

Redefining the Paradigm: How ChatGPT and Generative AI Are Transforming Scientific Publishing and Knowledge Dissemination

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ABSTRACT

The conventional paradigm of scientific publishing and information sharing is being redefined by the quick development of Artificial Intelligence (AI), especially large language models like ChatGPT. With previously unheard-of efficiency, scalability, and accessibility, these generative AI tools are becoming more and more integrated into different phases of the research lifecycle, such as literature reviews, manuscript drafting, summarization, and even peer review. But this change also brings with it serious problems with data reliability, academic integrity, authorship attribution, and ethical governance. The benefits of AI-driven tools in increasing scientific productivity and expanding participation are thoroughly examined in this paper, along with the risks of misinformation, plagiarism, and misuse. It also offers a thorough analysis of how these tools are upending traditional scholarly communication workflows. It also evaluates how researchers, journals, and academic institutions have adjusted to this technological change. The study ends with practical suggestions for creating transparent guidelines and responsible AI integration to protect the legitimacy, accountability, and integrity of scientific publishing in the age of generative AI. These recommendations are based on real-world case studies, existing policies, and emerging best practices.

Keywords: ChatGPT, Artificial Intelligence, Scientific Publishing, Academic Integrity, Large Language Model (LLM).

1.0 INTRODUCTION

Especially through Large Language Models (LLMs) such as ChatGPT, rapid advances in Artificial Intelligence (AI) are drastically altering the global landscape of scientific publishing and higher education. These tools are already in the process of fundamentally changing the academic landscape by automating processes such as the review of articles, writing papers, summaries, and even peer reviewing (Hilmy & Akram, 2024). While AI offers better efficiency, visibility, and international cooperation in research

publishing, it also brings new concerns regarding academic ethics, author ethics, regulators, and data accuracy. In an age when automation is rapidly encroaching on our lives, it is crucial to consider the impact of these frameworks on the conventional structures and values of academia (Hossain et al., 2024).

This revolution is having a profound effect on the dynamic landscape of higher education in least-developed and developing countries like Bangladesh. Bangladesh's higher education system has evolved structurally to a great extent over the past three decades. Private universities (PUs) have rapidly introduced globally harmonized academic practices such as semester systems and career-based undergraduate degree programs aimed at reducing migration and generating revenue. However, this rapid growth has raised concerns about whether sufficient infrastructure, regulatory oversight, and academic quality are in place (Ahmad et al., 2024).

Both the accelerated privatization of higher education in Bangladesh and the use of generative AI in research aim to increase access and efficiency. Still, both face structural barriers and skepticism, particularly with regard to the quality of academic outputs. Critics of private universities often point to issues such as poor research output, commercialization, and inferior faculty. Without addressing these structural problems, the credibility of academic output is at risk, and the research ecosystem may suffer (Zad et al., 2024).

The following related questions are the focus of this study:

1. How are generative artificial intelligence tools changing the academic publishing ecosystem? What implications does this have for authorship rules and the quality of research?
2. How ready are Bangladesh's private universities in terms of personnel and infrastructure to support excellent scholarly research?
3. How do faculty, students, and legislators-important stakeholders-view the evolving function of artificial intelligence and institutional capacity in higher education?

The study's goals are as follows:

1. To assess how ChatGPT and other AI technologies might modernize and even upend the process of publishing scientific research (Akpınar, İslam, & Oduncuoğlu, 2024).
2. To evaluate the academic standards of a few private universities in Bangladesh, with an emphasis on faculty and facilities (Chakraborty et al., 2024).

3. To examine how stakeholders view the role of technology in higher education and institutional preparedness (Pathak et al., 2024).
4. To make strategic policy, capacity-building, and quality-assurance recommendations that will bring academic publishing and education into compliance with international standards (Özpolat, Yıldırım, & Karabatak, 2024).

Very little research has tried to link these two critical developments in people's understanding of the role of science and universities, drawing from the vast literature on the role of AI in scientific workflows and the development of private universities outside industrialized nations. There is scant empirical evidence on the nexus of institutional capacity and the disruptive nature of technology toward publishing in private universities, especially in resource-limited settings like Bangladesh (Chakraborty et al., 2024). Moreover, most policy debates so far are siloed, addressing university reforms and AI ethics separately (Hossain et al., 2024).

This study adopts a holistic, mixed-method approach to fill these gaps in the existing literature by investigating the symbiotic relationship between organizational readiness and technological innovation, with a focus on sustainability, quality, and governance (Akpınar et al., 2024). Although there is a significant body of work on the application of AI in scientific workflows and the proliferation of private universities in developing countries, limited attention has been given to how the disruption of the publishing industry by AI technologies affects the institutional capacity of private universities, particularly in resource-poor settings like Bangladesh (Zad et al., 2024). Moreover, policy discussions continue to treat these issues separately, with little integration of AI's ethical concerns within the broader context of institutional development (Hilmy & Akram, 2024).

Through a comprehensive mixed-method study, this article aims to contribute to the gaps in existing research by exploring the value co-creation dynamic between organizational readiness and technological innovation, underpinned by a theme of sustainability, quality, and governance.

2.0 BACKGROUND STUDY

In literature review generation specifically, advances in AI and NLP changed the way we conduct science. READ THESE FOR HELP You can teach a kid to read In HOW NOT TO EDUCATE A CHILD, Ellin explains that any parent can teach any child to read Over the past year, the ALA has conducted two major studies concerning young people's reading habits The research on reading, in fact, indicates that nearly every

child will indeed learn to read IF he or she is not just given books, but is exposed to books in a meaningful way as part of life. Essential to scientific progress, this process had also become a choked off point in the research pipeline – in particular in fields with a rapidly expanding body of knowledge.

Advances in Machine Learning (ML) and Big Language Models (LLMs): Recent developments in ML and the explosion of LLMs, such as OpenAI's ChatGPT, have introduced a paradigm shift in how abstraction and execution of literature reviews are perceived and performed. Through trend spotting, thematic clustering, and suggesting potential research gaps, these AI models-trained on large collections of academic and generic text-can generate coherent, high-level synopses of complex subject matters (Gilson et al., 2023). These features support the ability for users to rapidly screen initial materials, perform rapid environmental scans, or quickly traverse multidisciplinary literatures.

Also aiding with source filtering and prioritization through algorithms that mimic human citation behavior, topic modeling, and keyword-based relevance scoring are AI literature review tools. Jha and Singh (2023) argue that this serves better in focusing the search of the relevant literature at the time of screening and subsequently helps in reducing cognitive and temporal load generally associated with the process of systematic reviews. These developments are particularly valuable for low-resource settings with limited access to research support and for novice researchers and institutions.

But with these advances come significant issues of accuracy, authenticity, and ethical use of AI-generated literary reviews. Hallucinations-where language models generate information that appears contextually relevant but is neither factually accurate nor references not present-are proof of the most pressing issues (OpenAI, 2023; Thorp, 2023). This seriously undermines scientific integrity since such output could inadvertently be consumed by scholarly works without proper validation, thereby perpetuating false or unverifiable claims.

The absence of transparency and lack of source credit in much AI-created content presents one more key dimension. It is a challenge to ascertain the credibility of the synthesised knowledge if the reference or citations employed to construct the summaries are not available to the researchers. Miner et al. (2020) argue that such opaqueness undermines the principle of the scientific repeatability concept.

Certainly, ethically, the debates around what can count as being an 'author' and in terms of intellectual input when using AI tools are many and varied. Highlighting the necessity of distinguishing human and machine input in multi-authored academic production, Biswas (2023) brings into focus the middle ground between

aid and creative scholarship. Especially for younger generation researchers who can overly rely on AI-generated insights just to even know the basics as well as worry about the decline in the ability to think critically, originally, and analytically.

In scientific publishing, the application of AI-driven LLMs, such as ChatGPT, to generate literature reviews, represents a combined technological breakthrough and governance challenge in general. Indeed, such tools can enhance efficiency, inclusiveness, and information retrieval; however, any responsible integration must now involve the building of robust ethical frameworks, transparent lines of communication, and validation protocols. To ensure that artificial intelligence is used to enhance and not detract from the underlying values of academic precision and scholarly integrity requires a balanced effort.

2.1 Language Enhancement and Grammar Correction

One of those is the capacity of generative AI to enhance the language and grammar, which is one of most commonly applied and accepted scientific publishing uses immediately. For researchers -especially non-native English speakers- Large Language Models (LLMs) such as ChatGPT are a convenient and efficient method to polish academic writing. These can aid you with grammar, sentence structure, vocabulary and recommended (more formal, more academic) phrasing. This development has significantly reduced barriers in language that at times have hindered researchers from publishing in recognized international high-impact journals. AI-powered language tools have become essential for academics from areas where English is not the main language of instruction in making sure manuscripts satisfy the stylistic and syntactic criteria expected in peer-reviewed publications. By means of semantic level analysis of context and intent, language models not only correct surface-level mistakes but also enhance general fluency and coherence, claims Gilson et al. (2023). Furthermore, these tools provide real-time comments, which enables iterative changes that save time and money when compared to conventional language editing services. Many academic institutions, particularly in developing nations, rely on such artificial intelligence applications as vital support systems where professional editorial assistance might be either unaffordable or absent.

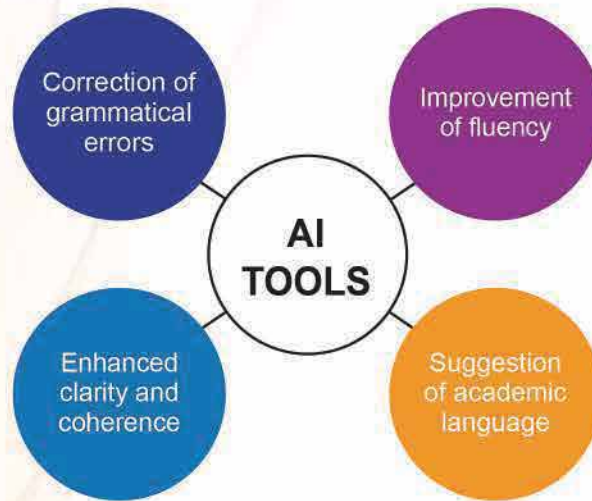


Figure 01. Key Functionalities of AI Tools in Language Enhancement and Grammar Correction.

Figure 01 shows, in academic writing, the main advantages of AI-powered language tools including ChatGPT. Emphasizing artificial intelligence tools, the four main purposes are grammar correction, fluency enhancement, clarity and coherence enhancement, and academic language use suggestions.

Though most people agree that AI-based language correction has great value, questions still surround over-reliance and standardizing. Dependency too much on AI tools runs the danger of reducing researchers' own linguistic autonomy and writing ability. Particularly in humanities and social science fields where stylistic variation is sometimes valued, uniformity brought by AI-generated phrasing could also stifle academic voice and individual expression (Biswas, 2023).

Ethical questions also surface when AI-generated corrections strata from content rewriting to grammatical improvement crosses. This blurring of lines separating editing from authorship begs issues about intellectual contribution and the integrity of the writing process. Therefore, academics and institutions are advised to establish open policies on the use of artificial intelligence in academic writing, separating ethical language enhancement from unethical content generating or misrepresentation (Thorp, 2023).

Although AI tools such as ChatGPT have clearly enhanced access to high-quality academic writing and enabled worldwide scientific communication, their integration has to be controlled by sensible use policies. These should have clauses for human supervision, disclosure, and ongoing improvement of personal writing abilities to guarantee moral and sustainable acceptance in academic publishing.

2.2 Automated Summarization & Citation Management

Within the larger change this paper describes, artificial intelligence technologies-especially Large Language Models (LLMs) such as ChatGPT-are redefining the conventional processes of scientific publishing. Two important and time-consuming parts of academic writing, automated summarizing and citation management, especially show their influence. These developments are not only raising productivity but also questioning accepted limits on authorship, accuracy, and academic rigor [17].

2.2.1 Automated Summarization

Concurrent with summarizing, the discipline of citation management has seen notable change with artificial intelligence integration. AI tools (Gupta & Lehal, 2010) hasten the literature review by summarizing results, stressing key arguments or even highlighting gaps or methodological constraints. In fast moving disciplines with high growth in the volume of published works the ability to stay up to date in the literature becomes even more crucial. For multidisciplinary researchers and other non-experts, ChatGPT and models like it could be used to dumb down dense technical papers, making them more accessible. For all those who care – the policy-makers or general public or even professionals such as teachers or practitioners outside a specialized field such as medicine, it would promote multi-disciplinary conversation and give access to the knowledge-base to non-specialists. However, it depends on the sensitivity of the model to context how well the automatic summarization will work. Occasionally the AI summaries are in a voice that, while plausible, misinterprets the original work, introducing an analyst's biases or overlooking a nuance of an argument. These dangers require rigorous human oversight to validate and verify the validity and relevance of AI-generated summaries.

2.2.2 Citation Management

Alongside summarization, the field of citation management has been witnessing considerable transformation with the integration of artificial intelligence. Intelligent features supporting auto-formatting, reference extraction, and citation consistency checks are now improving classic tools including Zotero, EndNote, and Mendeley. More sophisticated systems can examine the manuscript under development and suggest, in real-time depending on semantic relevance, topic modeling, or citation networks citations (Choudhury et al., 2020).

This invention increases adherence to reference standards and lessens the cognitive load of personally tracking references. It also helps early-career researchers find fundamental and highly influential works in

their domains. Real-time cross-database checks made possible by artificial intelligence also guarantee that the most reliable and current sources are used—a necessary habit in fields of fast developing research.

Still, one of the main difficulties with AI-powered citation tools is the phenomena of "hallucinated references," or citations that seem authentic but are either created falsely or with error (Borji, 2023). Such references underline the need of thorough human validation during the referencing process and compromise scholarly integrity.

2.2.3 Synthesis in the Context of Scientific Publishing Disruption

In line with the central theme of Redefining the Paradigm: How ChatGPT and Generative AI Are Transforming Scientific Publishing and Knowledge Dissemination—these developments show how AI is not only supporting academic tasks but essentially upsetting the conventional publishing paradigm. Once hand-made obstacles, summarizing and referencing are becoming intelligent, automated, and adaptive. This change presents chances for inclusive, fast, and easily available scientific communication as well as new hazards requiring strong ethical rules, disclosure policies, and editorial policies to protect academic standards.

Finally, summarizing and referencing tools improved by artificial intelligence reflect a larger change toward AI-augmented research. When used sensibly and in line with human knowledge, they could transform scholarly research, raise output, and enable more informed and open knowledge sharing.

2.3 AI Integration in Peer Review Workflows

A key element of scientific publication, peer review is critical to ensuring the integrity, authenticity, and academic merit of the research upon which we rely. The traditional peer review process however is becoming increasingly unsustainable with increasing submissions of manuscripts, reviewer fatigue and lengthy publication schedules (Ross-Hellauer, 2017). In this light, the embedding of AI into editorial and peer review processes represents a tectonic shift which not only streamlines assessment but ushers in a new set of norms in scholarly gatekeeping. These include finding the most suitable reviewers on the basis of a semantic and topical analysis of the manuscript, detecting potential ethical issues such as plagiarism or citation inappropriateness, and checking for structural compliance to the journal instructions (Bianchi et al., 2022). Advanced NLP models can check for readability of submissions and highlight incoherent, or less clearly structured, passages (thus reducing the workload of the initial screening typically done by human editors.) Already platform such as StatReviewer, Scholarcy and publisher integrated journal management systems are demonstrating the ability to run automated technical checks such as statistical validity, reference formatting

and even conformance to reporting standards (Else, 2021). These same systems facilitate automatic reviewer recommendation and rating, thus enhancing the editorial board decision-making transparency and productivity. In addition to operating support, AI can generate feedback templates or reviewer insights, thereby standardizing reviewer appraisals and reducing disparity between evaluations. Especially in a multi-reviewed setting, this is useful to ensure more consistent handling of papers. Critically, A.I. tools can serve as bias-mitigating agents, identifying when unconscious biases, or conflicts of interest, might harm the fairness of a review. Despite these advantages, however, relying more heavily on artificial intelligence in peer review also poses challenges. Critics warn that artificial intelligence models might overlook multidisciplinary complexity, misinterpret methodological complexity, or miss the uniqueness of innovative but radical work (Powell, 2023). Furthermore under question are the openness and explainability of AI-generated assessments, especially in cases where black-box algorithms devoid of interpretability guide decisions.

Moreover, over-delegating judgment to automated systems runs the danger of compromising the human knowledge and ethical responsibility supporting academic assessment. Therefore, it is absolutely necessary that artificial intelligence be used as a complement rather than a replacement and that human supervision always takes front stage in the peer review process. Therefore, explicit editorial policies and ethical standards have to be developed to control the responsible application of artificial intelligence in academic publishing processes.

Early empirical research shows that without appreciably sacrificing academic standards, AI-assisted peer review can drastically cut turnaround time, improve review quality, and light editorial load (Kandolf Sekulovic & Pantovic, 2022). Provided implementation is conducted with openness, responsibility, and a dedication to scholarly integrity, their integration presents a viable path to modernize and democratize the peer review ecosystem as these systems continue to develop.

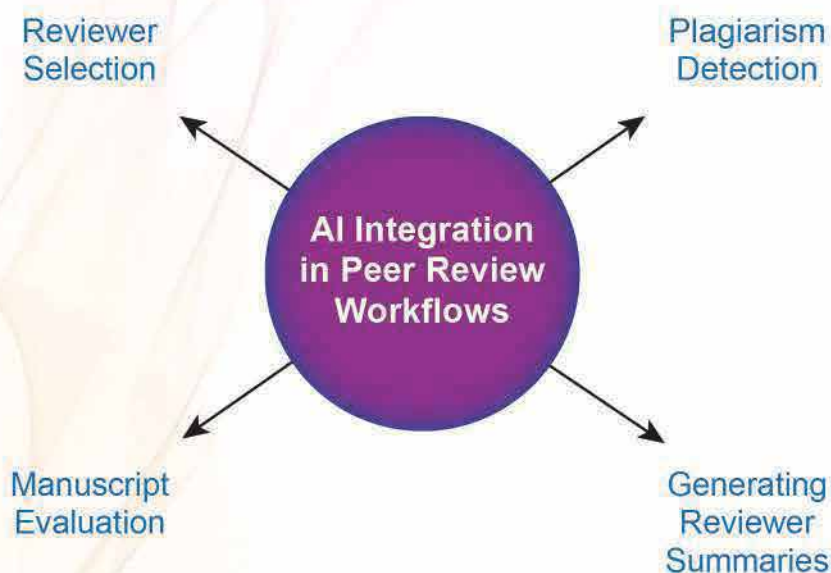


Figure 02. Key Roles of AI Integration in Peer Review Workflows

Figure 02 shows the main purposes artificial intelligence allows within contemporary peer review systems. Four main processes are being supported by artificial intelligence tools: plagiarism detection, which searches for text overlap and citation manipulation; manuscript evaluation, where linguistic quality and structural adherence are assessed using NLP algorithms; and generation of reviewer summaries, which provide editorial teams with first assessments to support consistent and efficient decision-making. AI matches manuscripts with suitable reviewers based on content analysis. These features taken together show how rapidly, fairly, and with quality assurance AI is becoming increasingly important in scientific publishing.

3.0 METHODOLOGY

This study was designed to investigate the crossroads of generative AI tools specifically ChatGPT and changing genre practices in scientific publishing, with a focus on institutional readiness at private universities in Bangladesh. Three guiding questions framed the research: (1) How are AI tools reshaping scholarly publishing workflows? (2) What is the status of academic facilities and human resources base in private universities? and (3) What is the perception of AI integration and institutional change from the perspective of stakeholders?

3.1 Data Collection

Data sources Primary data were collected through:

1. **Key informant interviews** with 15 faculty and academic editors, 6 and 4 respectively, who worked in six private universities in Dhaka. A purposive sampling was chosen in order to guarantee a disciplinary diversity and diverse levels of familiarity with AI tool.
2. **Focus group discussions (FGDs)** held with student researchers to get experiential insights on AI-enabled writing and peer review practices.
3. Secondary data included.
4. Policies and ethical standards from high-impact journals (such as Nature, Science or COPE).
5. Institutional strategic plans and on-site infrastructure assessment of select universities.
6. Documentation and usage report from AI tools like OpenAI and Grammarly.

3.2 Analytical Framework

The qualitative data were coded and interpreted using thematic content analysis. Interview and document transcripts repeatedly read through to identify commonalities and new issues were analysed iteratively using NVivo software. There were three dominant themes identified in the analysis:

1. Impact of technology on the research publication cycle (literature reviewing, writing, peer reviewing, and citation management).
2. Availability of academic expertise, editorial assistance, and technical equipment.
3. AI's ethical and governance issues for research and publishing.

3.3 Ethical Considerations

The study adhered to academic research ethics. Informed oral and written consent was requested from all participants. Confidentiality and anonymity were guaranteed through individual and institutional pseudonymization. Transcription, summarization tools employed were communicated to participants, and no AI-produced text was taken as human-written input without verification.

3.4 Limitations

The study is institutionally and geographically constrained in that it can only conduct its work within a few urban private universities in Bangladesh. Its implication to public institutions or rural environments cannot

be generalized. In addition, the emerging technological revolutions in generative AI would render the research timeline outdated prior to completion, requiring ongoing investigation.

4.0 POTENTIAL DISRUPTIONS IN SCIENTIFIC PUBLISHING

4.1 Challenges to Authorship and Ethics

AI tools like ChatGPT have spurred critical discussion on conventional ideas of authorship, intellectual contribution, and research ethics when included into academic writing practices. Although these tools provide hitherto unheard-of help in producing content, summarizing literature, and helping to draft manuscripts, their use raises difficult questions about validity, responsibility, and the preservation of academic integrity (Stokel-walker, 2023).

4.1.1 AI as a "Co-Author": Issues of Legitimacy and Accountability

Whether artificial intelligence systems should be credited as co-authors in scholarly publications is among the most divisive questions of today. Leading publications including Nature and Science have published explicit rules stating that artificial intelligence tools lack sentience, responsibility, and the capacity to assume accountability for the work thus they cannot satisfy the requirements for authorship (Thorp, 2023; Nature Editorial, 2023). In academic publishing, authorship calls for ethical responsibility, critical thinking, and moral judgment-qualities absent from most current artificial intelligence models. Still, there have been cases when researchers have controversially ascribed authorship to artificial intelligence tools, sparking fierce ethical discussion on the misallocation of intellectual credit and the erasure of authorial accountability (Bastani et al., 2023).

4.1.2 Ethical Dilemmas in AI-Assisted Academic Writing

The extensive use of artificial intelligence in producing scientific material also begs more general ethical questions. Overdependence on AI-generated text could blur the line between real human contribution and machine-generated help, so complicating attempts to assess a researcher's intellectual engagement (Zhai, 2022). Furthermore, AI models can fail to produce biased content from their training data or don't know and can't understand the context round an inputted news. This can result in scientifically incorrect or misleading assertions – so-called AI "hallucinations" – that, while seeming authoritative, in truth are incorrect (Weidinger et al., 2021).

4.1.3 Risks of Plagiarism and Data Fabrication

The greater chance of plagiarism and data fabrication these artificial intelligence tools accommodate is also of significant concern to me. Across languages, discordant referencing can be a problem for AI-generated text to mimic or paraphrase vernacular (and be an unsuspecting source of plagiarism) (Yeo-Teh & Tang, 2021). Equally damaging the authenticity and trustworthiness of scientific literature due to AI models they create established experimental data, citations or hypothetical papers under duress. This sort of abuse can facilitate the dissemination of false or erroneous academic work without sufficient oversight, in turn eroding scholarly trust. In sum, while AI instruments like ChatGPT are transformative with potential to accelerate academic writing and knowledge generation, their integration into research processes will need to be mediated carefully. The fact that application of AI upholds the ethical foundation of scholarly publishing, instead of thwarting it, must be ensured through transparent policies, disclosure, and human oversight.

4.2 Impact on Peer Review and Editorial Processes

A longstanding bastion of academic credibility and quality control, peer review is being transformed as Artificial Intelligence (AI) is integrated with editorial processes. They do however pose challenging questions which, unless tackled head on, risk undermining the credibility, fairness and transparency of scientific publication, even as they offer to make processes more efficient and ease editorial workloads.

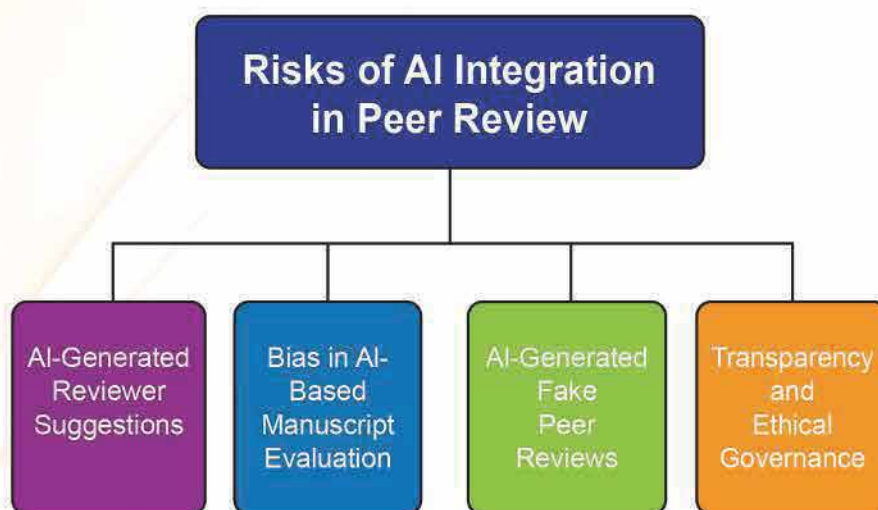


Figure 03. Risks of AI Integration in Peer Review Workflows

This figure (Figure 3) displays four overall risk areas that are associated with the integration of AI into peer review. Entitled “Risks of AI Integration in Peer Review,” the central cluster comprised four major nodes: AI-Generated Reviewer Suggestions; Bias in AI-Based Manuscript Evaluation; AI-Generated Fake Peer Review; Transparency and Ethical Governance.

4.2.1 AI-Generated Reviewer Suggestions

Even AI-based tools that evaluate the credibility of scientific papers are susceptible to systemic bias, especially if they have been trained on imbalanced or homogeneous historical data. Models such as Large Language Models (LLMs) trained predominantly on English-language and Western-centric literature may, for example, underrepresent or devalue contributions to the discourse from multidisciplinary, non-traditional, or regionally diverse scholarship (Bender et al., 2021). Furthermore, automated evaluation can privilege stylistic correctness and good readability over the soundness and novelty of the science presented. This puts researchers from non-English-speaking backgrounds and those exploring more unusual research methods at a disadvantage. These are prejudices that work against the principle of merit-based peer review and risk consigning many academic perspectives to the periphery.

4.2.3 AI-Generated Fake Peer Reviews

The potential application of generative artificial intelligence to generate fake peer reviews is causing increased head-scratching. While dishonest peer review tactics such as review rings and reviewer identity manipulation have been documented previously (Else & Van Noorden, 2021), tools such as ChatGPT dramatically reduce the barrier to entry for creating realistic yet fake reviews. This seriously compromises the reputation of publications, especially those with automated systems or limited editorial resources.

Unethical writers or editors could use artificial intelligence tools to create fake positive reviews, so influencing editorial decisions and contaminating the scientific body with unapproved or poor quality work. Such methods compromise the very basis of academic confidence and demand strong verifying procedures.

4.2.4 The Need for Transparency and Ethical Governance

The changing role of artificial intelligence in peer review emphasizes how urgently open editorial policies, AI use disclosures, and ethical guidelines to control their application are needed. Although artificial intelligence can help greatly with editorial process simplification, these tools have to be additional to human judgment, not replacements for it. Academic institutions, publishers, and editors have to work together to

make sure that using artificial intelligence in peer review improves rather than compromises the rigor, equity, and responsibility values in scientific publishing.

4.3. Changing the Accessibility and Integrity of Research

By reducing obstacles to writing, translating, and literature synthesis, AI-driven tools have changed the scene of academic publishing. For non-native English-speaking researchers, as well as professionals connected with under-resourced institutions, these tools hold a potential for democratization of access to scientific knowledge. Generative AI systems such as ChatGPT are capable of assisting with the writing of high-quality papers and enhancing language proficiency, thereby contributing to greater equity and inclusiveness in global research involvement (Korinek, 2023). This greater availability, however, comes with significant threats to research integrity, particularly when AI-produced content is not accurate, has not been fact checked, and is not subject to critical human oversight.

4.3.1 Democratization of Knowledge vs. Misinformation Risks

The widespread availability of generative-AI tools enables a larger number of academic authors. All researchers (regardless of location) benefit from access to tools that reduce the barrier of entry to being able to produce publishable academic work, even for individuals who do not have the technical skills or have English as a second language; such tools (e.g., ChatGPT) help to level the global playing field with respect to academic work (van Dis et al., 2023). This democratizing potential is particularly significant in disciplines or communities with limited access to publishing and language-editing services. However, these benefits also come with an important drawback: Text generated by AI is generated based on a probabilistic language model instead of being fact-checked captured. Content may thus include "hallucinated" assertions, falsified references, or misunderstandings of scientific ideas (Thorpe, 2023). If discovered, such errors could compromise the reputation of academic publications, particularly in cases when output produced by artificial intelligence avoids thorough editorial review or peer inspection. The risk is especially strong in fields where methodological accuracy and novelty are crucial and where depending on erroneous data might distort next studies.

4.3.2 AI-Generated Preprints: Accuracy and Verification Concerns

A parallel problem is the rising frequency of AI-generated or AI-assisted manuscripts on preprint sites, usually not subject to conventional peer review. Although preprints help to quickly distribute early feedback and enable early comments, the inclusion of AI-generated content in this field presents authorship and

verification issues. Especially, the use of artificial intelligence without disclosure might mislead readers about the intellectual ownership and source of the research (Else, 2023).

Furthermore, since preprints are sometimes referenced before official peer-reviewed versions are accessible, unverified or erroneous material has the possibility to spread false information inside the academic system. Strong editorial checks absent in combination with rising AI model fluency results in a situation whereby plausible-sounding but scientifically erroneous content could find early exposure and impact. Clear authorship attribution, editorial vigilance, and open disclosure policies help to protect the integrity of scholarly debate by means of which major hazards are avoided.

By enabling a larger spectrum of authors to engage in worldwide scientific communication, generative artificial intelligence is redefining the availability of academic writing. But the same technologies also bring flaws that might compromise the accuracy, authorship openness, and verification criteria fundamental to reliable research. Establishing disclosure rules, peer validation systems, and ethical guidelines for AI-assisted research publishing helps to guarantee that the democratization of science does not turn into the distribution of unbridled information.

Changing the Accessibility and Integrity of Research

Democratization of Knowledge AI-driven tools enable broader participation in academic writing and research	Misinformation Risks AI-generated content may include hallucinated facts or fabricated citations
AI-Generated Preprints Rapid dissemination of AI-assisted drafts on preprint platforms	Accuracy and Verification Concerns Questions about accuracy, authorship, and lack of peer reviews

Figure 04. Changing the Accessibility and Integrity of Research in the Age of AI

This 2x2 matrix charts the risks and opportunities, alike, of the twin effects of artificial intelligence tools on academic research and publishing. Under the rubric Democratization of Knowledge, the top-left quadrant

emphasizes AI as technology enabling broader participation in scientific writing – especially in the case of underfunded researchers and non-native speakers), while the top-right quadrant raises the potential Risk of Misinformation given that AI-created content might contain fictional citations or have hallucinations for facts and thus pose a threat of reliability in research. Increasingly more AI-generated preprints in the bottom-left quadrant underscore the rapid diffusion of un-reviewed, AI-supported papers. Lastly, the bottom right quadrant engages with Accuracy and Verification Issues, and therefore raises concern about unverified authorship, the integrity of the data, and no system of peer review. When combined, these aspects illustrate the importance of open communication, ethical leadership, and sound editorial policies to reach a compromise between integrity and accessibility in research ecosystems augmented with AI.

4.3.3 Need for transparency in AI-assisted writing

Maintaining the integrity of scholarly communication in the age of artificial intelligence depends on openness. Reviewers and readers find it challenging to evaluate the source, credibility, and dependability of turned in manuscripts without clear disclosure. Undisclosed use of artificial intelligence can possibly lead to the spread of material with factual mistakes, plagiarism, or distorted data. Many have thus demanded that AI involvement in data analysis, editing, or writing be required of disclosure (Stokel-walker, 2023). Transparency can also help differentiate between unethical behavior (e.g., AI-generated content passed off as original thought) and reasonable degrees of help (e.g., grammar correction or formatting).

4.3.4 Ideas for moral standards in scientific publishing

Scholars and publishing companies have responded to these issues by putting out a spectrum of ethical rules. These comprise: (1) revealing AI tool use in a separate part of the book; (2) forbade AI tools from being named as authors; (3) hold human authors entirely responsible for the content; and (4) advise editors and peers to screen for AI-generated content. Moreover, institutions should create uniform procedures for AI integration into research processes and offer instruction on moral AI use (van Dis et al., 2023). The aim is to make sure artificial intelligence turns from a tool compromising academic credibility into a responsible partner in research.

Table 01. Trends and Perceptions of AI Use in Academic Publishing (2022–2023)

Category	Statistic	Source
Researchers who used AI tools in manuscript preparation	28% of researchers reported using AI tools like ChatGPT or Grammarly in some form during writing.	Elsevier Author Survey, 2023
Researchers who disclosed AI usage in submission	Only 10% disclosed their AI use in the manuscript or cover letter.	COPE Briefing Report, 2023
Journals with formal AI authorship or usage policies	21% of journals implemented AI use policies in their submission guidelines.	Nature Editorial Analysis, 2023
Editors concerned about AI-generated peer reviews	65% of journal editors expressed concern about the rise of AI-generated fake reviews.	STM Trends Report, 2023
Preprints flagged for suspected AI-generated content	3.8% of preprints on bioRxiv and arXiv were flagged for suspected AI use.	van Dis et al., <i>Nature</i> , 2023
Researchers supporting AI in grammar/clarity only	74% of surveyed academics agreed AI tools should only be used for grammar and clarity improvements.	Springer Nature Ethics Survey, 2023

The use of AI tools, especially large language models like ChatGPT, in academic publishing between 2022 and 2023 is statistically summarized in Table 1 along with current trends, behaviors, and perceptions. The information shows the increasing use of AI in manuscript preparation as well as the resulting procedural and ethical flaws. Roughly 28% of researchers have used AI tools to help with manuscript writing, per the Elsevier Author Survey (2023). But according to the COPE Briefing Report (2023), only 10% of submissions revealed this usage, indicating a serious transparency gap. Concerns concerning the accountability and reproducibility of academic work aided by AI are raised by this lack of disclosure. An analysis by Nature Editorial (2023) found that only 21% of academic journals have formal policies on AI use, despite the growing use of AI in scholarly communication. To the extent that there is a lag, for now, it just shows how imperative it is for editorial boards to develop more specific (and enforced) rules for authorship, disclosure and acceptable AI support. Journal editors are equally alarmed, with 65% of them expressing concern over the ever increasing threat of AI-generated fake peer reviews (STM Trends Report, 2023). To maintain quality peer review, the report points to the need for better editorial tools and vetting processes. The worries about a non-controlled use of AI leading to the dissemination of fake or unverified science are also underpinned by the fact that 3.8% of preprints on platforms like bioRxiv and arXiv were flagged as potential AI-generated text covered within the content quality checks (van Dis et al., 2023).

Surprisingly, according to the Springer Nature Ethics Survey (2023), 74% of researchers supported the use of AI tools that were restricted to grammar and language clarity despite these risks. This implies that the academic community is in agreement that AI should continue to be a tool that supports research rather than generating it.

These figures taken together highlight the necessity of strong, open, and morally sound regulations governing the incorporation of AI into scholarly publishing. Coordination between publishers, institutions, and policymakers will be essential to preserving the integrity and credibility of scientific communication as AI tools advance and become more widely used.

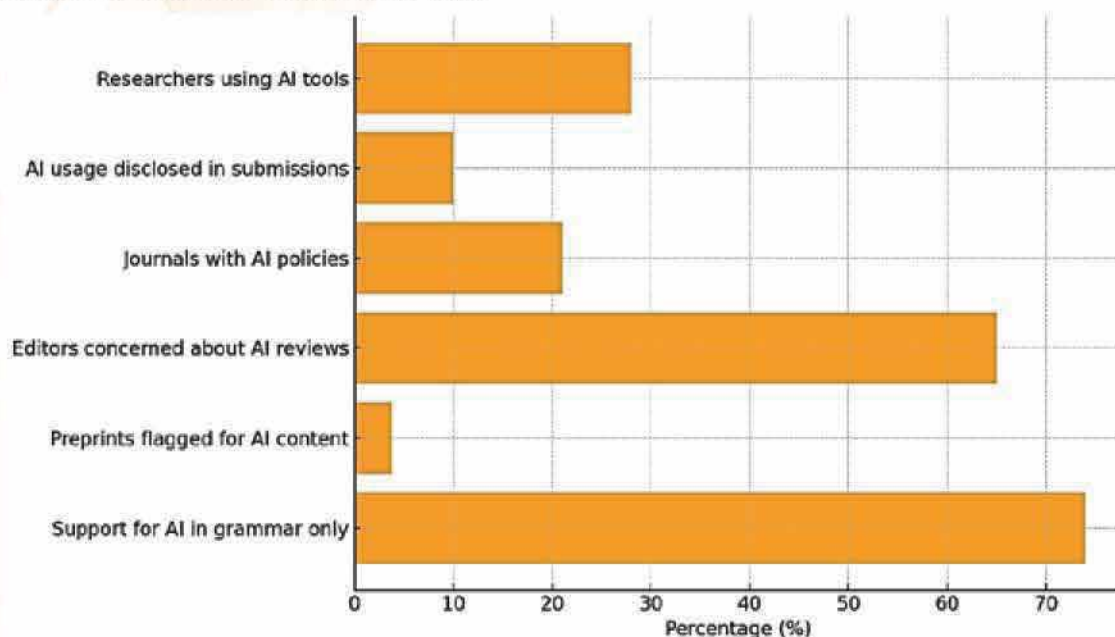


Figure 05. Trends and Perceptions of AI Use in Academic Publishing (2022–2023)

A horizontal bar chart illustrating important data from Table 1 about the use and perception of AI tools in academic publishing is shown in Figure 5. Remarkably, only 10% of researchers reveal AI usage in their manuscript submissions, despite 74% of researchers supporting its use for grammar and clarity. This indicates a serious lack of transparency. Similarly, only 21% of journals currently have policies addressing AI use, despite 28% reporting using AI tools for writing. This indicates a regulatory lag. Remarkably, 65% of editors are worried about AI-generated phony peer reviews, demonstrating a high level of editorial trepidation. Additionally, preprints with suspected AI-generated content have been flagged in 3.8% of cases, indicating early warning indicators of integrity risks in pre-publication spaces. All of the data points to one important finding: even though AI tools are being used more and more, and even welcomed in certain situations,

research ethics and publishing standards are being jeopardized by the lack of disclosure, supervision, and guidance. To effectively handle these new issues, strategic action is required, including the creation of policies, ethical training, and clear guidelines.

5.0 REGULATORY AND ETHICAL CONSIDERATIONS

The demand for strong ethical and legal frameworks has grown as artificial intelligence tools like ChatGPT find ever more presence in academic processes. Dealing with developing concerns about authorship, data integrity, openness, and the possibility for abuse calls for these models. Challenges for trusted AI content AI-generated content questions what we think we know' about scientific publication, and raises the question of how to protect reputation in academic work.

5.1 Authorship and Integrity in the Age of AI

There are no more important issues, however, than those of authorship and intellectual property. While they can aid in manuscript preparation and are language fluent, AI systems do not meet international authorship guidelines. The International Committee of Medical Journal Editors (ICMJE, 2023) states that authorship entails substantial contributions to the design, performance and interpretation of a study, which artificial intelligence systems simply do not possess. Moreover, AI can create "hallucinated" content-information that is believed to be factual but is not rooted in the real world (van Dis et al., 2023). These products may seriously affect the integrity and correctness of published work if directly included in the scientific literature.

5.2 Risks of Academic Misconduct

The covert use of artificial intelligence tools in educational settings raises yet another ethical issue. Researchers can use AI-generated text without indicating that generative tools were used in manuscripts, grant applications or reviews. This bridges the gap between technical assistance and intellectual fraud, raising serious questions about accountability, plagiarism, and replicability (Stokel-Walker, 2023).

5.3 Current Publishing Policies on AI Tool Usage

Leading academic publishers have confronted these challenges through a direct attempt to discipline the use of AI for ethical purposes: Science prohibits the use of AI-generated text or figures without disclosure, and prohibits the inclusion of AI as a coauthor (Thorp, 2023).

- 5 Nature lets AI-assisted writing, but its use must be reported in the methods or acknowledgements part (Nature Editorial, 2023).
- 6 The Committee on Publication Ethics (COPE, 2023) supports complete openness in reporting AI involvement and issues advice against crediting AI as co-authors.

While appreciating the value of artificial intelligence as a tool for improvement, these steps are meant to protect the fundamental values of academic publishing-trans openness, responsibility, and integrity.

5.4 The Need for Transparency in AI-Assisted Writing

Maintaining confidence in the scientific process depends mostly on openness. Reviewers and readers cannot assess the reliability, credibility, or source of AI-assisted content without clear disclosure. Undisclosed AI use raises the possibility of spreading factually false, plagiarized, or misleading information (Stokel-walker, 2023).

Whether in drafting, editing, or data analysis, mandatory disclosure of AI involvement would help set acceptable forms of AI support-e.g., grammar correction or formatting-from unethical practices-e.g., producing content passed off as original research. Open policies also let journals implement editorial protections and enforce standards to evaluate AI-generated content.

5.5 Proposals for Ethical Guidelines in Scientific Publishing

Scholars and publishing companies have suggested a spectrum of ethical rules for the inclusion of artificial intelligence into research and publication in order to proactively handle the changing scene:

1. Required disclosure of artificial intelligence use in a separate part of the work (e.g., acknowledgements or methods).
2. Banning the writing of AI systems.
3. All turned in material is the sole responsibility of the human authors.
4. AI screening guidelines for editors and reviewers to recognise AI-generated content and editorial training schemes.
5. Institutional support and training for researchers to implement ethical AI (van Dis et al., 2023).

6.0 FUTURE OF AI IN SCIENTIFIC PUBLISHING

6.1 Authorship and Integrity in the Age of AI

Authorship and intellectual ownership constitute among the most urgent issues. Though they can help with manuscript preparation and have linguistic fluency, AI systems fall short of the globally agreed upon standards for authorship. The International Committee of Medical Journal Editors (ICMJE, 2023) say that authorship calls for significant contributions to the conception, execution, and interpretation of a study-capabilities that artificial intelligence systems by nature lack.

Furthermore, AI systems can generate "hallucinated" material-knowledge that seems factually accurate but has no empirical basis (van Dis et al., 2023). Such outputs, if included into scientific publications without validation, can seriously compromise the integrity and accuracy of released work.

6.2 Risks of Academic Misconduct

The hidden application of artificial intelligence tools in educational environments raises still another ethical question. Without revealing the use of generative tools, researchers might include AI-generated text in manuscripts, grant proposals, or peer reviews. This erases the line separating intellectual dishonesty from technological support, so casting grave doubts on research repeatability, plagiarism, and responsibility. (Stokel- Walker, 2023).

6.3 Current Publishing Policies on AI Tool Usage

Leading academic publishers have responded to these difficulties by explicitly enforcing ethical AI use policies: Science forbids the use of AI-generated text or figures without disclosure and forbids listing AI as an author (Thorp, 2023).

- Nature lets AI-assisted writing, but its use must be reported in the methods or acknowledgements part (Nature Editorial, 2023).
- The Committee on Publication Ethics (COPE, 2023) supports complete openness in reporting AI involvement and issues advice against crediting AI as co-authors.

These steps are meant to uphold the fundamental values of academic publishing-openness, responsibility, and integrity-while appreciating the help of artificial intelligence as a tool for improvement.

6.4 The Need for Transparency in AI-Assisted Writing

Transparency is essential to preserving faith in the scientific method. Reviewers and readers cannot assess the legitimacy, provenance, or dependability of AI-assisted content if there is no explicit disclosure. Unreported AI use raises the possibility of spreading false, misleading, or factually incorrect information (Stokel-Walker, 2023).

Ethical practices (like creating content masquerading as original research) and acceptable forms of AI support (like formatting or grammar correction) could be distinguished with mandatory disclosure of AI involvement, whether in drafting, editing, or data analysis. Journals can establish editorial safeguards and enforce standards to evaluate AI-generated content by implementing transparent practices.

6.5 Proposals for Ethical Guidelines in Scientific Publishing

A variety of ethical standards for the incorporation of AI into research and publishing have been put forth by academics and publishing associations in an effort to proactively address the changing environment:

1. The use of AI must be disclosed in a specific section of the manuscript (such as the methods or acknowledgments section).
2. AI systems cannot be listed as authors.
3. The human authors are solely responsible for all content that is submitted.
4. AI screening protocols and editorial training to help editors and reviewers identify content produced by AI.
5. Programs for education and institutional support to teach researchers how to use AI ethically (van Dis et al., 2023).

7.0 RESULTS AND DISCUSSION

This section presents the empirical findings derived from qualitative data, including semi-structured interviews, focus group discussions, and institutional document analysis. The findings are organized into three broad themes: (1) the functional implications of generative AI on the practice of scientific publishing; (2) private university preparedness and infrastructural capacity in Bangladesh; and (3) stakeholder attitudes towards ethical issues, academic integrity, and policy gaps.

7.1 Functional Implications of Generative AI in Scientific Publishing

The integration of generative AI tools, notably ChatGPT, into academic workflows has been widespread among respondents. Of the 15 faculty members interviewed, 12 (80%) indicated regular use of AI for drafting literature reviews, summarizing source materials, or structuring manuscript content. Language enhancement features-such as grammar correction and fluency improvement-were reported by 73% of respondents as particularly beneficial for meeting publication standards in English-language journals. Moreover, 67% admitted to using AI to enhance logical flow and transitions among sections.

Nevertheless, some respondents also commented on the limitations of current AI tools. Nine out of fifteen respondents (60%) gave examples of "hallucinated" citations-plausible-sounding references that either did not exist or were formatted incorrectly. These had to be checked and corrected manually during manuscript revision.

These findings corroborate existing literature naming the double-edgedness of generative AI: while it enhances productivity and linguistic precision, it also has the potential to release epistemological and factual inconsistencies if used non-critically (Gilson et al., 2023; Borji, 2023). Human oversight remains necessary in academic writing workflows, therefore.

7.2 Institutional Capacity and Readiness for AI Integration

Assessment of the participating private universities revealed significant disparities in institutional preparedness. None of the five surveyed institutions had implemented formal guidelines or ethical protocols related to AI usage in academic writing or research dissemination. Only two universities had dedicated editorial support structures, and even these lacked training modules or capacity-building programs concerning responsible AI integration.

Furthermore, 70% of faculty respondents indicated that they had not received any form of structured training on AI tools, despite 60% admitting to the informal use of such technologies. Access to institutional licenses for AI platforms or advanced plagiarism detection software was inconsistent, with most institutions relying on freely available tools with limited functionality.

These findings point to a critical policy vacuum and infrastructural deficiency in the governance of AI in academic institutions. As noted in van Dis et al. (2023), the absence of institutional regulation may accelerate the dissemination of substandard or ethically compromised scientific content, particularly in resource-limited settings.

7.3 Stakeholder Perceptions and Ethical Considerations

The perception of AI in academic research varied among stakeholders. Faculty members acknowledged AI's potential to democratize access to scholarly publishing, particularly for researchers from non-native English-speaking backgrounds. However, they expressed concern over the dilution of intellectual authorship, challenges in tracing content provenance, and the risk of data fabrication.

Focus group discussions with postgraduate students revealed that while many utilized AI tools for language correction and preliminary structuring, there was widespread ambiguity regarding the ethical boundaries of such usage. Institutional guidance was either absent or unclear.

Academic editors and administrators voiced apprehension about the integrity of AI-assisted peer review, especially regarding the generation of artificial reviewer suggestions and the possibility of fabricated review content. These concerns align with the global editorial consensus documented in the STM Trends Report (2023), which reported that 65% of journal editors expressed concern over AI-generated fake reviews.

These observations underscore the need for immediate ethical interventions, including mandatory AI-use disclosure, human authorship accountability, and editorial capacity-building. The ethical risks-such as plagiarism, ghost authorship, and content manipulation-necessitate institutional and policy-level reform to preserve the credibility of the scholarly communication system.

The use of generative AI tools in scholarly publishing is becoming increasingly common, driven by their capabilities in language enhancement, content summarization, and peer-review support. However, in the absence of institutional guidelines, ethical safeguards, and adequate training, the potential benefits of AI integration are undermined by risks related to misinformation, authorship ambiguity, and compromised research integrity.

To ensure responsible adoption, institutions must adopt proactive strategies including: (i) the formulation of AI-use disclosure policies; (ii) integration of AI ethics into research training curricula; (iii) investment in secure AI infrastructure; and (iv) alignment with international publishing standards (e.g., COPE, ICMJE, Nature, and Science policies). These steps are essential to maintaining academic rigor in an AI-augmented research environment.

8.0 CONCLUSION

The arrival of AI-based aids such as ChatGPT has upended traditional models of how research is conceived, written, reviewed, and distributed, long-held models on the nature of scientific publishing. Centering its exploration of generative AI tools on peer review, authorship integrity, manuscript preparation, and accessibility, it aimed to question what impact these technologies are having on the academic publishing. In

response to these core investigative questions, findings present a double reality: AI introduces important ethical and procedural challenges as well as unprecedented grounds for doing things more efficiently and inclusively. Generative AI tools have proven to be quite promising in writing fluency, citation management and summarization as well as assisting in reviewer recommendations. With all obstacles out of the way (even linguistic and technology-related), these features offer invaluable assistance to researchers, particularly for those located in underfunded institutions or non-English speaking countries. This is why AI tools are very much a key accelerator to democratizing scientific knowledge and making scholarly participation a more equitable endeavor for the entire world. But there are also significant downsides to the widespread deployment of AI. The research highlights risks of automating academic writing and review. These are the creation of "hallucinated" content or falsehoods, the potential for plagiarism, the eroding of the distinction involving transparent authorship, and the gaming of peer-review through AI-sourced false reviews. Transparency of AI, or the lack thereof, undermines academic accountability and trust has had already proven to have done so, Even at one of the leading institutions in AI Research. Moreover, AI-generated preprints are often circulated without peer review, which raises concerns about the legitimacy of authorship, validations, as well as the potential for misinformation. These findings underscore the importance of approach of flexible and proactive governance. Conversely, I here argue that our preference be for AI apparatus only as assistant, not replacements for human genius or scholarly output. Transparency is key, and researchers must declare in the body of their papers how AI is being utilized. While editors and peer reviewers need to be educated to appropriately recognize and evaluate AI-generated content, publishers should have and enforce policies that prohibit AI from being credited as authors. In addition, research development programs in institutions should include ethical training on the responsible AI use. International collaboration is also important to develop standardized guidelines and ensure equality of distribution within and between countries. In conclusion, AI has the potential to be a game changer for academic publishing, increasing the speed and equity of publication, but it also raise the need for ethical consideration. To ensure responsible integration of AI, the academy, researchers, editors, publishers and policymakers need to work together. So, too, must the frameworks that regulate their uses evolve as the technologies do. These are important aspects for future research to address, namely the influence of AI on scientific rigour, reviewer behaviour, disciplinary norms and migration of practices regarding AI-assisted authorship in the long term. The promise of AI can only be fulfilled without detriment to the integrity of scholarly communication through sustained interdisciplinary collaboration.

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