved editorial quality control.	Evasion techniques evolving alongside detection tools; false positives; need for process-based evaluation frameworks beyond output-level detection.
Emerging Trends and Future Opportunities	Large language models applied to automated peer review, trend mapping and evidence synthesis; neuro-symbolic systems improving retrieval precision and interpretability.	Automated review support; citation network analysis; accelerated knowledge discovery across disciplines.	Hallucination risks; transparency gaps; need for explainable AI, specialty-specific models and open-source solutions.

Note. AI: artificial intelligence; BERT: Bidirectional Encoder Representations from Transformers; CNN: Convolutional Neural Network; BiLSTM: Bidirectional Long Short-Term Memory.

4.2 Limitations and Error Rates

Despite these gains, the reviewed literature identifies important limitations. AI tools do not reliably retrieve all articles identified by manual search methods, and studies comparing AI and human performance in systematic review screening report that human reviewers achieve higher precision, with AI tools tending to include a higher proportion of irrelevant studies (Tomczyk et al., 2026; Moens et al., 2025). Human abstract screeners themselves exhibit an error rate of approximately 10.76%, suggesting that neither human nor AI screening is error-free and that combination approaches are advisable (Wang et al., 2020).

Algorithmic bias represents a structural limitation of AI tools. Because AI systems are trained on existing corpora, they may reproduce and amplify biases present in the literature, including biases related to geography, language, methodology and topic prominence. This necessitates careful human oversight and critical evaluation of AI-generated outputs (Zheng et al., 2025; Alqahtani et al., 2023).

4.3 Support for Non-Native English Speakers

A particularly robust finding across the literature is the benefit of AI writing and translation tools for non-native English speakers. AI-assisted tools have been shown to significantly improve the correctness, clarity and engagement of scientific texts produced by authors writing in a second language, potentially reducing the linguistic disadvantage faced by researchers from non-Anglophone contexts (Granjeiro et al., 2025; Pinto et al., 2026; Tian et al., 2025). In EFL educational settings, AI feedback systems have improved grammar, vocabulary and organizational coherence, with particularly strong effects when AI feedback is combined with human instructor feedback (Soori et al., 2025; Hwang et al., 2025).

4.4 Risks of Overreliance

Multiple studies raise concerns about the risks associated with excessive reliance on AI tools in research and writing contexts. Overreliance on AI for literature synthesis and manuscript drafting may hinder the development of critical thinking, originality and independent scholarly judgment (van Niekerk et al., 2025). In educational contexts, concerns have been raised about the potential for AI use to facilitate academic dishonesty and reduce the development of core writing competencies (Bekman et al., 2025; Abdelwahab et al., 2025). The literature recommends educational interventions, explicit ethical guidelines and the promotion of balanced AI integration as mitigation strategies.

4.5 Advances in AI-Based Detection

AI-based tools for detecting plagiarism and AI-generated content have advanced considerably. Hybrid models combining deep learning architectures, including BERT, CNN and BiLSTM, have demonstrated high accuracy in identifying paraphrased and AI-generated text across multiple domains (Sharimbayev & Kadyrov, 2025; Utku, 2025). The detection landscape is nonetheless characterized by an ongoing arms race: as detection algorithms improve, so do the techniques employed to evade them. The literature highlights the limitations of detection-focused approaches and calls for a shift toward process-based evaluation frameworks that assess creativity, reasoning and responsible AI use rather than relying solely on output-level detection (Kim, 2025).

4.6 Emerging Trends

Several emerging trends are identified in the reviewed literature. The application of large language models to automated peer review, including manuscript screening, reviewer assignment and bias detection, is advancing rapidly, though it remains controversial and requires significant human oversight (Ebadi et al., 2025; Zhu et al., 2025). AI-based recommendation and trend-identification systems, employing topic modeling, semantic analysis and bibliometric approaches, are enabling researchers to map emerging themes in their fields with unprecedented granularity (Chung et al., 2025; D'Ascenzo et al., 2024). Neuro-symbolic AI systems, which combine symbolic reasoning with neural networks, are showing particular promise for improving interpretability, transparency and retrieval precision in academic knowledge discovery (Oelen et al., 2026; Hakim et al., 2026).

5. DISCUSSION

5.1 Interpretation of Findings

The cumulative evidence reviewed in this article supports a nuanced assessment of AI's role in scientific workflows. AI tools deliver genuine and often substantial efficiency gains, particularly in literature screening, writing assistance and language support. Reductions in screening time of up to 50%, measurable improvements in manuscript quality

and demonstrated benefits for non-native English speakers represent meaningful advances in research accessibility and productivity.

At the same time, the evidence makes clear that AI tools are not substitutes for expert judgment. The limitations identified, including lower precision compared to manual search, algorithmic bias, reliability concerns and risks of overreliance, are structural features of current AI systems that necessitate ongoing human oversight. The consistent finding that hybrid human-AI approaches yield the best outcomes reflects a fundamental insight: AI and human expertise are complementary, not interchangeable.

Table 2 provides a practical reference guide to all AI tools cited in this review, including their primary research applications, official access URLs, and supporting references. Readers seeking to integrate any of these tools into their own workflows may find this compilation a useful starting point.

Table 2

AI tools cited in this review: categories, research applications, access URLs and supporting references.

Tool	Category	Application in Research	URL	Key Reference
Elicit	AI literature search	Literature search, evidence synthesis, data extraction from papers	elicit.com	Tomczyk et al., 2026; Granjeiro et al., 2025
ResearchRabbit	AI literature search	Citation mapping, article discovery, visualization of research networks	researchrabbit.ai	Silva and Wickramaarachchi, 2025
Consensus	AI literature search	Evidence-based question answering, claim verification from peer-reviewed literature	consensus.app	Granjeiro et al., 2025; Silva and Wickramaarachchi, 2025
Perplexity	AI literature search	Literature search and question answering with source attribution	perplexity.ai	Granjeiro et al., 2025
SciSpace	AI literature search	Literature search, PDF summarization, patent review data extraction	scispace.com	No reference
Semantic Scholar	AI literature search	Academic paper search, citation analysis, research trend identification	semanticscholar.org	No reference
ORKG ASK	AI literature search	Natural language literature queries, neuro-symbolic retrieval, knowledge graph-based search	orkg.org/ask	Oelen et al., 2026
BioGPT	Specialized AI search	Biomedical literature mining, named	github.com/microsoft/BioGPT	Sen, 2025

Note. URLs verified in April 2026. Tools are listed in order of category and first appearance in the text. AI: artificial intelligence; NLP: natural language processing; PDF: portable document format.

Tool	Category	Application in Research	URL	Key Reference
		entity recognition, biomedical text generation		
PubTator 3.0	Specialized AI search	Biomedical entity annotation, concept and relation search over PubMed	ncbi.nlm.nih.gov/research/pubtator3	Sen, 2025
Rayyan	Systematic review tool	Collaborative abstract screening, AI-assisted prioritization of records	rayyan.ai	Ruan et al., 2025
Covidence	Systematic review tool	Systematic review screening, data extraction, risk of bias assessment	covidence.org	Sen, 2025
ChatGPT	AI writing assistant	Manuscript drafting and editing, literature synthesis, writing assistance	chatgpt.com	Granjeiro et al., 2025; Nathani et al., 2025; Jadan-Guerrero et al., 2024
Grammarly	Writing and editing	Grammar, style and language editing, clarity improvement for scientific texts	grammarly.com	Granjeiro et al., 2025
DeepSeek	Translation and editing	AI-assisted translation and scientific text editing for non-native English speakers	deepseek.com	Pinto et al., 2026
Gemini	Translation and editing	Translation and scientific text editing, language support for researchers	gemini.google.com	Pinto et al., 2026
Turnitin	Detection tool	Plagiarism detection and AI-generated content	turnitin.com	Kim, 2025

Note. URLs verified in April 2026. Tools are listed in order of category and first appearance in the text. AI: artificial intelligence; NLP: natural language processing; PDF: portable document format.

Tool	Category	Application in Research	URL	Key Reference
		identification in manuscripts		
Originality.ai	Detection tool	AI-generated content detection, plagiarism checking for academic writing	originality.ai	Kim, 2025
GPTZero	Detection tool	AI-generated text detection for academic integrity and manuscript evaluation	gptzero.me	Kim, 2025

Note. URLs verified in April 2026. Tools are listed in order of category and first appearance in the text. AI: artificial intelligence; NLP: natural language processing; PDF: portable document format.

5.2 Comparison with Prior Literature

These findings are broadly consistent with earlier reviews of AI in research methodology, while extending the evidence base to encompass more recent tools and more diverse disciplinary contexts. Earlier work tended to focus on narrow applications, such as AI in systematic reviews or AI in writing assistance, whereas the present review integrates evidence across the full research workflow. The accelerating pace of development in this field, reflected in the preponderance of studies from 2023 to 2026 in the reviewed corpus, suggests that findings from even a few years ago may no longer accurately represent the current landscape.

5.3 Theoretical and Practical Implications

From a theoretical perspective, the evidence reviewed here supports a conception of AI as a cognitive tool that augments rather than replaces human intellectual agency. The framing of AI as a collaborator rather than an autonomous agent, often described in the literature as the human-in-the-loop paradigm, has both descriptive and normative dimensions: it describes current best practice and prescribes the conditions under which AI integration is most likely to enhance rather than compromise research quality (Olawade et al., 2026).

From a practical perspective, the implications are clear for researchers, educators and institutions. Researchers should develop literacy in the effective and critical use of AI tools, understanding their capabilities and limitations. Educators should integrate AI literacy into research training programs while maintaining emphasis on the foundational skills that AI cannot replace. Institutions and publishers must develop clear, consistent and enforceable policies for AI disclosure and governance.

5.4 Limitations of This Review

This review is subject to the inherent limitations of a narrative approach, including the potential for selection bias and the impossibility of exhaustive coverage of a rapidly growing literature. The predominantly English-language corpus may underrepresent perspectives from researchers in other linguistic contexts, a particularly salient limitation given the documented inequalities in AI tool accessibility and effectiveness across language groups. Additionally, the review does not formally assess the methodological quality of individual studies, which vary considerably in rigor and scope.

5.5 Summary of Evidence

This review has synthesized a substantial and growing body of evidence on the use of AI in article searching and scientific writing. AI tools offer transformative potential for the research workflow: they accelerate literature screening, improve manuscript quality, support non-native English speakers and enable new forms of knowledge discovery. These benefits are real and significant, and their relevance to the democratization of research access should not be underestimated.

Equally clear is that AI integration introduces risks and challenges that require active management. Algorithmic bias, reliability limitations, ethical concerns around transparency and authorship, and the risks of overreliance demand careful attention from researchers, educators and institutions alike. The future of AI in scientific practice lies not in uncritical adoption or reflexive rejection, but in the thoughtful development of hybrid workflows, robust ethical frameworks and research cultures that value both innovation and integrity.

5.6 Contributions of This Study

This article contributes to the literature by offering a comprehensive, cross-disciplinary synthesis of evidence on AI in both article searching and scientific writing, domains that are frequently studied in isolation. By integrating findings across efficiency, quality, ethical and educational dimensions, the review provides a foundation for researchers and policymakers seeking a holistic understanding of AI's role in contemporary scientific practice.

5.7 Directions for Future Research

Several priority areas emerge from this review. The field urgently needs standardized evaluation frameworks and shared benchmark datasets to enable meaningful comparison of AI tools across disciplines and contexts (Mohammad et al., 2025; Wood et al., 2026). Domain-specific ethical guidelines must be developed through participatory processes involving researchers, educators, publishers and other stakeholders (Amini et al., 2025; Ashok et al., 2022). Advances in explainable AI and specialty-specific models are needed to improve transparency and quality assurance in automated research workflows (Sen, 2025; Santos et al., 2023). Interdisciplinary collaboration spanning technology, law, philosophy, linguistics and social science is essential to develop ethical frameworks that are both technically informed and socially responsive (Gomez Cano, 2025; Shin et al., 2026). Finally, researchers should move beyond detection-only paradigms toward process-based evaluation approaches that assess the quality of AI-assisted research as an integrated human-AI endeavor (Kim, 2025; Park, 2025).

6. CONCLUSION

Artificial intelligence will not replace the researcher, but it is already reshaping what research looks like in practice. The tools reviewed here do not think, judge or take responsibility; they process, suggest and accelerate. The intellectual labor of formulating questions, interpreting evidence, situating findings within a broader conversation and standing behind the conclusions remains irreducibly human. What AI offers is time, and time in research is not a trivial gift. Used with critical awareness, these tools can free researchers to think more deeply, read more broadly and write more clearly. The challenge for the coming years is not whether to adopt AI, but how to do so in ways that strengthen rather than erode the habits of mind that make science trustworthy. That challenge belongs equally to researchers, educators and institutions, and meeting it will require the same qualities that good research has always demanded: rigor, transparency and a willingness to question one's own assumptions.

Declarations

Competing interests: The authors have no competing interests to declare that are relevant to the content of this article.

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Use of generative AI and AI-assisted technologies: During the preparation of this manuscript, the author used Claude (Anthropic), an AI-assisted writing tool, to support the synthesis, drafting and language editing of sections of this work. The tool was used to improve readability and language, to organize content derived from the primary source document, and to assist in generating an initial manuscript draft based on a literature synthesis provided by the author. All content was subsequently reviewed, critically evaluated and revised by the author, who takes full responsibility for the integrity of the published work. No AI tool was used to generate, analyze or interpret primary research data. References were verified independently by the author against original sources.

References

1. Abdelwahab, S. I., Taha, M. M. E., Farasani, A., & Hassan, W. (2025). Artificial intelligence in nursing education: A bibliometric analysis of trends, challenges, and future directions. Teaching and Learning in Nursing. https://doi.org/10.1016/j.teln.2024.11.018
2. Alqahtani, T., Badreldin, H. A., Alrashed, M., & Al-Bekairy, A. M. (2023). The emergent role of artificial intelligence, natural learning processing, and large language models in higher education and research. Research in Social and Administrative Pharmacy. https://doi.org/10.1016/j.sapharm.2023.05.016
3. Amini, M., Lee, K.-F., Yiqiu, W., & Ravindran, L. (2025). Proposing a framework for ethical use of AI in academic writing based on a conceptual review: Implications for quality education. Interactive Learning Environments. https://doi.org/10.1080/10494820.2025.2523382
4. Ashok, M., Madan, R., Joha, A., & Sivarajah, U. (2022). Ethical framework for artificial intelligence and digital technologies. International Journal of Information Management. https://doi.org/10.1016/j.ijinfomgt.2021.102433
5. Bekman, N., Danino, E., & Maoz, E. (2025). Addressing dishonesty in nursing education: A systematic review of intervention effectiveness. Nurse Education in Practice. https://doi.org/10.1016/j.nepr.2025.104327
6. Chung, J., Jeong, B., Park, Y.-J., & Choi, J. (2025). Harnessing language models for computational literature review of emerging AI topics. Information Processing and Management.

https://doi.org/10.1016/j.ipm.2025.104245

7. D'Ascenzo, F., Rocchi, A., Iandolo, F., & Vito, P. (2024). Evolutionary impacts of artificial intelligence in healthcare managerial literature: A ten-year bibliometric and topic modeling review. Sustainable Futures. https://doi.org/10.1016/j.sftr.2024.100198
8. Ebadi, S., Nejadghanbar, H., Salman, A. R., & Khosravi, H. (2025). Exploring the impact of generative AI on peer review: Insights from journal reviewers. Journal of Academic Ethics. https://doi.org/10.1007/s10805-025-09604-4
9. Giavina-Bianchi, M., D'adario, A., Giavina Bianchi, P., & Machado, B. S. (2025). Three versions of an atopic dermatitis case report written by humans, artificial intelligence, or both. Journal of Allergy and Clinical Immunology: Global. https://doi.org/10.1016/j.jacig.2024.100373
10. Gomez Cano, C. A. G. (2025). Research, ethics and artificial intelligence challenges and opportunities. Lecture Notes in Networks and Systems. https://doi.org/10.1007/978-3-031-88304-0_68
11. Gomez-Garcia, M., Garcia-Mila, P., Varela, R. S., & Cavanna, A. (2025). Responsible use of artificial intelligence in education and training: A systematic review based on the PRISMA model. The Role of Smart Education in a Complex World. https://doi.org/10.4018/979-8-3373-7912-8.ch014
12. Granjeiro, J. M., Cury, A. A. D. B., Cury, J. A., & Estrela, C. (2025). The future of scientific writing: AI tools, benefits, and ethical implications. Brazilian Dental Journal. https://doi.org/10.1590/0103-644020256471
13. Hakim, S. B., Adil, M., Velasquez, A., & Song, H. H. (2026). Neuro-symbolic agentic AI: Architectures, integration patterns, applications, open challenges and future research directions. Computer Science Review. https://doi.org/10.1016/j.cosrev.2026.100902
14. He, Y., & Bu, Y. (2026). Academic journals' AI policies fail to curb the surge in AI-assisted academic writing. Proceedings of the National Academy of Sciences. https://doi.org/10.1073/pnas.2526734123
15. Hwang, E., Im, H., & Son, H. (2025). The effects of AI feedback learning activities in English writing on university students' English achievement and writing motivation. English Teaching. https://doi.org/10.15858/engtea.80.5.202512.95
16. Jadan-Guerrero, J., Acosta-Vargas, P., & Gutierrez-de Gracia, N. E. (2024). Enhancing scientific research and paper writing processes by integrating artificial intelligence tools. Communications in Computer and Information Science. https://doi.org/10.1007/978-3-031-62110-9_7
17. Kim, H. N. (2025). Detecting the undetectable: The need for a new paradigm for academic writing evaluation in the AI era. Communications in Computer and Information Science. https://doi.org/10.1007/978-3-031-94153-5_22
18. Mohammad, A. F., Ahmed, W., Almekhlafi, A. G., & Zaneldin, E. (2025). The role of AI in advancing scientific research from hypothesis to publication. IEEE AICT 2025 Conference Proceedings. https://doi.org/10.1109/AICT67988.2025.11268778
19. Moens, M., Nagels, G., Wake, N., & Goudman, L. (2025). Artificial intelligence as team member versus manual screening to conduct systematic reviews in medical sciences. iScience. https://doi.org/10.1016/j.isci.2025.113559
20. Nathani, K. R., Nathani, A.-M., Delawan, M., & Bydon, M. (2025). Can artificial intelligence write science? A comparative analysis of human-written and artificial intelligence-generated scientific writings. Journal of Neurosurgery: Spine. https://doi.org/10.3171/2025.4.SPINE25519
21. Ng, H. K. Y., & Chan, L. C. H. (2024). Revolutionizing literature search: AI vs. traditional methods in digital divide literature screening and reviewing. Proceedings WAIE 2024. https://doi.org/10.1109/WAIE63876.2024.00033

22. Oelen, A., Jaradeh, M. Y., & Auer, S. (2026). Introducing ORKG ASK: An AI-driven scholarly literature search and exploration system taking a neuro-symbolic approach. Lecture Notes in Computer Science. https://doi.org/10.1007/978-3-031-97207-2_2
23. Olawade, D. B., Plabon, S. B., Ojo, A., & Olasilola, O. R. (2026). Human in the loop artificial intelligence in healthcare: Applications, outcomes, and implementation challenges. International Journal of Medical Informatics. https://doi.org/10.1016/j.ijmedinf.2026.106362
24. Park, J. (2025). Towards a transparent and reproducible AI-assisted research paper writing. Genomics and Informatics. https://doi.org/10.1186/s44342-025-00057-0
25. Pinto, M. M., Araujo, E. E. R., Rahhal, Z., & Grillo, R. (2026). AI-assisted translation in oral and maxillofacial surgery: A comparative evaluation. Journal of Stomatology, Oral and Maxillofacial Surgery. https://doi.org/10.1016/j.jormas.2026.102717
26. Ruan, M., Fan, J., Liu, M., & Zhang, C. (2025). Artificial intelligence for the science of evidence synthesis: How good are AI-powered tools for automatic literature screening? BMC Medical Research Methodology. https://doi.org/10.1186/s12874-025-02644-9
27. Santos, A. O. D., da Silva, E. S., Couto, L. M., & Belo, V. S. (2023). The use of artificial intelligence for automating or semi-automating biomedical literature analyses: A scoping review. Journal of Biomedical Informatics. https://doi.org/10.1016/j.jbi.2023.104389
28. Sen, C. K. (2025). Artificial intelligence tools in biomedical research: Part 1, literature search and knowledge mining. Antioxidants and Redox Signaling. https://doi.org/10.1177/15230864251405885
29. Sharimbayev, B., & Kadyrov, S. (2025). Text classification for AI generated content with machine learning and deep learning models. IEEE SIST 2025 Conference Proceedings. https://doi.org/10.1109/SIST61657.2025.11139296
30. Shin, I., Choung, H., & Choi, M. (2026). Bridging or broadening gaps? AI-assisted professional writing among native and non-native English writers. Computers in Human Behavior. https://doi.org/10.1016/j.chb.2025.108897
31. Silva, N., & Wickramaarachchi, D. (2025). Enhancing systematic literature reviews: Evaluating the performance of LLM-based tools across key systematic literature review stages. ICARC 2025 Proceedings. https://doi.org/10.1109/ICARC64760.2025.10963273
32. Soori, A., Khojasteh, L., & Javed, F. (2025). Comparing teacher e-feedback, AI feedback, and hybrid feedback in enhancing EFL writing skills. Technology in Language Teaching and Learning. https://doi.org/10.29140/tltl.v7n3.102626
33. Tian, X., Hahn, H. M., Leon Carangui, M. K., & Fussell, S. R. (2025). Assessing human evaluations of cover letters written or edited by AI and non-native English speakers. GROUP Companion 2025. https://doi.org/10.1145/3688828.3699644
34. Tomczyk, P., Bruggemann, P., Mergner, N., & Petrescu, M. (2026). Are AI tools better than traditional tools in literature searching? Evidence from e-commerce research. Journal of Librarianship and Information Science. https://doi.org/10.1177/09610006241295802
35. Utku, A. (2025). MILA: An innovative approach to identifying AI-generated content using BERT, CNN, and BiLSTM. Arabian Journal for Science and Engineering. https://doi.org/10.1007/s13369-025-10466-6
36. van Niekerk, J., Delport, P. M. J., & Sutherland, I. (2025). Addressing the use of generative AI in academic writing. Computers and Education: Artificial Intelligence. https://doi.org/10.1016/j.caeai.2024.100342

37. Veiga, A. D. (2025). Ethical guidelines for the use of generative artificial intelligence and AI-assisted tools in scholarly publishing: A thematic analysis. Science Editing. https://doi.org/10.6087/kcse.352
38. Wang, Z., Nayfeh, T., Tetzlaff, J., & Murad, M. H. (2020). Error rates of human reviewers during abstract screening in systematic reviews. PLoS ONE. https://doi.org/10.1371/journal.pone.0227742
39. Wood, V., Jeffryes, M., Green, A. F., & Harrison, M. (2026). Empowering biological knowledgebases: Advances in human-in-the-loop AI-driven literature curation. Bioinformatics Advances. https://doi.org/10.1093/bioadv/vbag028
40. Zhang, Y., Liang, S., Feng, Y., & Pan, H. (2022). Automation of literature screening using machine learning in medical evidence synthesis: A diagnostic test accuracy systematic review protocol. Systematic Reviews. https://doi.org/10.1186/s13643-021-01881-5
41. Zheng, J., Pathak, J. L., Li, S., & Zhang, Q. (2025). An optimized code-free AI approach for efficient and accurate literature screening in bone organoid research. Journal of Biomedical Informatics. https://doi.org/10.1016/j.jbi.2025.104911
42. Zhu, L., Lai, Y., Xie, J., & Peng, P. (2025). Evaluating the potential risks of employing large language models in peer review. Clinical and Translational Discovery. https://doi.org/10.1002/ctd2.70067