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RESEARCH ARTICLE

Scientific Plagiarism: Mechanisms for Prevention and Combating in Algerian Legislation

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Abstract
This study examines the prevention and combating of scientific plagiarism, recognized as a critical ethical and legal challenge that undermines the credibility and quality of scientific research in universities and research centers. The phenomenon has proliferated due to easy access to information and the ubiquity of digital media, necessitating a multifaceted approach integrating ethical awareness, legal oversight, and pedagogical guidance. The study highlights key preventive and deterrent mechanisms to mitigate these practices by analyzing relevant national legislation and regulations, particularly Ministerial Decree No. 1082 of 2020, and proposes practical recommendations to foster a culture of academic integrity within the academic community. The findings emphasize that effective mitigation requires activating scientific integrity committees, reinforcing citation and referencing norms, and intensifying training and awareness initiatives for students and researchers alike.

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1. Introduction

The preparation of rigorous and original scientific research inherently requires referencing prior studies and drawing upon them, as they play a foundational role in consolidating researchers' knowledge base. These references form the scholarly foundation upon which new ideas are developed and innovative perspectives are generated. Sciences, in general, represent a cumulative intellectual, civilizational, and cultural heritage shaped across eras, imposing upon researchers a firm ethical obligation to acknowledge the contributions of predecessors and attribute their produced knowledge to them, adhering to principles of scientific integrity before building upon or advancing it. Unfortunately, due to ignorance of research principles and ethics—unintentionally in some cases and maliciously in others—some individuals engage in unethical practices that erode the sanctity and authenticity of scientific research. Prominent among these is the infringement on scientific integrity through scientific plagiarism and intellectual theft, which constitutes an outright assault on intellectual property,

threatening the honesty and credibility of scientific inquiry, and is a crime no less grave than material theft. Consequently, countermeasures have been enacted through laws criminalizing such acts, such as Decree No. 1082 dated December 27, 2020, which establishes rules for preventing and combating scientific plagiarism, issued by the Algerian Ministry of Higher Education and Scientific Research. This decree outlines administrative follow-up mechanisms and appropriate sanctions enforced by legally competent authorities.

- **Research Problem:** Building on the above, this study raises the following primary question:

What are the effective means and mechanisms for preventing scientific plagiarism and curbing its spread in university and research environments?

This main problem branches into several sub-questions, summarized as follows:

- *What are the primary types and categories of scientific plagiarism?*

- *How can researchers avoid engaging in scientific plagiarism practices?*

- *What educational, technical, and legal mechanisms can limit the proliferation of this phenomenon?*

- *What are the legal and administrative consequences of committing scientific plagiarism?*

- **Importance of the Study:** The significance of this study stems from its focus on monitoring and understanding the phenomenon from various angles, highlighting its dangers to the quality and credibility of scientific research, and promoting awareness of research ethics and methodological foundations that enhance a culture of scientific integrity. This preserves the quality of academic research and the university's reputation as a reliable knowledge institution. It also emphasizes instilling sound academic practices among students and researchers, clarifying the boundaries between legitimate quotation and plagiarism, thereby reducing unintentional instances of scientific plagiarism.
- **Study Objectives:** The study aims to achieve the following objectives:

- Clarify the concept of scientific plagiarism, identify its common types, and distinguish it from legitimate scientific practices.

- Familiarize researchers with key methodological principles in scientific research to protect them from falling into scientific plagiarism.

- Present legal, ethical, and technical procedures adopted to address this phenomenon.

- **Adopted Methodology:** The study employs a descriptive approach through reviewing the conceptual and regulatory framework of scientific plagiarism, and an analytical approach via examining the legal aspects of Ministerial Decree No. 1082, to encompass the guarantees and procedures provided by Algerian legislation specifically to confront this phenomenon.
- **Study Plan:** The study is divided into two main sections: The first section covers various concepts related to scientific plagiarism, particularly defining it, highlighting its forms, and indicating key factors driving its commission. The second section is dedicated to presenting prominent preventive remedies to avoid scientific plagiarism by clarifying the foundations of correct scientific and ethical practices according to established academic standards that prevent scientific plagiarism, then outlining key legal, technical, or pedagogical mechanisms to combat it.

2. General Concepts of Scientific Plagiarism (Section One)

Scientific plagiarism represents one of the most severe violations of research ethics, involving explicit infringement on intellectual property rights and unjust appropriation of others' efforts. Its manifestations vary, including verbatim copying without documentation or rephrasing without attribution, and may extend to complete or partial impersonation of others' works. Therefore, equipping researchers with skills in methodical quotation and scientific referencing is essential to safeguard scientific integrity and ensure research credibility, particularly among students and early-career researchers in academic settings.

2.1. Definition of Scientific Plagiarism

Plagiarism, scientific theft, literary theft, academic plagiarism, scientific fraud, or intellectual piracy are various terms converging on a single meaning: betrayal of scientific integrity. These are multiple translations of the word "Plagiarism," originating from the Latin "plagiarius," meaning kidnapper. The term "plagiarism" denotes "the process or practice of using another person's ideas or work and pretending that it is one's own" (Cambridge Dictionary, 2025). This research paper adopts the term "scientific plagiarism."

Numerous academic institutions and global research centers have addressed scientific plagiarism as it undermines the integrity, credibility, and reliability of scientific research. For instance:

Taif University in Saudi Arabia defines scientific plagiarism as "using part/parts of another person's work, whether literally or by rephrasing the used part/parts, without attributing it through a proper and complete scientific method" (Taif University, 2018, p. 5). The French National Center for Scientific Research and Universities defines it as "appropriating an idea or content (text, images, tables, graphs, etc.), wholly or partially, without the author's consent or without appropriately citing its sources" (Comité d'éthique du CNRS, 2017, p. 24). The American Psychological Association states that "scientific plagiarism occurs when using another author's words or phrases without quotation marks" (American Psychological Association, 2020).

These definitions clearly emphasize that plagiarism or scientific theft involves failing to attribute or cite content to its original owner, intentionally or unintentionally.

Researchers and scholars have also defined it as "using others' ideas and scientific or literary works in some form (textual transfer, copy-paste) and adopting them without attribution or reference to their original owner" (Al-Dahshan, 2018, p. 100). This definition aligns with previous ones, stressing that scientific plagiarism occurs through using an intellectual product without proper reference to its source.

It is also defined as "a situation where a person uses another person's intellectual product (such as texts, ideas, or results), implying it is their own production" (Helgesson & Eriksson, 2015, p. 93). This definition focuses on plagiarism not necessarily involving deceptive intent, as it may occur intentionally or unintentionally, and what makes scientific plagiarism reprehensible is the unfair acquisition of scientific credit.

Some view scientific plagiarism as a violation of the author's freedom: "The concepts of plagiarism and intellectual theft intersect in being forms of breaching scientific integrity and infringing on the author's right, a key aspect of intellectual property rights. The author's right connects to scientific integrity through scientific plagiarism, which targets authors' rights and unlawfully appropriates their works" (Issani, 2018, p. 43).

Algerian Ministry of Higher Education and Scientific Research Decree No. 1082, dated December 27, 2020, defining rules for preventing and combating scientific plagiarism, states in Article 3: "Scientific plagiarism, as per this decree, is any act by a student, researcher professor, university hospital researcher professor, permanent researcher, or participant involving proven forgery of results, fraud in required scientific works, or any other scientific or pedagogical publications" (Ministry of Higher Education and Scientific Research, 2020).

Reviewing this article reveals that it limits scientific plagiarism to forgery and fraud in scientific and pedagogical works, omitting plagiarism, which was included in the former definition under the repealed Ministerial Decree No. 933 of 2016—a term more fitting and synonymous with scientific plagiarism. Forgery implies fabricating, altering, or imitating something falsely with intent to defraud, exceeding in severity mere partial transfer of information without citing the original source, the simplest form of scientific plagiarism not necessarily presupposing premeditated intent. Forgery also connotes alteration and falsification, contrasting with scientific plagiarism, which involves partial or full copying of scientific material without attribution to its owner, not altering its content. The issue is failing to cite the source, not the act of transfer itself, which is permissible if citation and footnoting rules are respected. Thus, the Ministry evidently aimed to emphasize the act's severity by classifying it as forgery for strong deterrent effect, evoking implications of legal accountability akin to forging currency or official documents.

From our perspective, we concur with the view favoring "scientific plagiarism" for its suitability to the scientific and academic domain and the university community's specificity. Plagiarism assumes a tangible object, unlike abstract scientific production. Moreover, plagiarism can occur without intent (Issani, 2018, p. 134; Boudiaf, 2019, p. 303).

Scientific plagiarism can be defined as the full or partial inclusion of original scientific material—excluding general knowledge—without referencing its original source. Thus, it encompasses any scientific material such as texts, tables, and figures, incorporated either erroneously or ignorantly without adhering to proper quotation rules, or intentionally to deprive the original owner of intellectual property.

2.2. Causes of Resorting to Scientific Plagiarism

The causes underlying cheating and scientific plagiarism are multifaceted, varying by individuals and social and cultural contexts across countries. Despite Islamic teachings encouraging knowledge pursuit and requiring researchers to embody integrity and truthfulness—emulating prophets, with scholars as their heirs in conveying the message and knowledge—and viewing science as a national necessity for national elevation and prosperity, grounded in original, innovative scientific research that builds on predecessors while valuing prior efforts in a precise methodological framework preserving research integrity and quality (Basiony, 2017, pp. 190–192). Contrary to these noble values and principles, the scourge of scientific and intellectual plagiarism has proliferated alarmingly in Arab countries, attributed by some to general causes such as weakened religious deterrence, desire for rapid research completion, easy internet access to information, ignorance of research ethics and intellectual property rights, weak research and scientific writing skills, students' lack of knowledge in research principles and reference citation, academic weakness, lack of serious learning interest, absence of creative thinking development, lack of role models, ineffective supervision to detect scientific plagiarism, weak oversight, and absence of deterrent penalties. Other causes vary by practical and theoretical university disciplines, such as limited material and technical resources in practical faculties for research, and theoretical faculties facing information access difficulties, source scarcity, administrative pressures, and tight timelines for research completion.

Western studies also indicate the prevalence of academic integrity violations, such as cheating and scientific plagiarism, which have become common in Western higher education institutions, similar to Arab ones, posing an increasing challenge to education quality assurance. Contributing factors are similar and can be classified into five main axes (Sozon et al., 2024):

- Individual factors: These include academic motivations leading to integrity violations, such as low effort exertion, workload management, and persistence in academic development. Studies have explored the relationship between student motivation and academic dishonesty like cheating and scientific plagiarism, linking it negatively to intrinsic motivation and self-efficacy, and positively to extrinsic goal-based motivation, alongside personality traits influencing students' tendencies toward breaching academic integrity rules.

- Institutional factors: These encompass practices undermining academic integrity in the study environment, where the work climate and educational resources should support learning and promote student creativity, positively impacting outcomes and satisfaction. Conversely, an unhealthy educational environment may affect student learning motivations, leading to unethical practices like external aid cheating, unauthorized collaboration, scientific plagiarism, and technology misuse for cheating.

- Social factors: The complex interaction of social factors contributes significantly to integrity violations, including competition, social rejection, societal pressure, cultural differences, perceptions of others' dishonesty, cheating acceptance, and cultural-psychological variables like stress, anxiety, perfectionism, and self-control, shaping academic dishonesty.

- Cultural factors: These relate to parental pressures and high expectations for academic excellence regardless of capabilities, pushing some students to violate integrity when facing demanding tasks requiring good grades with extra effort and time, embedding such behavior in their culture.

- Technological factors: Student technology use has unfortunately exacerbated cheating and scientific plagiarism in higher education. These violations may also stem from improper and illegal use of information and communication technologies. Cheating and plagiarism via technology misuse can be divided into three subcategories: availability of computing and AI tools, limitations of current detection tools for cheating and plagiarism, and unauthorized online collaboration.

Some researchers add other causes encouraging scientific plagiarism, such as globalization and communication revolution, uncommitted academics seeking rapid promotion through devious means, varying definitions and boundaries of plagiarism across countries, bodies, and disciplines, funder pressures on researchers for quick results aligning with marketing goals, emphasis on quantity over quality in researcher evaluation leading to poor-quality works and biased peer review, absence of bodies handling research ethics violations, and university and research institutions' failure to provide environments promoting scientific integrity culture (Al-Dahshan, 2018, pp. 103–104).

2.3. Forms of Scientific Plagiarism

Scientific plagiarism undermines scientific research credibility and ethics, manifesting in forms varying in nature and severity but united as explicit assaults on others' intellectual property. Illuminating these types is beneficial to alert unaware researchers and prevent their engagement. Numerous university institutions, scientific integrity committees, and researchers have classified and typed scientific plagiarism, with prominent forms as follows:

Chowdhury and Bhattacharyya (2018, pp. 2–3) classify scientific plagiarism into textual plagiarism, most common in education and research, and source code plagiarism in computing, involving copying, reusing, modifying, or translating others' programmed codes, claiming them as one's own. Textual plagiarism subdivides by forms and application methods (Masic, 2014, p. 144):

- Deliberate copy-paste/clone plagiarism: Copying others' works and presenting them as one's own, with or without source mention.

- Paraphrasing plagiarism: Divided into:

a) *Simple paraphrasing*: Using others' ideas, words, or works presented differently by changing vocabulary, sentence structure, or grammar patterns.

b) Mosaic/hybrid paraphrasing: Merging multiple research contributions from various sources, presenting in modified form using synonyms or grammar changes, without citing originals.

- Metaphor plagiarism: Presenting others' ideas more clearly using linguistic metaphors without source mention.

- Idea plagiarism: Borrowing an idea or solution from another source, presenting as the researcher's innovation.

- Self/recycled plagiarism: Using one's previously published work in a new paper as if novel.

- 404 Error/Illegitimate source plagiarism: Citing invalid or non-existent online references.

- Retweet plagiarism: Citing the correct source but with presentation style closely resembling the original in words, sentence structure, and linguistic style.

Basiony (2017, p. 181) identified eleven forms of scientific plagiarism, studying their occurrence in a sample of students and faculty: copying an entire research and signing one's name; verbatim information transfer without quotation marks and source; translating research and presenting as personal; preparing research by cutting and pasting from multiple sources; copying and modifying research, presenting as personal; taking information from any source without mention; adopting others' ideas rephrased without source; exchanging ideas and information with colleagues, including in research without source; taking images or drawings from the internet without source; purchasing researches from others; using parts of one's prior researches without indication.

Some universities consider copying a certain number of words as scientific plagiarism. At the University of Calicut, India, copying more than 20 consecutive words without proper attribution constitutes plagiarism, regardless of source mention (University of Calicut, n.d.). At the University of Economics Ho Chi Minh City, Vietnam, copying a paragraph of 100 or more words verbatim without correct attribution, or similarity reaching 20% or more, is plagiarism (University of Economics Ho Chi Minh City, 2016). According to the World Association of Medical Editors (WAME), plagiarism is precisely copying six consecutive words in a continuous set of 30 characters (Masic, 2014, p. 144).

Decree No. 1082 from the Ministry of Higher Education and Scientific Research enumerates multiple forms of scientific plagiarism, reflecting the Ministry's efforts to ensure scientific research integrity in universities. Article 3 lists various categories to comprehensively cover all types and forms, tightening oversight to eliminate ambiguity and prevent offenders from exploiting legal gaps by claiming unlisted practices (Ministry of Higher Education and Scientific Research, 2020):

- Full or partial quotation of ideas, information, text, paragraph, or excerpt from published articles, books, journals, studies, reports, or websites, or rephrasing without mentioning original source and authors.
- Quoting excerpts from a document without quotation marks and without original source and authors.
- Using specific data without specifying source and original owners.
- Using a particular proof or inference without source and original owners.
- Publishing a text, article, publication, or report produced by an entity or institution, claiming as personal.

- Using a specific artistic production or inserting maps, images, graphs, statistical tables, or diagrams in a text or article without source and original owners.
- Translating wholly or partially from one language to the student's or researcher's language without mentioning translator and source.
- A professor, university hospital researcher professor, permanent researcher, or others inserting their name in a research or scientific work without participation.
- Principal researcher inserting another researcher's name without participation, with or without permission, to aid publication based on scientific reputation.
- Professor, university hospital researcher professor, permanent researcher, or others assigning students or others to produce scientific works for adoption in research projects, scientific books, pedagogical publications, or scientific reports.
- Professor, university hospital researcher professor, permanent researcher, or others using students' works and theses as interventions in national/international conferences or publishing articles in journals and periodicals.
- Inserting experts' and reviewers' names as members in scientific committees for national/international conferences or journals/periodicals for credibility without their knowledge, consent, written commitment, or actual participation.

Based on forms in Ministerial Decree No. 1082 dated December 27, 2020, scientific plagiarism can be classified into four main categories by nature and source:

- Textual Plagiarism: Involves transferring texts or ideas or rephrasing without explicit source reference, including:

- Full or partial copying of texts, ideas, proofs, or scientific inferences without source;
- Direct (verbatim) quotation without quotation marks and source;
- Plagiarism via translation from one language to another without translator or source;
- Using students' theses or works as interventions or articles.

- Visual and Artistic Plagiarism: Involves using non-textual materials from intellectual, artistic, or creative productions without respecting intellectual property, including:

- Using specific artistic production, or inserting maps, images, tables, or diagrams without source;
- Using specific data from studies or projects without reference.

- Authorship and Academic Misconduct Plagiarism: Relates to illegitimate attribution to authors or participants in research works violating integrity principles, including:

- Inserting a professor's or researcher's name in scientific work without actual participation or permission for publication facilitation or credibility;
- Assigning students or others for compensation to produce scientific works attributed to the professor or researcher;
- Using students' theses or graduation projects in scientific conferences or journals without reference.

- Scientific Integrity Manipulation Plagiarism: Involves attempts to gain credibility through false claims of scientific participation by experts or reviewers in conference or journal scientific committees without knowledge, or without written commitment and actual participation.

Evidently, Ministerial Decree No. 1082 represents an advanced step in combating scientific plagiarism in Algerian university institutions, establishing a legal and ethical framework to curb practices harming scientific research quality. It aims to raise awareness of plagiarism forms' dangers, contributing to a deterrent legal framework fostering scientific integrity culture in Algerian universities. The decree comprehensively addresses multiple key aspects of scientific plagiarism in the Algerian university context, including those not explicitly plagiarism but violating research ethics, such as inserting non-participating names or adopting student works as personal interventions. It encompasses all potential perpetrators from students, professors, to scientific committees. However, it is unclear if these forms are exhaustive or exemplary for scientific and academic bodies to determine plagiarism cases. It does not cover all internationally recognized forms and fails to fully align with contemporary digital research environment developments, omitting forms like paraphrasing plagiarism, self-

plagiarism, and source code plagiarism. It also neglects plagiarism using technology like AI tools and electronic translation generating research or rephrasing content without attributing original sources. Addressing these shortcomings is essential to enhance the law's practical effectiveness.

3. Legal and Pedagogical Mechanisms for Preventing and Combating Scientific Plagiarism (Section Two)

With increasing digital media use and information accessibility, confronting scientific plagiarism has become an urgent necessity, compelling higher education institutions to establish an integrated system for prevention and combating. This requires activating clear, deterrent legal mechanisms on one hand, and awareness-raising pedagogical mechanisms on the other, aiming to build an academic culture respecting scientific documentation rules and integrity values. This section highlights various legal and educational mechanisms employable to curb these practices, achieving a sound research environment adhering to internationally recognized ethical and scientific standards.

3.1. Means of Preventing Falling into Scientific Plagiarism

To avoid scientific plagiarism, researchers must master scientific research steps from problem formulation to documentation, through integrity in source analysis, personal diligence, methodical documentation, and adherence to these rules not only enhances research legitimacy but also builds academic community trust in the researcher and their output. For scientific research to achieve its goals and justify invested resources, it must fulfill basic principles, including (Basiony, 2017, p. 196):

- Adherence to scientific research stages: Every scientific research, from idea to written article, must pass through defined stages: literature review related to the study topic, defining objectives and hypotheses, sample selection, research execution per methodological principles, statistical analysis, comparing obtained results with published ones in scientific journals, then deriving applicable conclusions and recommendations. Research plans are typically designed by researchers independently or under academic supervisors.

- Adherence to research ethics: Researchers and scientific article authors must comply with ethical rules and basic principles like honesty, scientific integrity, and recognized laws and regulations in the scientific community.

- Distinguishing original from borrowed ideas: As researchers rely on published data, training them in selective information processing and distinguishing original from quoted ideas is essential, plus mastering comparison of their research results with prior literature.

To avoid scientific plagiarism, researchers should adhere to a precise scientific methodology integrating methodical steps with research ethical controls. Below are key stages enabling research preparation and drafting without falling into plagiarism.

3.1.1. Distinguishing Personal Ideas from Transferred Information

In every writing stage, researchers must clearly delineate—without ambiguity—between their own thinking and analysis outcomes and those transferred from others using reference citation and documentation rules, avoiding excessive quotation making the work mere compilation without added value.

3.1.2. Defining the Research Problem and Formulating the Issue

Researchers must formulate the research problem and issue based on careful readings of relevant literature and personal effort, not direct copying. Hypotheses and questions formulation should stem from authentic understanding, not ready-made phrases from prior studies.

3.1.3. Adhering to Documentation and Citation Rules

Adhering to documentation and citation rules is fundamental to sound scientific work, enabling researchers to accurately reference information and idea sources benefited from, ensuring intellectual property rights respect and embodying scientific integrity principle.

Reference citation is the method by which the author informs the reader that a specific content part in their research is from another source. This citation provides information enabling reader access to the original, relying on complete bibliographic data in original format, including: author's name; article, book, journal, study, or other

source title; publisher; publication date; volume and issue number, page numbers from which material was taken; electronic access links, content download date from websites, among other data varying by reference types from books, scientific theses, articles, reports, websites.

Acknowledging the original author's rights through citation is the proper and only way to use others' works without scientific plagiarism, as citation highlights research effort extent, grants scientific credibility, helps readers distinguish original author's ideas from cited others'. It enables readers wishing expansion or deeper understanding of original author's ideas to know these ideas' source. Since not all sources are equal in quality or reliability, citing from peer-reviewed, reliable journals with high impact factors is advised.

When transferring ideas or information from other sources, certain citation and documentation techniques should be observed, summarized as follows:

- Direct quotation (Quote): An effective method to avoid scientific plagiarism, used by transferring the original author's words literally from the source, necessarily placing them within quotation marks.

- Paraphrasing: Upon finding useful research information, read and comprehend it, then rewrite in the writer's own style preserving meaning without literal copying, with source citation necessity.

- In-text citation: Using a number at quotation end to indicate borrowed references and ideas, pointing to the source later in the reference list. Follow globally adopted documentation rules, with multiple styles varying by disciplines and journals, each featuring specific bibliographic data arrangement. Style selection should comply with the academic entity or targeted scientific journal's requirements. Prominent documentation styles include:

- *Chicago*
- *Modern Language Association (MLA)*
- *American Chemical Society (ACS)*
- *Institute of Electrical and Electronics Engineers (IEEE)*
- *Used in biological and medical sciences (Vancouver)*
- *American Psychological Association (APA)*

- Citing self-materials: If using prior work, document clearly; otherwise, it constitutes self-plagiarism.

- Reference list: Include all used and documented sources in the research text in the final reference list at research end, ensuring references in text match those in the end list.

3.1.4. Permission for Using Copyright-Protected Materials

Obtain permission from authors or publishers when using tables, graphs, images, or copyright-protected texts.

3.1.5. Declaration of Originality and Scientific Integrity

Researchers must submit a written declaration of originality and integrity, attaching the work with a statement declaring the work original, unpublished or illegitimately quoted, and all sources documented.

3.1.6. Seeking Supervisor and Reviewers' Assistance

Seek guidance from supervisor or supervisory committee on documentation and permissible quotation rules. Review work linguistically, methodologically, and ethically before final submission.

3.1.7. Using Scientific Similarity Detection Tools

Before submission, using plagiarism detection software like Turnitin or iThenticate to check similarity is advisable, then carefully reviewing the report and correcting undocumented quoted parts (University of Illinois Urbana-Champaign, n.d.).

3.2. Pedagogical and Legal Mechanisms for Combating Scientific Plagiarism

An integrated policy for combating scientific plagiarism can be built on basic axes including educational, legislative, technical, institutional, and supervisory aspects for effective prevention, detection, and treatment. Below are these axes:

3.2.1. Educational and Awareness Axis

Numerous studies highlight awareness's paramount importance in combating scientific plagiarism, considering it an effective preventive means to address and limit its spread in academic circles (Basiony, 2017, p. 196). This awareness includes key axes: defining scientific plagiarism and its various forms, illustrating its negative effects on the researcher, scientific research quality, and university institution status. It also involves awareness of research ethics and scientific integrity values every researcher must embody. Equally important is instilling university values in students and researchers, awareness of legal and administrative penalties for proven scientific plagiarism commission. No less important is the educational and religious aspect in researchers' awareness, reviving their scientific conscience and enhancing ethical responsibility through religious education based on integrity and uprightness principles in academic work.

From this awareness, many universities adopted ethical prevention strategies, focusing efforts on enhancing sound academic culture, disseminating scientific integrity principles, training students and researchers on proper scientific documentation techniques and plagiarism avoidance mechanisms.

In this context, Ministerial Decree No. 1082, Article 4, issued by the Algerian Ministry of Higher Education and Scientific Research, mandates higher education institutions to take awareness and sensitization measures, including (Ministry of Higher Education and Scientific Research, 2020):

- Organizing training courses for students, researcher professors, and permanent researchers on scientific documentation rules and scientific plagiarism prevention methods;
- Holding seminars and study days for researchers preparing doctoral theses;
- Including a specialized teaching unit on research ethics and documentation in various higher education stages;
- Preparing informational guides with simplified explanations on scientific documentation methodologies and plagiarism avoidance;
- Including a commitment phrase to scientific integrity in the student card, reminding of legal procedures for proven scientific plagiarism throughout the student's university path.

Enhancing academic integrity among students is a primary responsibility of the educational and pedagogical family, starting with identifying factors leading to scientific plagiarism and addressing them through proper student guidance during teaching. Key effective steps include direct communication with students on academic integrity concept and importance in their academic and professional lives, clarifying it in a clear policy included in the course syllabus, providing university conduct code information. To support student success, pedagogical staff should assess prior knowledge on source use to identify educational gaps, considering differences in research and documentation experiences. Teach finding, evaluating, and documenting sources, train on effective reading and note-taking skills. Advise granting sufficient time for writing projects requiring research and careful reading, dividing tasks into manageable stages with feedback and reflection opportunities on accomplished work. Providing space for questions is important in learning support. The professor plays a pivotal role in instilling academic integrity value in the university, empowering students with necessary tools for success and preparing a learning environment promoting growth and continuous learning (University of Illinois Urbana-Champaign, n.d.).

3.2.2. Institutional Axis

Scientific integrity committees (or research ethics committees) are fundamental pillars for ensuring scientific research quality and credibility in universities and research centers. Many academic institutions in the Arab world have addressed this by establishing permanent institutional committees monitoring adherence to research ethical standards. Several Arab universities have established scientific integrity committees, such as the Research Ethics Committee at Assiut University - Faculty of Commerce, working to promote and ensure integrity and honesty in all research practices at the faculty, serving as an ethical reference for researchers (Assiut University, n.d.). The Permanent Committee for Research Ethics at Northern Border University aims to establish a legal framework regulating research work, enhance best ethical practices application, ensure all research workers' adherence to sound behaviors and ethics (Northern Border University, n.d.). A proposed guide for research ethics in Arab research centers provides a comprehensive framework for establishing research ethics committees in Arab

research centers, addressing researchers' and research institutions' responsibilities in maintaining scientific integrity (Ghoneim, 2020).

Clearly, permanent institutional committees for research ethics are vital, with clearly defined tasks, ensuring independence and transparency, contributing to enhancing scientific integrity culture in academic institutions.

3.2.3. Technical Axis

Many universities rely on electronic software as a technical means for preventing and confronting scientific plagiarism, especially online or tool-based, to align countermeasures with commission methods of these unethical practices. Some researchers, like Mohamed Al-Jawadi, indicate that such specialized software development may lead to intellectual theft phenomenon disappearance in the future. Aligning with this, Ministerial Decree on combating scientific plagiarism, Article 6, mandates higher education institutions to take specific measures, including: purchasing licenses for scientific plagiarism detection software in Arabic and foreign languages, or using free software available online, or developing a national informatics program capable of detecting scientific plagiarism (Ministry of Higher Education and Scientific Research, 2020).

3.2.4. Supervisory and Punitive Axis

Articles 27 and 28 of Decree 1082 state that any scientific plagiarism committed by a student or researcher professor, whether in pedagogical scientific works, bachelor's, master's, doctorate theses, or other scientific publications, proven legally, subjects the perpetrator to penalties up to discussion annulment and scientific title withdrawal, per Article 33. Article 30 allows the affected party from proven scientific plagiarism to prosecute the perpetrator per Ordinance No. 03-05 dated Jumada Al-Awwal 19, 1424 AH (Ministry of Higher Education and Scientific Research, 2020).

These axes form an integrated framework contributing to establishing an academic culture based on scientific integrity, quality, and responsibility.

4. Conclusion

In light of the discussion, the importance of researching effective means to combat scientific plagiarism emerges through a comprehensive approach integrating legal, educational, and ethical dimensions, aiming to entrench integrity culture in the academic milieu. Confronting this phenomenon does not stop at deterrence and punishment limits alone but requires an integrated system starting with early awareness and sound academic training, passing through clear institutional policies establishment, and ending with oversight and accountability mechanisms application. Accordingly, this study seeks to highlight legal and pedagogical mechanisms for preventing and combating scientific plagiarism, enhancing scientific research quality and preserving its credibility within and beyond the university.

Ethical Considerations

This research was conducted in accordance with academic integrity principles, national research ethics regulations, and international standards related to responsible research practice. The analysis did not involve human or animal subjects, experimental procedures, or confidential institutional data. All referenced materials were properly cited, and great care was taken to avoid plagiarism through adherence to citation norms, paraphrasing standards, and verification of textual originality. The authors affirm that the research was carried out honestly, transparently, and with full respect for intellectual property rights.

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Conflict of Interest

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