



Toward an Ethicization of Artificial Intelligence Use in University Research

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Abstract ;

This article examines the widespread integration of generative Artificial Intelligence (AI) in higher education, balancing its immense potential with critical threats to academic integrity. While AI legitimately assists in brainstorming, literature reviews, language editing, and data analysis, unregulated use triggers risks like algorithmic hallucinations (counterfeit references), smart plagiarism, and a decline in human critical thinking. To address these ethical and legal dilemmas, including widening intellectual property gaps and data privacy concerns, the study outlines a forward-looking governance framework. This approach relies on implementing specific academic honor charters, strict disclosure mechanisms, and pedagogical updates to preserve authentic human scholarly values.

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Introduction

The higher education and scientific research sector is witnessing an unprecedented surge concurrent with the Fourth Industrial Revolution, as Artificial Intelligence (AI) systems—particularly Generative Large Language Models (LLMs)—have transitioned from the confines of technical laboratories to the very heart of the daily academic practices of students and researchers alike.

These digital tools offer immense and alluring potential to accelerate the pace of scientific production, through what is known as the automation of literature review processes, big data analysis, and textual proofreading both in form and content. However, this rapid technological influx has caught academic circles off guard, as it has surpassed the known legal, methodological, and traditional frameworks that regulate the quality and originality of scientific research.

Researchers—both faculty members and students—now seldom produce scholarly work devoid of excessive reliance on artificial intelligence in drafting their theses and university research, without clear normative controls, a situation that has given rise to genuine dilemmas that strike at the very core of scientific integrity.

These concerns range from the proliferation of "masked" or "smart" academic plagiarism—which conventional software struggles to detect—to the emergence of the "algorithmic hallucination" problem, which generates

fictitious references and data that appear ostensibly scientific and valid, yet are anything but.

Accordingly, academic debate is no longer confined to how these tools might be technically employed; it has shifted toward the imperative of formulating a forward-looking approach that establishes the "ethicization" of this technology, thereby ensuring the preservation of the human touch and the researcher's critical spirit.

Research Problem:

The research problem of this article is defined by one fundamental core question: **How can we reconcile the harnessing of artificial intelligence capabilities in university research with the guarantee of academic integrity?**

The following sub-questions emanate from this primary inquiry:

1. What are the legitimate and illegitimate boundaries of using artificial intelligence tools within the university environment?
2. What are the legal and ethical implications entailed by the use of generative artificial intelligence with respect to intellectual property and scientific responsibility?
3. What are the regulatory and methodological mechanisms capable of governing and ethicizing this use within the academic sphere?

Significance of the Study:

The significance of this study derives from its responsiveness to a pressing need currently experienced by academic councils and university committees, which are confronting a regulatory vacuum in dealing with digitally generated outputs. The added value of this article lies in its presentation of a practical framework (a proposed ethical charter) that can be institutionally adopted to regulate student research behavior.

Research Methodology:

To address the posed research problem, this article adopts an analytical-forward-looking methodology, through surveying the current state and literature on AI use in higher education, analyzing its ethical dimensions, and striving to formulate regulatory alternatives and criteria to govern this phenomenon.

In conducting this study, we have made use of certain AI applications in reformulating paragraphs of the article, including DeepSeek, Gemini, and DeepL.

This study is divided into three axes:

- **I-** The use of artificial intelligence in the university environment between legitimate employment and the risks of academic deviation.
- **II-** The ethical and legal dimensions of ethicizing artificial intelligence use in university research.
- **III-** Toward a forward-looking approach to ethicizing artificial intelligence use in the university

environment (mechanisms and solutions).

I- The Use of Artificial Intelligence in the University Environment between Legitimate Employment and the Risks of Academic Deviation

The rapid influx of generative artificial intelligence applications—foremost among them Large Language Models and advanced research assistants—has brought about a radical transformation in the methodological structure of university research (Dwivedi et al., 2023). This development is no longer merely a secondary technical addition; rather, it has engendered a hybrid reality in scientific practice within academic circles, reshaping the relationship of students and researchers with knowledge and scientific production in both Arab and international universities alike (Oudina, 2024).

To deconstruct this complex landscape, a two-dimensional examination is required: the first dimension is concerned with delineating the boundaries of positive and legitimate employment of these tools as assistive factors, while the second investigates the existential risks and threats that impinge upon the authenticity of academic conduct and its methodological soundness.

I-1- Legitimate and Positive Use of Artificial Intelligence in Scientific Research

For the academic researcher, artificial intelligence systems constitute a highly efficient virtual laboratory capable of economizing time, effort, and material resources, provided they are employed as a subordinate support tool

rather than as a substitute for the researcher's intellect and cognitive capacities, which form the foundation of their convictions and conclusions (UNESCO, 2023). The most prominent areas of legitimate and safe employment are identified in the following methodological points:

I-1-1. Assistance in Brainstorming and Exploring Research Gaps

There is no doubt that artificial intelligence has become a significant interactive partner for the researcher in the early stages of their research; it aids in exploring new angles for complex problematics, generating precise keywords, and narrowing the scope of overly broad research topics, thereby contributing to the construction of the research problem in a deeper and more mature manner, as well as identifying the knowledge gap warranting investigation (Bouguerra, 2025).

I-1-2. Accelerating Literature Review Processes and Organizing References

AI-powered research tools enable the extraction of core ideas from hundreds of scientific papers and their classification (Gimpel et al., 2023). In this context, Raziq and Ajila (2024) indicate that employing these technologies contributes to overcoming geographical and material obstacles in accessing knowledge sources, facilitating postgraduate students' categorization of references according to methodologies or findings. This, however, is contingent upon not relying solely on the automated summarization

performed by AI applications; rather, thorough reading is imperative to verify the accuracy of data and information, the correctness of sources and references, and all else that scientific integrity demands.

I-1-3. Language Editing and Stylistic Enhancement

The use of artificial intelligence to refine research language, regulate academic formulation, and correct grammatical and idiomatic errors constitutes a legitimate—indeed, recommended—practice to strengthen linguistic composition and bridge the gap between researchers and international publishing platforms (Zhai, 2023). This arguably represents an opportunity to enhance the quality of Arabic research outputs and purge them of stylistic weakness without interfering in the production of scientific content or the fabrication of ideas (Ben Youssef, 2024).

I-1-4. Assistance in Primary Data Analysis and Software Management

In field and experimental research, artificial intelligence tools can facilitate the writing and management of programming codes for statistical analysis, cleaning large data packages, and detecting complex statistical patterns that may elude traditional human examination (Cotton et al., 2024).

I-2- Risks and Manifestations of Academic Deviation

The advantages afforded by artificial intelligence applications in the research domain are hardly obscure to us. However, this has inclined researchers toward unregulated and over-reliant employment of applications, leading to the emergence of dubious research practices that directly affect the credibility of researchers' scientific outputs and, consequently, the reliability and merit of academic degrees (Mazzi, 2024). We shall attempt through the following to highlight the most significant of these threats:

I-2-1. The Problem of Algorithmic Hallucinations and Counterfeit References

Hallucination is considered one of the most dangerous technical dysfunctions of generative language models, wherein algorithms fabricate spurious sources and references, inventing author names, publishing houses, page numbers, and data that have no existence in reality (Alkaissi & McFarlane, 2023).

The gravity of this issue is compounded in the Arab academic environment, as some students have fallen into the trap of fabricated references due to algorithms' occasional inability to retrieve accurate Arabic sources, prompting them to invent source titles, books, or articles to justify the response to the academic researcher using the application, with the aim of persuading them (Ben Amina, 2024).

I-2-2. Intelligent and Masked Plagiarism (AI-Generated Plagiarism)

While traditional anti-plagiarism software easily detects verbatim copying, artificial intelligence reformulates ideas owned by others in entirely new and innovative ways that evade digital scrutiny (Perkins, 2023). There is no doubt that this type of concealed plagiarism nullifies the original intellectual effort of the researcher and attributes scholarly merit to technical tools that do not deserve it, thereby complicating the tasks of supervising professors and examination committees in verifying the authenticity of research and its attribution to its author, and in generally regulating research conduct (Larit & Deghman, 2024).

I-2-3. The Absence of Human Critical Sense and the Pressures of "Intellectual Modeling"

When students rely on ready-made machine outputs in interpreting and justifying results, they disable the faculty of critical thinking and rational judgment. This produces "flat," repetitive research that adopts the intellectual and epistemic biases pre-embedded in the Western data upon which algorithms have been trained, potentially alienating scientific research from the particularity of the local Arab environment and society (Sahnoun & Baalash, 2024).

I-2-4. The Erosion of the Epistemic Bond between the Researcher and Their Thesis

The researcher's transformation from a "producer of the intellectual project" into a mere "prompt engineer" leads to an acute scientific void; the student may obtain a well-formatted research document with an apparent semblance of rigor, yet be entirely incapable of discussing it or understanding its content, let alone defending its hypotheses before scientific committees. This is because they have not undergone the genuine struggle of a true researcher—particularly in topic selection, sourcing and retrieving references, reading them, dividing the study, and all other methodological work essential to knowledge construction (Kooli, 2023).

II- The Ethical and Legal Dimensions of Ethicizing Artificial Intelligence Use in University Research

The transition from the phase of describing the phenomenon of artificial intelligence within the university milieu to the phase of governance and ethicization necessarily requires the deconstruction of this phenomenon across two integrated levels: the first is a normative ethical level pertaining to research conscience, behavioral practices, and established academic values; the second is a legal-regulatory level that examines the frameworks of tort liability, intellectual property, and the protection of creative outputs (Hamayel, 2023).

Accordingly, in this axis, we endeavor to highlight these dimensions through a detailed dichotomy grounded in contemporary regulatory and legislative literature.

II-1- The Ethical Dimensions of Using Artificial Intelligence in University Research

Academic ethics represent an ethical charter for the researcher that ensures the reliability of human cognitive construction. This system is profoundly affected when the machine enters as a participant in formulation and analysis, which necessitates the monitoring of the following ethical dimensions:

II-1-1. The Dilemma of Academic Integrity and the Attribution of Ideas to Their Owners

Academic integrity is founded upon an authentic principle: the attribution of every idea or formulation to its human originator who labored in its derivation (Larit & Deghman, 2024).

However, when a researcher employs an artificial intelligence application such as ChatGPT to generate entire chapters or formulate ready-made analyses, that researcher falls into an ethical slippery slope pertaining to behavioral falsification.

The student here presents a mechanical effort as though it were the product of their own intellectual faculty (Perkins, 2023). This conduct divests the research of its scholarly significance and

innovativeness, rendering the outputs a mere algorithmic compilation that lacks behavioral integrity, even if conventional anti-plagiarism software proves incapable of detecting it.

II-1-2. The Absence of Transparency and Accountability

Academic ethics are closely tied to "methodological transparency"—that is, the researcher's ability to justify and clarify each step taken in their research. This stands in contrast to intelligent algorithms, which operate according to deep processing systems, technically known as the "Black Box," wherein the researcher themselves cannot ascertain how the machine arrived at a particular result or recommendation (Kooli, 2023).

From an ethical standpoint, it is impermissible for a researcher to adopt scientific or statistical findings whose logical trajectory they are incapable of explaining or defending, as this constitutes a breach of the duty of scientific accountability before supervising academic committees (Tayebi, 2025).

II-1-3. Cognitive Bias and Digital Cultural Encroachment

Large Language Models are not ethically neutral; rather, they are trained on vast datasets that predominantly reflect the culture and perspectives of the Western societies that produce the technology (Dwivedi et al., 2023).

The uncritical adoption of the outputs of these systems leads to the unconscious importation of value-based,

social, and ethical biases that may conflict with the particularities of local communities and the Arab environment (Sahnoun & Baalash, 2024).

Thus, ethicization here becomes synonymous with preserving the independence of the researcher's intellect and protecting it from epistemic subservience to "algorithmic modeling."

II-2- The Legal Dimensions of Using Artificial Intelligence in University Research

There is no doubt that ethics constitute the discourse of the researcher's living conscience and serve as an internal deterrent. However, ethics alone are insufficient; hence, the law intervenes with its compulsory mechanisms to regulate research conduct, protect rights, and determine the responsibilities arising from the digital employment of artificial intelligence in scientific theses (Kafi, 2024).

The scope of this intervention is broad in the field of university scientific research. Through the following, we highlight the most significant legal dimensions that arise here, particularly in the use of artificial intelligence:

II-2-1. The Problematic of Intellectual Property Rights and Academic Innovation

Intellectual property and copyright are currently among the most legally contentious and delicate issues. Traditional intellectual property laws—such as Algerian, Arab, and even

comparative copyright law—explicitly stipulate the "human condition" or the creative human touch as a prerequisite for granting legal protection to texts and innovations (Oudina, 2024), on the one hand.

On the other hand, from a legal standpoint regarding AI-generated content, the problem arises that AI systems are not recognized as "authors" or "rights holders" due to their lack of legal personality (Mazzi, 2024). There are substantive legal dimensions affecting the intellectual property rights of authors and researchers.

The gravity of this issue is compounded in the academic milieu, where some researchers and students employ AI outputs without realizing that these outputs may, in essence, be based on copyrighted works, thereby ensnaring them in the trap of indirect plagiarism and exposing them to legal and disciplinary accountability.

For example: if a student automatically generates the text of their thesis, the work loses the condition of "human originality," rendering it—in the view of comparative legislation—a work ineligible for protection, and may even fall within the purview of infringement upon the works of others on which those algorithms were trained without the permission of their owners (Ben Amina, 2024). This calls for a deeper awareness of the legal dimension of use, alongside ethical and methodological awareness.

This may arguably be attributed to the failure to update legal texts to keep pace with the advancements in intelligent software and AI applications, which have developed rapidly and intervened in all fields, including university scientific research and beyond.

II-2-2. Civil and Criminal Liability for Errors and Digital Hallucination

When the question of legal liability arises from AI-generated studies that are incorrect due to the inclusion of erroneous or false statistical data affecting the results of medical, engineering, or legal studies, or as a result of the researcher falling into the trap of "algorithmic hallucination" and incorporating references fabricated by artificial intelligence, legal liability consequently attaches (Alkaissi & McFarlane, 2023).

However, from a legal standpoint, the researcher cannot invoke machine error to disclaim liability, for the human researcher is the sole civilly and criminally liable party for what they sign and publish in their own name (Bouguerra, 2025).

Moreover, the characterization of the act of incorporating fictitious references and fabricated data into an academic thesis is legally classified in some advanced academic systems as "forgery of scientific documents" and characterized plagiarism, entailing the revocation of the academic degree, disciplinary proceedings, and even

judicial prosecution on charges of fraud and deception (Cotton et al., 2024).

II-2-3. The Protection of Personal Data and Academic Confidentiality

Many researchers and students may overlook the legal dimension pertaining to cybersecurity and data protection when uploading their research proposals, portions of their theses, or their field sample data to open AI platforms for purposes of editing or summarization, thereby raising the issue of breach of confidentiality.

From a legal standpoint, uploading medical data, questionnaires containing respondents' identities, or unpublished research drafts constitutes a breach of personal data protection laws and the confidentiality of scientific research (Kafi, 2024).

The use of such data by the companies owning these applications, which store individuals' data to develop their systems, represents an unlawful leakage of intellectual production and an infringement upon the privacy of respondents (UNESCO, 2023).

III- Toward a Forward-Looking Approach to Ethicizing Artificial Intelligence Use in the University Environment (Mechanisms and Solutions)

Confronting the ethical and legal deviations arising from the haphazard employment of artificial intelligence in the academic milieu cannot be achieved through a policy of "absolute prohibition," but rather through the

formulation of flexible and forward-looking governance (UNESCO, 2023).

This proposed approach is founded upon three integrative pillars aimed at regulating and framing the research conduct of students and faculty members (Hamayel, 2023).

III-1- The Legislative and Regulatory Approach (Academic Charters of Honor)

This approach represents the first defensive line for university institutions by filling the current regulatory vacuum. This mechanism requires two main steps:

III-1-1. Constitutionalizing Digital Use

Mandating universities to formulate an annex—an "Academic Charter of Honor Specific to Artificial Intelligence"—to be signed by the student and researcher prior to commencing their thesis (Perkins, 2023). This charter clearly delineates what is permissible (such as editing and proofreading) and what is prohibited (such as generating texts and results).

III-1-2. Updating Detection Software and Innovative Assessment

Investing in the updating of anti-plagiarism detection systems to include algorithms capable of monitoring digitally generated texts, while reconsidering thesis defense mechanisms so that emphasis is placed on "in-depth oral discussion" to measure the student's actual comprehension of their thesis and to expose purchased or

automatically generated research (Cotton et al., 2024).

III-2- The Methodological Approach (Rules of Disclosure and Rigorous Documentation)

The ethicization of artificial intelligence necessitates its integration within the "literature of documentation and methodological transparency," rather than leaving it in the shadows as covert practice (Larit & Deghman, 2024). Among these measures, we note:

III-2-1. The Principle of Full Disclosure

Mandating the researcher to append a methodological supplement to their thesis, detailing the names of the software used (e.g., ChatGPT or Elicit), the nature of the prompts entered, and the extent of automated intervention in the text (Chiu et al., 2023).

III-2-2. Normativity of Methodological Documentation

Adopting the updated normative standards of global systems such as APA 7th edition or Chicago, which mandate the documentation of artificial intelligence as an "addressee and non-retrievable digital source" in footnotes and reference lists if the researcher relies on a generated idea, thereby ensuring the preservation of scientific integrity and facilitating the work of reviewers of such research (Kafi, 2024).

III-3- The Formative and Epistemic Approach (Building Critical Awareness)

The third pillar rests upon reformulating the epistemic awareness of the contemporary researcher, directing them toward critique rather than automated reception (Sahnoun & Baalash, 2024). We refer here to two essential elements:

III-3-1. Developing the Scientific Research Methodology Curriculum

Through the re-engineering of the methodology course syllabus at the second and third cycles (Master's and Doctorate) to include modules pertaining to "academic prompt engineering," and methods of critiquing machine outputs and detecting algorithmic hallucination (Tayebi, 2025).

Algeria, like other countries, has arguably embarked upon this path by incorporating modules related to AI applications and their use in university research; however, these steps remain modest given the staggering acceleration of this new arrival.

III-3-2. Qualifying Teaching and Supervisory Staff

Through the organization of periodic workshops for professors and supervisors to equip them with modern mechanisms and techniques enabling them to distinguish between organic human style and systematic machine-generated style, thereby ensuring effective and sound supervision (Oudina, 2024).

Many universities have undertaken this through the programming of scientific meetings, conferences, and even study days directed specifically at research professors and students across various stages of university education.

III-3-3. The Necessity of Enacting Clear Legislative Amendments

Numerous recent legal studies have recommended the necessity of amending laws governing intellectual property rights to include explicit provisions regulating the ownership and protection of AI-generated works, and enabling creators to control the use of their works within training datasets.

Ongoing Efforts and the Persisting Legislative Void

There is no doubt that tangible Arab and international efforts exist, yet they remain in their early stages, such as: the European Union's guidelines on artificial intelligence issued in 2019, UNESCO's Recommendation on the Ethics of Artificial Intelligence in 2019, the European AI Act (2021), Algeria's Charter of Academic Ethics and Manners in 2023, Jordan's National Charter for AI Ethics (2023), Egypt's Responsible AI Charter (2023), the AI Ethics Principles of the Saudi Data and Artificial Intelligence Authority (SDAIA, 2023), and the Arab Guide to the Use of Artificial Intelligence in Scientific Research (Arab Federation for Libraries and Information, 2023) (Beddissi, 2025).

Despite these efforts, the legislative void persists, notwithstanding the urgent need for texts that specify: (a) the conditions for legal protection of AI-generated outputs, (b) the obligations of academic users toward these outputs, and (c) the mechanisms for fair compensation to owners of original works used in training models. This necessitates proactive legislative intervention, grounded in international best practices, foremost among which are the recommendations of UNESCO and WIPO in this regard (Beddissi, 2025).

4. CONCLUSION

The foregoing affirms that the ethicization of artificial intelligence use in university research is not merely a methodological or ethical matter, but rather an issue of interconnected dimensions, extending to the legal foundations of intellectual property, institutional control mechanisms, and the obligations of academic researchers toward the scientific community.

Consequently, such ethicization cannot be achieved in isolation from clear legislative development, the establishment of specialized supervisory bodies, and the reinforcement of a culture of disclosure and transparency among both researchers and students alike.

Artificial intelligence is a powerful tool, yet it is no substitute for the conscious, critical human intellect, nor does it obviate the commitment to authentic academic values. The

preservation of scientific integrity and the rights of creators remains the true criterion for the success of any regulatory approach in this rapidly evolving field.

In conclusion, this research paper constitutes a forward-looking study through the analysis of AI applications in university studies and the endeavor to establish a framework for the ethicization of these uses. It has arrived at a package of findings and recommendations that chart the course toward comprehensive ethical and legal governance:

First: Findings of the Study

1. Generative artificial intelligence represents a double-edged sword in the research environment; it is a qualitative support tool for accelerating literature review and linguistic editing, yet simultaneously an existential threat to scientific originality when employed as a substitute for human thought.
2. The inability of conventional anti-plagiarism software to detect "smart academic plagiarism" has led to the proliferation of masked plagiarism and the erosion of researchers' critical faculties, alongside the emergence of legal risks pertaining to liability for "digital hallucination" and the fabrication of references.
3. Current legislations and copyright laws lack sufficient flexibility to accommodate the nature of algorithmically generated content, as the "human condition" remains the foundational pillar for granting protection and academic recognition.
4. Most concerns associated with artificial intelligence are situated within the ethical context more than any other context.
5. Charters addressing AI ethics often refer to ethics pertaining to AI or to research on AI, rather than to the ethics inherent in the use of AI as a tool for scientific research.
6. No official body has issued rules or regulations specifically governing the ethics of scientific research pertaining to the use of AI applications that would bind researchers to controls governing the use of these applications—with the exception of the guide issued by the Arab Federation for Libraries and Information.
7. Practical reality has demonstrated the limitations of legal and technical controls in curbing the phenomenon of scientific plagiarism, leaving the ethical compass as one of the fundamentals of scientific integrity in the age of artificial intelligence.

Second: Recommendations of the Study

1. It is imperative to expedite the updating and modernization of the university ethics charter to align with the rapid evolution of AI applications used in scientific research.
2. The necessity of university intervention, as the primary locus where ethical values are inculcated.
3. Formulation of clear and binding guidance manuals for researchers, and the adaptation of university charters to the requirements of the current phase.
4. Reinforcement of the internal ethical compass among researchers as the cornerstone of preserving scientific integrity.
5. At the ministerial and institutional level: There must be accelerated issuance of a "Unified National Charter for the Ethicization of Artificial Intelligence Use in Higher Education" that obliges universities to adopt stringent standards and clear controls that penalize fraudulent usage.
6. At the methodological level: The necessity of compelling postgraduate students to submit a "Declaration of Digital Transparency and Disclosure" that details, with precision, the

boundaries of use and the nature of tools employed in the preparation of the thesis.

7. At the pedagogical and formative level: Working toward the integration of the terms "digital integrity" and "awareness of algorithmic bias" into doctoral training curricula, with an emphasis on oral and analytical discussions as a fundamental criterion for assessing the researcher's competence.

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