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CONCEPTION OF ETHICS, MORALS, AND SCIENCE IN THE PERSPECTIVE OF HUMANISM

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Abstract

Science has played a pivotal role in shaping and advancing human civilization, contributing to technological progress and improved quality of life. However, the development of science is inseparable from ethical considerations, particularly in relation to sustainability, humanity, and the preservation of life. This article explores the ethics of science through the lens of religious perspectives, emphasizing how spiritual and moral values can serve as guiding principles in scientific advancement and application. Employing a qualitative approach and literature review, the study examines religious teachings from Islam, Christianity, and Hinduism, which collectively highlight the importance of moral responsibility, justice, compassion, and the beneficial use of scientific knowledge. The findings reveal that while science provides the means to understand and transform the world, religion offers ethical frameworks that prevent misuse and harmful consequences. The integration of scientific ethics with spiritual values ensures that scientific endeavors are aligned with the principles of social welfare, environmental preservation, and the promotion of peace. Therefore, fostering dialogue between science and religion is essential for creating a balanced and responsible approach to innovation that prioritizes the common good and the sustainability of future generations.

Keywords: *ethics, science, religion, morality, responsibility.*

INTRODUCTION

Science has become one of the main foundations in shaping modern life, providing various conveniences and advances in almost all aspects of human life. However, behind these achievements, there is a fundamental problem that is often overlooked: how science is carried

out and utilized ethically and morally. In many cases, the development of science and technology actually ignores human values, thus contributing to environmental crises, social inequality, and threats to human dignity itself. Therefore, a philosophical approach is needed that is able to bridge the gap between scientific progress and moral values. Humanism is present as a framework of thought that places humans as the center of values and goals of all scientific activities. From a humanist perspective, science is not neutral, but must be directed to improve the quality of human life holistically, by considering aspects of ethics, morality, and social responsibility. Humanism emphasizes the importance of freedom of thought, rationality, and empathy as the basis for the development of science, and rejects all forms of dehumanistic and mechanistic science (Fromm, 1956; Nussbaum, 1997).

Thus, the study of the relationship between ethics, morals, and science from a humanist perspective becomes increasingly important in the modern era that is full of technological progress but often poor in ethical orientation. This study aims to philosophically explore how humanist values can provide meaningful direction for the development of science, so that science is not only useful technically, but also morally and humanitarianly.

METHOD

This study adopts a descriptive qualitative approach with the library research method as its primary strategy. The use of this method is based on the need to explore, interpret, and critically analyze key concepts relating to ethics, morality, and science through a humanist philosophical lens. A descriptive qualitative approach allows for a comprehensive examination of theoretical frameworks and ideas without the constraints of empirical data collection, enabling the research to delve deeply into conceptual and philosophical dimensions. By focusing on the humanist perspective, this study aims to uncover how human-centered values and principles shape the ethical discourse surrounding scientific development and application.

The data for this research were collected from a wide range of secondary sources that provide relevant and credible insights into the topic. These sources include classical and contemporary philosophy books, peer-reviewed scientific articles, academic journals, and other scholarly publications. Additionally, the study integrates literature that discusses humanism, ethical theories, moral philosophy, and epistemology, all of which are essential for understanding the interplay between scientific progress and moral considerations. Special attention is given to the works of prominent philosophers and ethicists who emphasize the role of reason, autonomy, and the dignity of human beings as central tenets of humanism.

Through a systematic analysis of these sources, the study aims to construct a conceptual framework that bridges humanist thought and scientific ethics. This framework highlights the need for moral responsibility, the pursuit of the common good, and the careful consideration of potential consequences arising from scientific advancements. Furthermore, the study explores how the principles of humanism—such as rationality, compassion, and respect for human rights—can be integrated into scientific practices to ensure that innovation is guided by ethical integrity.

RESULTS AND DISCUSSION

Definition of Ethics, Morals and Science

In human life, ethics has always been the axis that guides actions, determining the boundaries between right and wrong. Aristotle, in Nicomachean Ethics, calls ethics the achievement of virtue and happiness through moral action, a concept that places wisdom and balance at the core of human behavior. Immanuel Kant brings a more systematic perspective, that ethics is universal and is born from moral obligations that are independent of the consequences of actions (Basri, 2024). This view emphasizes that there are moral rules that apply in all conditions, without exception.

Over time, ethics has expanded into various practical areas. In bioethics, for example, moral considerations in medical research play a vital role in ensuring the welfare of research subjects. Technology ethics has become increasingly relevant, especially in shaping the boundaries between innovation and privacy, while business ethics emphasizes fairness in economic and corporate practices.

On the other hand, morals are often considered similar to ethics, although the two have fundamental differences. Emile Durkheim sees morality as a product of social interaction, where the norms and rules accepted by a community reflect the solidarityrity of society (Ronaldi, 2024). In John Stuart Mill's utilitarian view, morality is measured by the benefits given to the greatest number of people, or, in other words, a pragmatic approach that sees the value of an action from its social impact. However, Friedrich Nietzsche criticized the traditional concept of morality, calling it a tool of social control that often suppresses individual freedom and human creativity.

Science, as one of the main forces that changes the world, cannot be separated from ethical and moral considerations. Thomas Kuhn in The Structure of Scientific Revolutions emphasized that the development of science does not occur in a vacuum but shifts through paradigm changes influenced by culture and social values. Meanwhile, Karl Popper argued that

science must be open to falsification and criticism in order to remain objective and not get caught up in untestable dogma (Asrulla, 2024).

In the perspective of humanism, science is not just a tool of exploration but also a social responsibility. Technological progress and research must be directed to improve human welfare, not just pursuing innovation without considering its impact. Therefore, the integration of ethics and morals in science becomes more than just an academic debate but also the foundation for sustainable progress and in favor of humanity.

The Relationship between Ethics, Morals, and Science

It is hard to imagine science developing without considering ethics and morals. Ethics form the boundary that ensures science is not misused, while morals provide the basis for every scientific decision related to humans and the environment (Basri, 2024). The humanism perspective emphasizes that science must be more than just intellectual exploration; it must bring benefits to human and environmental welfare (Kuncono, 2024).

In the medical field, ethical boundaries become very crucial. Any research involving humans must be subject to ethical standards, such as informed consent and protection of personal data (Ronaldi, 2024). Without these limitations, history has shown how science can go too far, such as in the case of research that ignores patient rights in favor of experimentation. One example is gene therapy, which carries great hope in curing previously untreatable diseases. However, there are also concerns that arise, such as whether DNA modification will continue to be used for medical reasons or whether it could be misused for selective purposes. In this case, the selective interests referred to are increasing a person's intelligence or physical strength.

In the technology field, the development of artificial intelligence (AI) faces increasingly complex ethical dilemmas. AI offers incredible efficiency but also opens up major risks to privacy and data security (Basri, 2024). One of the biggest challenges is algorithmic bias, which can create social injustice in digital systems, such as in job recruitment or credit processing. If left unchecked, AI can amplify social inequality, turning technology into a disguised tool of discrimination.

Genetic engineering also faces a long ethical debate. CRISPR technology allows for high-precision gene editing that has brought medical promise but also raised concerns about abuse in the creation of "designer humans." Countries such as China and the United States have enacted strict regulations to limit genetic experiments on human embryos, indicating that morals and ethics remain a major consideration in biotechnology research.

In addition, the relationship between ethics, morality, and science is increasingly evident in discussions about climate change and environmental sustainability. Science has provided solutions to environmental crises, from renewable energy to ecosystem conservation methods. But the challenges are not only technical but also moral, such as how to ensure that economic interests do not sacrifice the sustainability of the planet. The precautionary principle in environmental ethics emphasizes the importance of developing technologies with long-term impacts in mind before they are widely implemented.

Ultimately, science is not just about finding answers but also about understanding the consequences of each step taken. Ethics and morals are the balancing act that ensures that scientific exploration remains in line with the interests of humans and life on earth. Science that does not consider ethics can be a dangerous force, but science that sides with human values will always be a light for civilization.

The Principle of Humanism in Science

The philosophy of humanistic education views the essence of humanity as rooted in the ability to use reason to understand the realities of life and to pursue truth. This perspective emphasizes that humans can live lives filled with creativity and happiness without relying on the existence or support of supernatural powers, whose relevance is considered negligible (Mayasari, 2017).

Humanism focuses on the holistic development of the individual, respect for human values, and the encouragement of personal empowerment. In the context of Islamic religious education, a humanism-based learning approach aims to shape learners who not only have a deep understanding of religious teachings but are also able to apply these values in their daily lives, while taking into account the social and cultural environments in which they live (Shodikun, 2023).

From a humanistic perspective, the learning process does not focus solely on cognitive aspects, but also involves emotional elements, the ability to communicate openly, and respect for each student's personal values. Humanistic education aims to develop individuals who are independent, responsible for their own learning processes, possess a strong sense of curiosity, and are able to express their creativity in understanding their surroundings.

In a learning approach grounded in the philosophy of humanistic education, there are several key principles that serve as its foundation. One of these is providing students with the

freedom to choose the subjects they wish to learn, based on the belief that learning motivation will naturally emerge when instruction aligns with the students' personal interests and needs.

The main goal of education from a humanistic point of view is to foster intrinsic motivation within students so that they can learn independently. Assessment in this context is more focused on reflection and self-evaluation, as grades or numerical scores alone are considered insufficient to assess an individual's overall development.

Additionally, this approach recognizes the importance of integrating emotional and rational aspects within the learning process. Teachers do not separate knowledge from emotion, as both elements complement each other in forming comprehensive understanding. The learning atmosphere is also a primary concern; students need to feel safe and free from environmental pressures in order to learn optimally and meaningfully (Mayasari, 2017).

The Role of Rationality and Humanitarian Values in Scientific Research

Scientific research is a systematically structured process aimed at producing knowledge that can be justified logically and supported by empirical evidence. In its implementation, there are two main principles that must always be upheld by a researcher: rational thinking and respect for human values. These two aspects are not only important individually but also complement each other in maintaining the integrity and quality of research outcomes (Sugiono, 2018).

Rationality in the context of research refers to the ability to think objectively, logically, and based on real evidence. From the outset, rationality plays a crucial role in identifying problems derived from direct observation and valid scientific literature. A researcher is expected to be capable of constructing a systematic framework of thought, formulating reasonable hypotheses, and selecting the most appropriate research methods. Rationality also serves as a guideline when collecting and analyzing data, helping to avoid interpretations that are biased, emotional, or subjective (Zainal, 2011).

Through the application of rationality, research attains one of its core characteristics: objectivity. Researchers are expected to eliminate personal views, prejudices, or vested interests that could influence the scientific process. Every conclusion must be drawn from data that has been validly analyzed, not from assumptions or personal desires. Thus, rationality helps ensure the validity of research results and guarantees that findings can be tested and recognized by the broader scientific community (Moleong, 2017).

In addition, humanitarian principles also play a significant role in the scientific research process. These values refer to ethical and moral standards that uphold the dignity, rights, and

well-being of individuals, whether as subjects or objects of scientific study. In practice, researchers are required to avoid actions that may harm, exploit, or disadvantage those involved in their studies.

For instance, in research involving human participants, researchers must obtain informed consent, clearly explain the purpose and potential impact of the study, and ensure that participation is voluntary and free from coercion. Participants' privacy and the confidentiality of their information must be strictly protected. Furthermore, researchers should consider potential psychological or social consequences that may arise from someone's involvement in the study. Ignoring these aspects can lead to ethical violations and jeopardize individual safety (Lestari, 2015).

Human values also form an essential foundation for integrity in research. Honesty, responsibility, fairness, and empathy should guide every stage of the research process—from planning to reporting the results. Unethical practices such as data manipulation, falsification of results, or plagiarism must be avoided, as they can tarnish scientific reputations and cause harm to many parties. Moreover, human values encourage research outcomes not only to contribute to the academic world but also to bring real benefits to society at large.

Scientific Freedom versus Responsibility

Freedom in the scientific domain is one of the fundamental principles in academia and research. This principle grants researchers the right to explore knowledge, develop ideas, and publish their findings without interference or pressure from external parties. In this context, scientific freedom is considered a crucial pillar for the advancement of science and technology, as it enables the development of critical, objective, and innovative thinking (Munir, 2019).

However, such freedom should not be interpreted as absolute or without limits. In practice, scientific freedom must be balanced with social responsibility. This means that every research activity should consider its impact on society, the environment, as well as ethical norms and human values. Unregulated scientific advancement can lead to misuse, such as research that serves harmful interests or disadvantages certain groups.

In Indonesia, the discourse surrounding the balance between scientific freedom and social responsibility has become increasingly prominent, especially in light of several controversial events. For instance, in 2021, the development of the Vaksin Nusantara project sparked debates about the boundaries between academic autonomy and researchers' accountability to the public. Some criticized political interference in the scientific process, while

others emphasized the importance of national research independence. This controversy illustrates the tension between allowing scientists the freedom to innovate and the necessity of maintaining ethical standards, transparency, and accountability in research that affects public interests (Komnas HAM, 2020).

The imbalance between scientific freedom and social responsibility is also evident in natural resource exploration research, particularly in sensitive regions such as Papua. When such research disregards the rights of Indigenous communities and environmental sustainability, science risks becoming a tool to legitimize exploitation. Therefore, it is essential for researchers to consider social, cultural, and ecological aspects at every stage of the research process.

In the context of academic ethics, the harmony between scientific freedom and social responsibility can be fostered through the implementation of strict ethical guidelines, transparency in research reporting, and community involvement in scientific decision-making. Codes of ethics developed by institutions such as LIPI (now BRIN) and various universities serve as important references to ensure that research is not only scientifically valid but also ethically and socially accountable (Lestari, 2017). In conclusion, scientific freedom and social responsibility should not be viewed as opposing forces, but rather as complementary components. The freedom to think and discover must always be accompanied by moral awareness and a commitment to enhancing human well-being.

Ethical Challenges In The Implications Of Science

Modern science faces various ethical challenges, including minimal publication standards, the risk of plagiarism, pressure from the "publish or perish" culture, and data privacy issues—particularly in the context of big data and artificial intelligence. Practices such as data manipulation and the proliferation of predatory journals further undermine the integrity of scientific research.

These challenges not only affect the quality of scientific output but also erode public trust in science and the credibility of academic institutions as legitimate producers of knowledge. In this context, scientific ethics serve as a foundational pillar for navigating the complexities of the digital age and the intensifying academic competition. Researchers are increasingly confronted with the dilemma of balancing productivity demands against adherence to core moral principles such as scientific honesty, accountability, and data transparency.

Moreover, the use of advanced technologies like artificial intelligence in data collection and analysis introduces new ethical concerns, including algorithmic bias, data ownership, and the

confidentiality of research subjects. Without a robust ethical framework, such technological advancements risk amplifying access inequality, reinforcing global knowledge hierarchies, and producing research outcomes that are disconnected from local values and contexts.

Therefore, it is crucial for higher education institutions, research bodies, and policymakers to reinforce ethical culture through the integration of research ethics training into curricula, the establishment of independent ethics committees, and the development of adaptive regulations that can respond to the dynamic interplay of technology and social change in contemporary scientific practice.

Ethical Dilemmas In Technological Innovation And Research

Technological innovation also presents moral dilemmas—driven by an emphasis on efficiency and profit, it often gives rise to privacy violations, security vulnerabilities, unequal access, and environmental degradation.

This phenomenon reflects an imbalance between instrumental rationality—which prioritizes technical and economic outcomes—and broader ethical considerations and human values. In this context, technology is no longer neutral; it carries complex social implications, including the marginalization of vulnerable groups due to the digital divide and the unsustainable exploitation of natural resources.

Furthermore, the use of algorithm-based and artificial intelligence technologies in public and commercial decision-making processes introduces risks of dehumanization, systemic bias, and a loss of accountability. When critical decisions are delegated to automated systems without transparency or human oversight, values such as justice and social responsibility are increasingly marginalized.

To address these concerns, an ethics-oriented approach to technological development is required—one that integrates moral reflection, sustainability, and social justice into every stage of design, implementation, and evaluation. This also necessitates interdisciplinary collaboration among engineers, social scientists, philosophers, and policymakers to ensure that innovation is not only technically sophisticated but also aligned with the public interest and long-term sustainability.

The Debate on Value-Free Science Vs. Morally Bound Science (Expanded Version)

In the discourse of philosophy of science and scientific ethics, there are two opposing perspectives regarding the role of values in science. The first perspective is the view of

value-neutral science, which argues that science should be based on pure principles of objectivity and rationality, free from the intervention of moral, religious, ideological values, or political interests. This view emphasizes that scientific truth can only be attained through empirical methods and deductive-inductive logic uncontaminated by subjective bias.

Conversely, the second perspective is moral-bound science, which asserts that the scientific process is never completely free from social, moral, and political contexts. This perspective states that every stage in the scientific process—ranging from topic selection, formulation of research questions, to the application of results—is always influenced by certain values, whether explicitly or implicitly. Therefore, science should be directed not only to pursue truth but also to uphold social responsibility, justice, and public benefit. Within this framework, ethics, regulation, and local and cultural values become essential components to ensure that science functions for the common good, rather than merely accumulating morally neutral knowledge.

CONCLUSION

This research concludes that the integration of ethics, morals, and scientific endeavors from a humanistic perspective is essential for aligning scientific progress with humanitarian values. Science should not merely serve as a vehicle for technological advancement, but also as a tool for enhancing the dignity, welfare, and sustainability of human life. Ethical and moral considerations—grounded in religious and philosophical traditions—provide the necessary framework for ensuring that science does not deviate from its responsibility toward society and the environment. In the context of Islamic education, this means embedding ethical reflection and humanistic values within the scientific praxis to cultivate learners who are not only intellectually capable but also morally conscious and socially responsible. As a logical consequence, the development of science must be guided by rationality, compassion, and justice, ensuring that educational institutions become key agents in promoting both knowledge and virtue.

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