

INTEGRATING GENERATIVE AI INTO HIGHER EDUCATION: FROM PROHIBITION TO PROMOTION

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Abstract: This paper explores the transformative impact of Generative Artificial Intelligence (GAI) on higher education, focusing on its implications for research and academic writing. While GAI offers unprecedented opportunities to enhance learning, streamline research processes, and personalize educational experiences, it also presents significant challenges. These include concerns surrounding academic integrity, the potential erosion of critical thinking skills, and ethical considerations related to bias, transparency, and the evolving role of educators. Drawing upon a detailed analysis of GAI's capabilities and challenges, the paper proposes a methodological framework for the ethical integration of GAI into academic work, emphasizing the importance of transparency, accountability, and a commitment to core academic values. A Faculty of Organizational Sciences case study illustrates a proactive institutional response to these challenges, highlighting guidelines prioritizing responsible GAI use. The paper concludes that continuous adaptation and collaboration are essential to harness GAI's potential while mitigating its risks effectively.

Key words: Generative AI, Higher Education, Ethical Guidelines, Academic Integrity, Transparency

1. INTRODUCTION

The rapid advancement of Generative Artificial Intelligence (GAI) is fundamentally reshaping the landscape of higher education, particularly in research and academic writing. This paper will primarily explore the implications of GAI within this evolving context. Powered by advanced machine learning, GAI encompasses a diverse range of technologies beyond large language models (LLMs). These technologies can potentially transform teaching, learning, and research by automating tasks, creating new forms of content, and offering personalized learning experiences. Nevertheless, their integration into higher education raises crucial questions surrounding academic integrity, the evolving role of educators, and the need for new pedagogical approaches to effectively harness the power of GAI while mitigating its risks. Ethical considerations regarding using these tools must also be at the forefront of discussions as institutions navigate this transformative landscape. This paper will first examine the potential benefits and challenges of GAI integration in higher education, focusing on its impact on research and academic writing. It will then propose a methodological framework for ethical GAI use, followed by a case study illustrating these principles at the Faculty of Organizational Sciences (FON). Finally, it will conclude with reflections on the broader implications of GAI for the future of academia.

2. GAI INTEGRATION INTO HIGHER EDUCATION

GAI's integration into higher education is multifaceted:

- **Teaching and Learning Enhancement:** GAI can personalize educational content by analyzing student performance, identifying knowledge gaps, and recommending relevant resources or exercises. This can lead to more targeted and efficient learning pathways. GAI-powered platforms can cater to various learning styles by offering information in multiple formats, such as text, audio, video, and interactive simulations. AI-based tutoring systems offer step-by-step guidance, adapting to individual learning needs through adaptive assessments [1].
- **Curriculum Development:** Educators are incorporating GAI into course design, creating new programs focused on AI literacy and its applications. This includes developing courses that teach students how to use AI tools effectively in their respective fields and address the ethical implications of AI, including bias, fairness, transparency, and accountability in the context of

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academic research and broader societal impact. The rise of GAI will likely lead to new interdisciplinary fields that combine AI with other disciplines [2].

- **Research and Academic Writing:** GAI can assist researchers not only in drafting and editing but also in conducting literature reviews, identifying relevant research articles, summarizing complex information, and generating hypotheses. Instead of framing GAI as replacing researchers, it is more accurate to view it as a powerful 'co-pilot' that can enhance productivity and allow researchers to focus on higher-level tasks such as critical analysis, interpretation, and developing novel research questions. However, this raises concerns about academic integrity and the authenticity of student work. To address these concerns, institutions must develop clear guidelines and policies on using GAI appropriately in research and writing and educate students about proper citation practices and the importance of original thought. Integrating plagiarism detection software is crucial in maintaining academic integrity within higher education [3]. This paper will mainly focus on GAI's use in academia.

2.1. Positive aspect of GAI's integration into higher education

Despite facing legitimate concerns from traditional academia, GAI holds significant potential for enhancing students' research capabilities. Its applications span various aspects of the research process, offering tools to streamline and enrich academic endeavors.

GAI can adapt to individual learning needs by offering tailored feedback and resources, helping students strengthen specific research skills. This personalized approach fosters a deeper understanding of research methodologies and enhances academic performance [4]. The integration of GAI in research encourages students to engage with ethical considerations related to AI use, such as data privacy, bias detection, transparency, accountability, and academic integrity. This engagement promotes critical thinking and responsible research practices [5].

2.2. Challenges of GAI's integration into higher education

Alongside the positive aspects of integrating GAI into students' research and academic writing, it also presents significant challenges that educators and institutions must carefully address to ensure effective and ethical use. Here we list the most obvious ones:

- **Academic Integrity:** The ease of generating content with GAI tools has led to concerns about plagiarism and the authenticity of student submissions. Students might submit AI-generated content as their own, undermining the learning process and devaluing genuine scholarships. Institutions are grappling with how to detect AI-generated work and maintain academic standards. They need to redefine plagiarism in the age of AI. This raises questions about whether using AI to generate an initial draft is plagiarism, even if heavily edited and properly cited. They also need to focus on proactive measures like educating students about ethical AI use, designing assignments that require original thought and analysis, and fostering a culture of academic integrity [6], [7].
- **Quality and Reliability of AI-Generated Content:** GAI models can produce content that appears credible but may contain inaccuracies, fabricated information (known as "hallucinations" [8]), fake data, or misleading narratives that resemble "fake news." Relying on such content without proper verification can lead to disseminating false information in academic work. Furthermore, some LLM models can inherit biases in their training data, potentially leading to biased or skewed outputs that reinforce existing stereotypes or present a distorted view of reality. They lack a proper understanding of the content they generate. They may prioritize readily available information, potentially overlooking more nuanced or less accessible sources, leading to a superficial or incomplete understanding of the subject matter. This is particularly concerning in research, where the accuracy and validity of data are paramount. The potential for GAI to generate plausible but entirely fabricated data, statistics, or even citations seriously threaten the integrity of research findings. (Note: Cambridge Dictionary names 'Hallucinate' Word of the Year 2023) [1].
- **Erosion of Writing and Critical Thinking Skills:** Over-reliance on GAI tools for drafting and editing text can slow the development of essential writing and critical thinking skills. Students may become dependent on AI assistance, neglecting the cognitive processes involved

in articulating and defending their ideas. This reliance may also impact the development of essential research skills, such as formulating research questions, designing methodologies, interpreting data, and constructing persuasive arguments [10].

A multifaceted approach is needed to mitigate these challenges, involving educators, institutions, policymakers, and even AI developers [11]. This approach should include the development of clear ethical guidelines, pedagogical innovations that integrate AI effectively, and ongoing critical evaluation of the impact of GAI on the educational landscape. Even when those obvious challenges are overcome through established rules and official guidelines, the ethical implications of over-reliance on GAI in academic settings remain significant. This dependence (while excessive use can be problematic, the term 'dependence' more accurately reflects the situation than 'addiction') can undermine the authenticity of student work, as the line between original thought and machine-generated content becomes blurred. This dependence can contribute to the 'black box' problem, where the lack of transparency in how many GAI models work makes it difficult to understand how outputs are generated, raising concerns about accountability and trust. Moreover, it raises concerns about fairness, as not all students may have equal access to advanced AI tools, potentially increasing the educational gap. Additionally, using GAI in academic writing challenges the traditional understanding of authorship and intellectual property, prompting a reevaluation of ethical standards in scholarly work. Therefore, beyond legal considerations, the ethical dimensions of GAI usage necessitate careful deliberation to preserve the integrity and equity of academic endeavors. It also raises the question: if AI can produce high-quality academic work, what is the value of a human education? This question needs to be addressed [12].

3. (ANOTHER) METHODOLOGICAL FRAMEWORK FOR INTEGRATION OF GAI INTO ACADEMIC WORK

The methodological framework outlined in this section is grounded in research conducted at the Faculty of Organizational Sciences (FON). It has been developed by integrating insights from existing literature with empirical data gathered during the study. The objective is to establish practical and ethical guidelines that can assist institutions and researchers in effectively navigating the challenges and opportunities presented by AI in academic writing.

Ensuring the ethical use of Generative Artificial Intelligence (GAI) in academic education and research necessitates a profound personal commitment to scientific and academic values. This commitment must be deeply “built” in everyone’s character, requiring a more comprehensive public transformation than merely implementing formal rules or prohibitions. While risks will always exist, as reliance solely on individual integrity is insufficient, it is imperative to strengthen mechanisms for the critical evaluation of academic works. These evaluations should extend beyond issues of plagiarism and authenticity to include a thorough examination of the prompts provided by authors. Current plagiarism detection software primarily focuses on textual similarity and is often ill-equipped to identify sophisticated AI-generated content or assess the originality of the underlying ideas. These tools can produce false positives, flagging legitimate work as plagiarized, and false negatives, failing to detect AI-generated content.

For instance, a student might use GAI to generate an initial draft and then heavily edit it, making it difficult for current software to detect its AI origin. Conversely, a student might use legitimate paraphrasing tools or even translate a foreign-language paper and refine it with tools like Grammarly, potentially bypassing plagiarism checks while presenting someone else's ideas as their own. Specifically, as authors, we utilized Grammarly in writing this text to refine our sentences and enhance their fluency, making them sound more like native English, which we do not consider a misuse. Engaging a human expert in the same task would have been normal.

To address this, plagiarism detection tools must evolve to analyze the text and the research process, including the originality of research questions, the appropriateness of methodologies, and the depth of analysis. They should incorporate features to detect patterns indicative of AI assistance, such as overly sophisticated language for a student's level or inconsistencies in writing style. Furthermore,

the reliance on such automated systems should be balanced with a renewed emphasis on fostering critical thinking and original research skills among students.

In scientific research methodologies, appendices typically detail the instruments and methods employed during the study. Similarly, it is essential to disclose the specific prompts used in creating academic papers and the responses generated by GAI. Considering that the quality of the input prompts directly influences the quality of AI-generated output (simple prompts generally yield generic or superficial outputs, while detailed and nuanced prompts can elicit more sophisticated and context-specific responses), reviewing these prompts is crucial for assessing the authenticity and originality of the text produced using GAI. By examining the prompts, reviewers can gain insight into the author's thought process, the level of guidance provided to the AI, and the degree to which the final text reflects original thinking rather than simply echoing pre-existing information. This disclosure could be implemented as a separate "GAI Appendix" accompanying the paper, detailing the prompts and corresponding AI-generated outputs. While acknowledging potential concerns regarding the privacy of intellectual property embedded in the prompts, the benefits of transparency in this context outweigh the risks. However, it is important to acknowledge the limitations of this approach, as prompts could be altered after the fact to appear more original or complex.

To address these challenges, several key strategies should be implemented:

- **Development of Ethical Guidelines:** Establishing comprehensive ethical guidelines for the use of AI in education and research is vital. These guidelines should promote transparency, accountability, and the responsible use of AI technologies. They should clearly define acceptable and unacceptable uses of GAI, provide examples of ethical dilemmas, and outline procedures for reporting and addressing potential violations.
- **Education and Training:** Embedding ethical education about GAI from early childhood through higher education should prepare individuals to responsibly navigate the complexities of an AI-integrated world. This proactive approach ensures that ethical understanding and application keep pace as technology evolves, promoting GAI's balanced and conscientious integration into society.
- **Critical Evaluation Mechanisms:** Implementing robust mechanisms for the critical assessment of AI-generated content, including reviewing input prompts and generated outputs, helps maintain academic integrity and uphold scholarly standards. This could involve enhancing peer-review processes to include scrutiny of potential GAI use and the originality of the research approach.

By fostering a culture of ethical awareness and critical evaluation, the academic community can effectively navigate the complexities introduced by GAI, ensuring that technological advancements enhance rather than compromise the integrity of scientific research.

4. CASE STUDY

To illustrate the practical application of these principles, we present a case study involving the Faculty of Organizational Sciences (FON). The Committee for the Development and Application of Generative Artificial Intelligence in the Academic Environment (Committee) submitted General guidelines for using generative artificial intelligence at the Faculty of Organizational Sciences [13]. This document was approved by the Teaching and Scientific Council of the FON and includes ethical, legal, and technical aspects of using artificial intelligence tools and guidelines for their application in teaching, research, and administrative work.

To use GAI in educational, scientific research, and administrative activities, consistent adherence to the general principles of permissible use of GAI is essential, which include:

- The GAI is considered a tool, i.e. a third party.
- Transparency in using GAI
- Academic integrity: Respect for copyright and intellectual property
- Respect for privacy and protection of personal data
- Respect for ethical principles

- Principle of maintaining business and official secrets

This principle underscores the importance of:

- Ethical Use of AI
- Preventing Abuse
- Maintaining trust
- Accessibility, equity, and inclusiveness
- Autonomy of teaching and research work

The teacher's responsibility is to ensure the fulfillment of the goals and learning outcomes defined in the subject curriculum, regardless of whether and to what extent GAI is used while respecting moral and legal norms and principles. The principle of autonomy of teaching and scientific research work with defining the level and details of permitted use of GAI is a very important and useful approach for several reasons:

- Discipline Specificity
- Teacher expertise
- Innovation in teaching
- Responsibility and understanding
- Adherence to general principles

This framework can serve as a valuable model for other institutions seeking to navigate the complexities of GAI adoption. It provides a solid foundation for building and adapting to the ever-evolving landscape of AI in education.

5. CONCLUSION

Integrating GAI into higher education presents significant opportunities and complex challenges. While GAI can revolutionize research and learning by automating tasks and streamlining information access, it also exacerbates existing ethical concerns. Unnecessary automation, for instance, risks diminishing human oversight and the crucial role of critical thinking in academic work. The evolution from traditional information gathering to the internet age, and now to the era of GAI, highlights this transformation. Tools like ChatGPT significantly reduce the time for literature review and data synthesis, offering unprecedented efficiency. However, the potential for GAI to propagate biases and generate inaccurate information necessitates vigilance. The Faculty of Organizational Sciences case study exemplifies a proactive institutional response, offering a framework for responsible GAI integration that prioritizes transparency, academic integrity, and ethical considerations. This framework serves as a valuable model for other institutions navigating the complexities of GAI adoption. Moving forward, it is crucial that the academic community fosters continuous dialogue, develops robust ethical guidelines, and adapts pedagogical approaches to ensure GAI enhances, rather than undermines, the quality and integrity of scholarly endeavors. Only through such concerted efforts can we fully realize the transformative potential of GAI while safeguarding the core values of higher education.

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