

Applied Ethics: Manifestations of the Ethical System in Scientific and Research Practices

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Abstract:

This research paper addresses the issue of research ethics, one of the fundamental topics in the academic and scientific fields, particularly in light of the increasing number of violations and misconduct that may undermine the credibility of scientific research and diminish its epistemological value. The paper aims to highlight the nature of the relationship between ethics and scientific research by addressing the concept of scientific research and the concept of ethics, as well as demonstrating the importance of ethical values throughout the various stages of preparing academic research and studies. The paper also seeks to clarify the main principles and standards that researchers should adhere to, foremost among them academic integrity, objectivity, adherence to scientific methodology, respect for the rights of others, proper documentation of sources and references and compliance with citation and quotation rules. It further examines the most prominent forms of ethical misconduct in scientific research, particularly plagiarism, misconduct in scientific publishing, and unethical practices in laboratory work, along with their negative consequences for researchers, universities and the scientific community. Furthermore, the paper emphasizes the necessity of fostering ethical conduct among researchers and adhering to credibility, trust, and scientific responsibility, thereby contributing to improving the quality of research and ensuring its reliability and credibility. The paper concludes that scientific research cannot achieve its objectives or maintain its academic and scientific value unless it is accompanied by ethical standards, as ethics constitute an essential foundation for protecting science from misconduct and strengthening confidence in its findings and institutions.

Keywords: Research Ethics; Academic Integrity; Plagiarism; Objectivity; Scientific Methodology.

Introduction:

There is no doubt that societies are ranked according to the standing of their universities and the quality of their scientific research. Indeed, universities themselves are ranked according to the scientific research they produce. This is based on the premise that research conducted within university institutions is subject to a number of internationally recognized standards and criteria that regulate scientific research and reflect the advancement and development of universities, as well as the progress and sophistication of societies.

In addition, it should be noted that scientific research has recently departed, in some cases, from the ethical framework that has traditionally governed it. This has led to the emergence of what is known as the field of research ethics. Since human beings began to regulate their conduct within society, such conduct has been governed by ethical and value-based standards. Consequently, the relationship between scientific research and ethics has become indispensable, particularly in light of the widespread occurrence of serious violations and the assumption of academic status by individuals who lack the qualifications or

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credentials to claim it. Thus, linking the university, as an academic institution, to ethical principles represents a bold attempt to restore the value and standing that scientific research has long enjoyed.

It is evident that the spread of scientific plagiarism and the reproduction or copying of information without referring to its original sources constitute reprehensible practices that contradict fundamental human ethical principles. They also conflict with the principles upheld and promoted by universities, which continue to impose them upon students. The scope of axiology, a branch of philosophy concerned with the study of values and traditionally regarded as one of the fundamental domains of philosophy, has consequently expanded. Today, we speak of ethics in numerous fields, including medical ethics, media ethics, and research ethics. In this study, we seek to examine the various dimensions of research ethics, investigate its interrelated concepts, and analyze the realities of scientific research within universities. We also seek to assess the extent to which violations of ethical standards affect the university as a whole, as well as their impact on the academic and scientific reputation of research institutions, including universities and institutes.

It can also be argued that, within this subject, numerous concepts and perspectives intersect and become closely interconnected. We therefore address concepts such as values and academic integrity, while also examining the methodologies that play a crucial role in instilling in researchers the principles to which they remain committed and attached throughout their university careers.

It should be emphasized that discussing research ethics under the present circumstances is not limited merely to the preparation of research papers and academic articles. Rather, it extends to encompass everything related to the university as a scientific institution. This field of knowledge includes the ethical requirements governing scientific publication, the preparation of academic theses and dissertations, and even the medical and biological fields, including inventions and innovations, as well as electronic publishing.

Accordingly, the first section is entitled “Scientific Research and Ethics: Conceptual Foundations and Historical Significance.” In this section, we will attempt to highlight the major historical stages in the development of scientific research, with particular emphasis on its evolution across Greek, Islamic, and European civilizations.

The second section constituted the core of the article, entitled “Ethical Standards Governing Scientific Research.” In this section, I addressed the meaning of research ethics, the fundamental principles of scientific research, and its various procedures.

The third and final section dealt with what may be referred to as advice and guidelines for reorienting scientific research in accordance with ethical principles.

The conclusion of the study seeks to provide a comprehensive overview of the issues addressed throughout the research and to highlight the most important findings reached in relation to this humanistic and value-based topic. It can be argued that the various issues surrounding the subject become increasingly interconnected in the reader’s mind, given the numerous questions that are commonly raised concerning such a topic: What is meant by scientific research, and what is its relationship to ethics? To what extent can research ethics be regarded as being of such importance at the social and academic levels of the university?

1. The Concept of Scientific Research and the Question of Ethics: Conceptual Approaches

Numerous definitions have been proposed concerning the concept of scientific research. Some definitions approach the concept through the subject being investigated, namely science. However, most attempts to define this aspect agree that scientific research is a means of systematic and rigorous inquiry undertaken by a researcher to discover facts concerning a particular subject or to identify a new relationship. Nevertheless, the concepts of research and science take on a different dimension within social studies. Therefore, it is appropriate to mention a number of definitions proposed by sociologists who have addressed the concept of scientific research.

Whipple defines scientific research as a rigorous inquiry aimed at discovering facts and principles through which solutions to specific problems can be reached.

The sociologist MacMillan and Schumacher define it as “an organized process of collecting and analyzing data and information for a specific purpose.” (Alyan, n.d, pp. 16–18) Tuckman, meanwhile, defines it as an organized attempt to arrive at accurate results. Common Definitions of Scientific Research

Among the commonly accepted definitions of scientific research, the following may be mentioned:

A systematic attempt to investigate and explore a particular subject in order to arrive at specific results.

Various activities that seek to contribute new knowledge to a particular field by employing specific methodological approaches.

A way of thinking aimed at solving problems encountered by learners and researchers. It should also be emphasized that scientific research is of great importance and is essential within the university context.

1.1. Research

Linguistically: Research means searching for, investigating, or examining a particular matter.

1.2. Science

Science refers to knowledge, awareness, and the understanding of facts. (Matouq, 2012, p. 10)

Research is generally understood as an attempt to discover something, as mentioned above. However, research is usually distinguished according to the objective pursued by the researcher, that is, the purpose underlying the scientific research. In this regard, two types of research can be distinguished:

First: Basic Research

Basic research is research whose purpose is to advance and develop scientific knowledge. This type of research may seek to address social and human problems. Such research is characterized by a theoretical and explanatory nature, relying on various methodologies in an attempt to explain a phenomenon and identify its underlying causes.

Second: Applied Research

Applied research differs from the first type (basic research), as it is directed toward a specific practical and utilitarian objective intended to serve particular interests. (Angers, 2006, pp. 30–31)

Based on the foregoing analysis of the concepts addressed by scientific research within different epistemological and methodological contexts, it can be stated that arriving at a comprehensive and exhaustive definition of scientific research is extremely difficult, and perhaps even impossible, given the overlap and interconnection of concepts within different fields of knowledge.

1.3. Ethics: The Question of the Concept

Since ethics is an ancient field of inquiry belonging to philosophy, traditionally referred to as the study of values, or by its foreign equivalent, axiology (Axiologie), and since philosophy has long been concerned with this field, it is necessary to acknowledge the interconnection of terminology in this context. There is the term *Morale*, which refers to customs and norms, as well as the term *Éthique*, which refers to theoretical ethics. What connects these terms, however, is that they share a common purpose and a common perspective.

The term ethics, in its contemporary usage, has expanded the scope of moral inquiry from the theoretical domain to the applied domain. Thus, we have come to speak of environmental ethics, medical ethics, bioethics, as well as what is known as scientific ethics.

The subject of research ethics has become a highly topical issue. The term *Éthique*, meaning the philosophy of morality, moral philosophy, or ethics, emerged from philosophy to provide guidance for establishing standards and making decisions in scientific situations. (Al-Sayed, 2015, p. 16)

From the foregoing discussion, it can be understood that philosophy has played a significant role in integrating the concept of ethics into science, which has become a contemporary concern across various fields of scientific knowledge.

Ethics, in this context, refers to the qualities that make a human being truly human. Through these qualities, individuals ascend through the ranks of humanity and, by means of moral action, are able to realize their humanity. **(Abderrahmane, 2014, p. 123)** It may be useful to point out, at least in this context, the distinction made by philosophers between the concepts of morale/morals and ethics/éthique, considering them as two different forms of concerns, considerations, or problems, as was the case among modern Western philosophers. Others, however, use the two terms synonymously and assign them the same meaning, an approach favored by earlier Western philosophers.

Some scholars consider morale to be the set of commands and prohibitions established by a given society during a particular period, whereas ethics refers to the discipline concerned with value judgments that assess actions as either good or bad. In fact, the commands and prohibitions addressed by the former constitute, in essence, the basis for the judgments of approval and disapproval around which the latter revolves.

Some thinkers who distinguish between the two concepts rely on the distinction established by Kant between two doctrines: the doctrine of morality, which examines general duties, and the doctrine of happiness, which guides individuals toward an ideal life. Some attempt to restrict the term morale to universal duty, while reserving the term ethics for the sphere of natural life.

Others, in distinguishing between the two concepts, argue that morale is concerned with universality and generality, with its judgments applying equally to all people, whereas ethics is concerned with plurality and difference according to the doctrines of individuals and philosophical systems, with the aim of attaining the perfection of virtue and elevating discourse to the rank of spiritual authority .

A third position maintains that morale constitutes a normative discourse based on the opposition between good and evil, understood as two absolute values, whereas ethics constitutes a normative discourse based on the opposition between the virtuous person and the wicked person, understood as two relative values, with the aim of attaining complete happiness and elevating discourse to the rank of wisdom.

All of these positions can ultimately be traced back to Kant's ethical perspective, particularly his distinction between two questions: What ought we to do? and How can we live? The first question leads to the formulation of an ethical system directed toward everyone, whereas the answer to the second leads to an ethical system directed toward each individual. **(Taha, 2000, pp. 17-19)**

2. The Legitimacy of Linking Ethics and Science: Or, Why Do We Speak of the Ethics of Science?

Since the development of the field of applied ethics, many researchers have increasingly focused on ethical misconduct in science, although they have differed in their interpretations of the causes of such misconduct. Some attribute it to psychological disorders or mental disturbances, while others explain it in terms of the researcher's lack of ethical commitment.

In this context, it is necessary to address scientific research, given the existence of five main factors that contribute to ethical misconduct in science:

First: For many scientists, science is regarded as a noble profession rather than merely a pursuit of academic promotion and publication without taking into consideration the necessary scientific and methodological requirements.

Second: The problem of non-independent and conditional research funding, particularly in relation to commercially oriented research.

Third: The financial rewards provided to researchers, which may turn science into a victim of the greed of certain researchers.

Fourth: Mechanisms for regulating and controlling violations of the theoretical requirements and principles governing scientific research. **(Arabi, 2006, p. 30)**

Accordingly, it can be argued that linking values and ethics to scientific research constitutes a necessary and binding criterion, aimed at restoring science to its longstanding status as a noble and humanistic

endeavor, while also seeking to ethically regulate scientific research and establish it on the basis of ethical standards.

It is evident that science requires active ethical values and practices within various research centers, universities, and institutes. The clearest evidence of the necessity of linking ethics to science lies in the laws and regulations enacted to govern research in universities and institutes, as well as the strict penalties imposed on those who violate such regulations. Furthermore, without these laws and regulations, scientific research would lack academic and scientific legitimacy, as it would be deprived of its value-based and ethical dimension.

3. Ethical Regulations in Scientific Research between Commitment and Misconduct

3.1. The Meaning of Research Ethics

The true foundation underlying the attribution of an ethical dimension to scientific research lies, in fact, in the growing interest in and awareness of the importance of the value-based dimension of science. This situation has imposed itself particularly in the social sciences and humanities, given that scientific research has witnessed widespread forms of misconduct, especially since ethical values extend to all aspects and spheres of human life.

“The Ethics of Scientific Research” is a branch of ethics and the study of values. It aims to revive the ideal and moral principles of research among scholars and students in a manner that preserves the true purpose of scientific inquiry. (Al-Sayed M. T., n.d, p. 16)

It is worth noting that research in the field of the ethics of scientific research requires respect for the ethics, opinions, and dignity of others, as well as an effort to safeguard the intellectual property of others (i.e., their ideas), while properly acknowledging every source from which ideas have been drawn or from which specific information has been quoted. The principles of scientific research are based on two fundamental values: positive action and the avoidance of harm. These two values constitute the cornerstones of ethical considerations throughout the scientific research process. (Abdel-Magid, 2010, pp. 56–57)

Based on the foregoing, it can be argued that what is meant by scientific research is an attempt to ethicize scientific research, that is, an attempt to establish and examine scientific research from an ethical and value-based perspective, in order to prevent any violations or infringements that may occur in the course of scientific research. These measures are intended to ensure that scientific research fulfills the ethical and value-based requirements with which it has always been associated, given that ethics constitute a fundamental frame of reference that must be carefully observed.

Ultimately, it should be emphasized that scientific research without ethical values would be sterile and unproductive. Likewise, a researcher who does not possess ethical values—which will be discussed extensively in the third chapter—should be regarded as an incomplete and incapable researcher.

2.3. Fundamental Principles of Science

If we accept that science is the knowledge that human beings acquire through a set of academic scientific methods, commonly referred to in scientific studies as method (*méthode*), then method is generally defined as the approach, path, or course of action (Al-Naqari, 2018, p. 13) adopted by the researcher in conducting research and investigation in order to arrive at accurate results.

3.3. Methodological Guidance for the Researcher:

It is essential to adhere to the methodological approach and procedures in scientific and academic studies. Scientific research represents an important step upon which the credibility of the research and its scientific validity depend. Its results should also be characterized by accuracy and precision, enabling researchers to rely on research studies that demonstrate academic integrity and scientific credibility. In the course of conducting their research, researchers may encounter numerous difficulties, such as haste and the lack of sufficient scientific material needed to ensure accuracy and rigor in the presentation of the subject matter. (Arabi, 2006, p. 32)

Based on the foregoing, it can be argued that methodology, which has traditionally been understood as the path or approach adopted by the researcher, also carries a significant connotation in the Qur'anic terminology. This is evident in the words of Almighty Allah: "For each of you We have ordained a law and a clear way." Thus, manhaj (method) refers to the straight path, whereas minhaj refers to the continuous and consistent path. Almighty Allah also says: "And Allah speaks the truth, and He guides to the way."

In light of the foregoing and by referring to the verses of the Holy Qur'an that convey the significance of methodology, it can be stated, without any doubt, that methodology is indispensable in research studies. Although the issue of methodology in the social sciences and humanities has been the subject of extensive debate, it is certain that studies whose premises and procedures are not based on precise methodological principles cannot be described as scientific or academic. This is because there can be no confidence in studies that fail to observe the conditions and standards internationally recognized in scientific research.

4.3. Academic Integrity and the Problem of Plagiarism:

When academic research is exposed to forms of misconduct, it may cause serious harm to university research and scholarly studies. Indeed, violating even the most fundamental principles of scientific writing and authorship can, in one way or another, undermine the epistemological value associated with universities, research institutes, and scientific laboratories. Consequently, combating such practices, which undermine the credibility of scientific research, has become essential, as these behaviors fundamentally compromise the "scientific character" that is supposed to distinguish academic research.

1.4.3. Academic Integrity:

Academic integrity is generally defined as a human virtue that means preserving and respecting one's own rights and the rights of others, motivated by personal ethics and conscience rather than by fear of the penalties that may be imposed by the authorities. At the level of scientific research, it carries the same meaning and is manifested in respecting the rights of previous researchers. Accordingly, research must acknowledge and cite the sources from which the various pieces of information used in the study have been obtained . (Khodr, 1992, p. 20) It is worth noting that the concept of academic integrity encompasses a number of practices that undermine the quality and credibility of scientific research and are considered violations of individual intellectual property rights (Boujerada, 2017, p. 14)

2.4.3. Academic Plagiarism:

Plagiarism may generally be defined as the act of appropriating another person's property, such as money. Academic plagiarism conveys essentially the same meaning in a different context, referring to the appropriation or attempted appropriation of other people's ideas, thereby violating the ethical and legal principles governing scientific research (Khodr, 1992, p. 32)

In conclusion and in summary: Scientific research requires respect for academic integrity and the avoidance of plagiarism, which diminishes the value and credibility of scientific research. Therefore, legal provisions have been established to address such unethical practices.

4. Manifestations of Ethical Conduct in Science

4.1. Ethics of Scientific Publishing

After examining the epistemological subject of the ethics of science and research practices, we would like, in this section, to address some of the issues that permeate scientific research and have a particular impact on the field of academic research, namely, scientific publishing. This subject highlights the various manifestations of the problem faced by researchers. It is worth noting that scientific publishing refers to the publication of research conducted by researchers within their academic institutions. In presenting their work, researchers should adhere to objectivity, meaning that they must distance themselves from all forms of ideological bias. Researchers should therefore exercise caution with every statement they write and seek to make available to the public. Every written work must be evaluated according to the recognized methodological standards governing the writing and preparation of scientific research and academic

theses. Researchers must also provide references to the sources they have used and preserve the original sources of information.

At this point, after highlighting the responsibilities entrusted to researchers—namely, maintaining research objectivity and adhering to all methodological standards when presenting their work to the public and readers—it is also necessary to emphasize the responsibility of editors and reviewers of scientific journals. They must observe all objective criteria when reviewing, scrutinizing, and selecting articles that possess scientific value and fulfill the methodological requirements for publication in the journal.

The principle of objectivity must therefore be operationalized with respect to the author, the researcher, and the scientific committee responsible for selecting articles for publication. Indeed, it is appropriate to state that any criterion used to review articles other than scientific and objective criteria constitutes a clear ethical violation and a serious breach of professional integrity on the part of those responsible for scientific journals.

Accordingly, scientific publishing must fulfill the ethical and objective standards governing publication. It is not ethically acceptable for a researcher to allow their ideological convictions to determine the content of a particular article. Ethics constitute a fundamental reference point in scientific publishing and should never be disregarded.

4.2. Ethics of Laboratory Work

In addition to the decline in ethical standards in scientific publishing, attention must also be given to the ethics of laboratory work, which constitutes an integral part of scientific research. Scientific laboratories may, in some cases, engage in blatant forms of exploitation of human beings. More seriously, such exploitation may occur under the supervision of scientific researchers and within the framework of scientific laboratories and their responsibilities.

David Resnik states: “Although we often assume that scientists are polite and respectful of others, there are various problems associated with laboratory practices, including verbal and physical abuse, vandalism, and theft. There is no doubt that such practices are unscientific and unethical; rather, they violate two fundamental principles: the integrity of scientific research practice and the principles of ethical inquiry.” **(B, 2005, pp. 134-182)**

Misconduct in science can affect the scientific output of the laboratory and can also have an impact on research institutions. This constitutes an ethical deficiency and a complete failure to establish a sound foundation for scientific research. It is also necessary to address the principle of equal opportunities, meaning that laboratory institutions and scientific laboratories should not be monopolized by a particular group of researchers for a specific purpose. This represents one aspect of the absence of scientific ethics in research practices.

5. Towards Establishing Scientific Research on Ethical Standards

5.1. The Necessity of the Researcher's Ethical Commitment

It is certain that scientific research, which ultimately constitutes an academic endeavor encompassing all fields of human knowledge, is a valuable undertaking, particularly because it aims to raise awareness among students, especially in light of the growing need for a value-based dimension in research. It is therefore appropriate to state that ethical principles play an effective role in guiding and regulating professional conduct, particularly throughout the various stages of scientific research, from collecting and recording data to analyzing and interpreting it. Accordingly, researchers should adhere to all ethical values throughout the preparation of their scientific research, such as academic integrity, scientific caution, and openness. **(Abdel-Magid, 2010, pp. 52–53)**

Just as human beings are generally described as moral beings whose various behaviors are assessed and evaluated according to ethical standards, scientific research activities are likewise evaluated according to the same standard, namely ethics. This ethical standard may also extend further to encompass the researcher's human interactions with readers, students, and the general public. Its scope may even expand to include future generations. Scientists should uphold these ethical principles in their scientific, research,

and practical activities, so that ethics become a means of guiding conduct and disseminating creative and constructive knowledge.

In conclusion, a number of key principles can be identified as regulating ethical conduct in science and ensuring that scientific research remains valuable and ethically grounded. These include: credibility, expertise, objectivity, trust, and consent.

2.5. The Researcher's Methodological Approach:

Ethical research, which is intrinsically and genuinely associated with scientific research, makes it possible—and indeed necessary—to assert that scientific research must encompass a methodological dimension that safeguards the integrity of the research process. Research addresses a specific subject as a coherent and integrated unit, in which each part contributes to and serves the other parts. This means that scientific research constitutes an integrated whole. (Arabi, 2006, pp. 32-33)

It can be argued that the methodological framework developed by the researcher represents a highly important step upon which the credibility of the research depends. It enables the researcher to obtain and arrive at accurate and innovative data through a rigorous methodology, as previously indicated.

2.5.1. The Use of References and Sources:

The use of references and sources is essential for documenting scientific or methodological research. It is self-evident that the nature of scientific research requires information to be traced back to its original sources, thereby avoiding academic plagiarism and ensuring the proper attribution of the researcher's information. In its technical sense, the term "reference" denotes a return to the original source.

2.5.2. Citation:

Citation refers to extracting the scientific material necessary to serve the subject of the research, provided that such material is derived from sources relevant to the topic for the purpose of benefiting from it. The source from which the scientific material (information) has been cited must be clearly indicated in accordance with internationally recognized research practices, including the author, title, publisher, edition, country, year, and page number.

2.5.3. Objectivity:

Objectivity is, in fact, one of the most fundamental principles of scientific research. It generally refers to maintaining impartiality when addressing topics and conducting research, while avoiding personal biases, inclinations, emotional reactions, and subjective attitudes toward social and cultural issues. The subject under investigation must fulfill the requirements of scholarly research because, ultimately, scientific research is objective in nature, with the aim of achieving clarity and establishing factual accuracy. (Khodr, 1992, p. 54)

Conclusion:

Following this analysis of the epistemological topic of "Research Ethics," we arrive at a comprehensive understanding of this contemporary issue, which has extended beyond the realm of values. Although the study of values was initially regarded as a philosophical field, it has gradually expanded to encompass human values, leading to the emergence of what is known as the ethics of science and the ethics of scientific practice. One of the main motivations for addressing this subject is perhaps the current decline in ethical standards within science and scientific research.

In conclusion, scientific research that does not fulfill the required ethical standards may be regarded as unproductive research, lacking the ethical dimension that distinguishes and gives meaning to it. In this context, we have addressed what is known as publication ethics and laboratory ethics, as well as the necessity for scientists to uphold noble values in their research and to observe the principles of electronic publication and laboratory practice. Accordingly, as the scope of research expands, the importance and scope of ethical considerations expand accordingly.

Scientific research conducted within research institutions must be guided by ethical principles. Scientific research should therefore take into account the ethics of societies and the ethical expectations of the

public. Furthermore, the information incorporated into research should be relevant, significant, and supported by reliable scientific sources, properly documented through references and citations. Ethics has thus become one of the fundamental principles that research must adhere to throughout its academic development and beyond.

Accordingly, the conclusion that can be drawn here is that ethical standards are not limited to human existence alone. Just as individuals are expected to uphold ethical principles in their daily lives, they should likewise ensure that these values are firmly embedded in scientific research.

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