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TRACING THE FOOTSTEPS OF MUSLIM SCIENTISTS: THE INTEGRATION OF RELIGION AND SCIENCE IN CLASSICAL ISLAM

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Abstract

The development of science in classical Islam reflects a profound integration of religious and empirical knowledge, forming a foundational pillar of the intellectual and societal achievements of Islamic civilization. In contrast, contemporary scientific paradigms often maintain a strict separation between these domains, contributing to persistent challenges in education, research, and public policy. This study aims to examine the integrative patterns of science within the classical Islamic tradition and evaluate their relevance to contemporary contexts. Adopting a qualitative methodology, the research applies a historical and descriptive-comparative approach to analyze seminal works of classical Muslim scholars and their enduring influence on modern scientific thought. Data were drawn from an extensive array of primary sources, such as classical texts, and secondary sources, including academic journals and recent studies on science integration. The findings reveal that the classical Islamic model marked by a balanced synthesis of rational inquiry and spiritual values retains significant applicability in shaping modern educational frameworks, research ethics, policy formulation, and global scientific engagement. The study concludes that revitalizing this integrative epistemological approach can address current scientific and societal challenges by promoting holistic education, ethically guided research, and policies that align scientific advancement with humanistic and moral values.

Keywords: Integration of Knowledge; Classical Islam; Religious and Empirical Science; Holistic Education; Islamic Epistemology

INTRODUCTION

During the golden age of Islam between the 8th and 15th centuries, there was an extraordinary development of science in various fields. Muslim intellectual figures such as Al-Khwarizmi, Ibn Sina, Al-Farabi, Al-Biruni, and Ibn Rushd became pioneers in disciplines such as medicine, astronomy, mathematics, philosophy, physics, and theology (Hashemi JM., 2020). They not only developed their fields of science but also created systematic methods in the scientific approach. Centers of civilization such as Baghdad, Cairo, Cordoba, and Samarkand became places where thinkers from various backgrounds gathered. What is interesting about the development of classical Islamic science is the effort to combine religious knowledge and science, in contrast to the Western approach, which tends to separate the two through secularization. This period is considered a golden age in the history of science that made significant contributions to world civilization (Thoha, 2013).

Muslim scholars of the golden age believed that science was inseparable from spiritual and ethical dimensions. They viewed reason and revelation as two sources of knowledge that complement each other, not contradict each other. With this perspective, they were able to build a more open and comprehensive scientific approach in which scientific activity was understood as an effort to understand the greatness of God. This belief became the foundation for the development of scientific thought in the classical Islamic tradition. In his monumental work "*Kitab al-Qanun fi al-Tibb*," Ibn Sina not only outlined medical theories with a rational approach but also linked them to the concept of body equilibrium that corresponds to metaphysical principles. On the other hand, Al-Khwarizmi, who is known as the pioneer of algebra, has created a mathematical foundation that became the foothold for the advancement of modern science. However, in his writings, he also emphasized the relationship between mathematical structures and the order of the cosmos that reflects the greatness of the Creator (Cholil, 2020).

However, although there have been many studies that discuss the individual contributions of Muslim scientists in various disciplines, there are still limitations in understanding how the process of integration of religious knowledge and science occurred in classical Islamic thought systematically. Most academic studies focus more on the achievements of Muslim scientists in specific fields, such as astronomy or medicine, without exploring how they built scientific paradigms that combined the two dimensions (Chanifudin & Nuriyati, 2020). In addition, there are still questions about the methods used by Muslim scientists in harmonizing revelation and reason and how this approach shaped Islamic epistemology and contributed to the development of science in the Islamic and Western worlds (Hera et al., 2024).

Furthermore, there are still few studies that discuss the long-term impact of this integration of science on modern scientific thought. In the Middle Ages, many works of Muslim scientists were translated into Latin and became the foundation for the development of science in Europe. Ibn Rushd, for example, had a significant influence in shaping the tradition of rational thought in the Western world through his commentary on the philosophy of Aristotle (Jaelani, 2015). Likewise, Al-Farabi developed political and philosophical theories that inspired Renaissance thinkers in Europe. However, how the concept of the integration of religious knowledge and science in classical Islam remains relevant in the modern era is still a question that has not been widely studied.

Based on this background, this study aims to trace the footsteps of Muslim scientists in harmonizing religious knowledge and science during the classical Islamic period. Specifically, this study will Analyze the approaches used by Muslim scientists in harmonizing religious knowledge with rational science, Identify factors that allow for the integration of science in classical Islamic civilization, explore the impact of Muslim scientists' thoughts on the development of science in the Islamic and Western worlds and examine the relevance of the concept of integration of religious knowledge and science in classical Islam to the discourse of science in the modern era.

In an academic context, this study offers a new perspective with an interdisciplinary approach that includes the history of science, Islamic philosophy, and epistemology. Suppose previous studies have focused more on individual analysis of the contributions of Muslim scientists in specific fields. In that case, this study seeks to understand the pattern of integration of science on a broader and more systematic scale. By tracing the dynamics

between revelation and reason in classical Islamic thought, this study can also provide broader insights into how the concept of Islamic epistemology can contribute to contemporary scientific discourse, including the debate on the relationship between religion and science (Rahman, 2018).

Overall, this research will not only enrich academic studies on the history of science in Islam but also open up space for further exploration of how the concept of integration of science can be applied to the intellectual and scientific challenges of the modern era. Given the increasing debate on the role of religion in contemporary science, understanding the model of integration of science in classical Islam can be a foundation for developing a more inclusive scientific paradigm that is oriented towards a balance between rationality and spiritual values.

METHODS

The researchers used a qualitative approach with historical methods and textual analysis to trace the footsteps of Muslim scientists in integrating religious and scientific knowledge in the classical Islamic era. This approach was chosen because it allows for in-depth exploration of the process of integrating knowledge in a historical context while understanding the underlying epistemological concepts. The historical method is used to reconstruct the development of knowledge in the classical Islamic period by examining various primary and secondary sources, while textual analysis is applied in examining the main works of Muslim scientists to understand the scientific concepts they formulated (Sugiyono, 2015).

In the study of the development of science in classical Islam, many studies have highlighted the contributions of Muslim scientists in specific fields such as medicine, mathematics, astronomy, and philosophy. Various sources record how scientists such as Al-Khwarizmi, Ibn Sina, Al-Farabi, and Ibn Rushd made significant contributions to the development of science in the Islamic world and Europe through the translation and development of scientific concepts. History also records that scientific institutions such as the House of Wisdom in Baghdad and the madrasas in Andalusia played an essential role in encouraging the development of science and establishing a strong academic tradition.

However, there are still aspects that have not been widely studied, especially regarding how the process of integration between religious knowledge and science took

place in classical Islamic thought. There are still few studies that systematically reveal the methods and epistemological principles used by Muslim scientists in harmonizing revelation and reason. In addition, there are not many studies that discuss in depth how this integration pattern has an impact on Islamic civilization and the development of science in the Western world. Based on the research gap, this research aims to identify the epistemological approaches used by Muslim scientists in harmonizing religious and scientific knowledge, analyze the methods of science integration they apply, and examine the historical impact of this science integration on the development of science in the Islamic and Western worlds. In addition, this study also seeks to explore the relevance of the concept of science integration in classical Islam to contemporary scientific discourse.

This study relies on secondary data obtained from various historical and academic sources. The data include Classic manuscripts and texts by Muslim scientists, such as Ibn Sina's on *al-Qanun fi al-Tibb*, *Al-Jabr wal-Muqabala* by Al-Khwarizmi, and the philosophical works of Al-Farabi and Ibn Rushd that discuss the relationship between reason and revelation, Academic journals and books that discuss the history of Islamic science and the contributions of Muslim scientists to science, Translations, and historical studies on the influence of Muslim scientists' thoughts on the development of science in Europe and the modern world and previous scientific articles and research that discuss aspects of epistemology and integration of science in classical Islam (Khamami, 2014).

The data collection technique in this study was carried out through literature studies and document analysis. By examining various primary and secondary sources, the study was able to reconstruct the development of the concept of integration of science in the classical Islamic intellectual tradition. The collected data were then analyzed using a hermeneutic approach and historical-comparative analysis (Ricoeur, 2016). The hermeneutic approach was applied to understand the meaning of classical texts in the context of Islamic science, especially how Muslim scientists explain the relationship between religious science and rational science. Meanwhile, historical-comparative analysis was used to examine the influence of the integration of science in classical Islam on the development of science in the modern world. As part of the analysis, this study also examines how the concepts of revelation and reason are used as the basis of epistemology in the thinking of Muslim scientists and compares them with the Western scientific tradition. In addition, the analysis highlights the application of scientific principles developed in the classical Islamic era in a modern context, especially in discussions on the relationship between science and religion.

RESULTS

During the golden age of Islam (8th to 15th centuries), Islamic civilization developed into a center of world science. This period was marked by rapid progress in various disciplines, including medicine, mathematics, astronomy, philosophy, and religious sciences. One of the main factors supporting this development was the holistic view of science, in which religious sciences and rational sciences were not separated but instead combined in a mutually supportive epistemological framework (Jaswan & Tobroni, 2024).

The concept of integration of knowledge in classical Islam is rooted in the teachings of the Qur'an and Hadith, which encourage humans to seek knowledge (Qorina et al., 2014). In the Qur'an QS Al-'Alaq verses 1-5, Allah SWT commands humans to read (*Iqra'*), which is an indication that Islam places great emphasis on the importance of knowledge. Apart from that, in QS Az-Zumar verse 9, Allah says: "Say (Muhammad), 'Are those who know the same as those who do not know?' Indeed, only intelligent people can receive lessons." This verse shows that Islam values knowledge and places people of knowledge in a high position. It is what encouraged classical Muslim scientists to explore various sciences, both those originating from revelation and empirical experience.

Center of Knowledge in Classical Islam

History records that classical Islamic civilization had many centers of knowledge that became a place for the development of integration between religious knowledge and science (Masood, 2014). Some scientific centers that play an essential role in the dissemination and development of science are: First, *Baitul Hikmah* (House of Wisdom), Baghdad. This place was established during the Abbasid Caliphate under the reign of Caliph Harun Al-Rasyid and flourished during the reign of Al-Ma'mun. This place became a center for translating Greek, Persian, and Indian philosophical works into Arabic, which were then further developed by Muslim scholars. In this place, the concept of integration of knowledge began to develop through discussions and research conducted by scholars such as Al-Kindi, Al-Farabi, and Hunayn ibn Ishaq.

Second, *Madrasah* Nizamiyah, Baghdad. Founded by Nizam al-Mulk in the 11th century, this madrasah became a model of education that taught religious sciences (*fiqh, tafsir, hadith*) along with rational sciences such as mathematics and astronomy. Al-Ghazali, one of the great scholars at this madrasah, emphasized that rational sciences and religious sciences can complement each other in seeking the truth. Third, University of Al-

Qarawiyyin, Fez. Founded in the 9th century, this university is one of the oldest educational institutions in the world, teaching various branches of science, including medicine, philosophy, astronomy, and religious studies. Fourth, University of Al-Azhar, Kairo. Starting as a center for Islamic education, Al-Azhar later developed into a center of knowledge that taught religious and rational sciences side by side (Mahmudah, 2021).

Muslim Scientists and the Integration of Science

Classical Muslim scholars contributed significantly to the development of science with an integrative approach. They were not only experts in one field but also mastered various disciplines, both empirical and religious text-based (Fathul Mufid, 2013). Some examples of scientists who have succeeded in integrating religious knowledge and science include, First, Al-Khwarizmi (780-850 M). He is known as the father of Algebra and the creator of the decimal number system, which is the basis of modern mathematics. In addition to Mathematics, he also wrote works on astronomy and celestial science, which are used in determining the Islamic calendar.

Second, Ibn Sina (980-1037 M). He developed the concept of body balance in medicine influenced by Islamic metaphysical thought. His book *Al-Qanun fi al-Tibb* became a significant reference in medicine for centuries. Third, Al-Farabi (872-950 M). He combined the philosophy of Aristotle and Platonism with Islamic teachings, creating the concept of *Madinah al-Fadhilah* (Prime State), which emphasized the balance between reason and revelation. Fourth, Ibn Rushd (1126-1198 M). He wrote commentaries on the works of Aristotle and built a synthesis between Islamic philosophy and theology. He also developed a rational method for understanding Islamic law (*fiqh*). Fifth, Al-Biruni (973-1048 M). He studied astronomy and geography with a scientific approach that still considered Islamic values. He also contributed to determining the direction of the Qibla based on mathematical calculations (Hidayat, 2024).

Table 1. *Comparison of Muslim scientists' approaches to integrating religious and scientific knowledge*

Scientist	Science Field	Religious Field	Integration Method
Al-Khwarizmi	Mathematics, Astronomy	Interpretation, Astronomy	Using Arabic numerals in the Islamic calendar.
Ibn Sina	Medicine, Physics	Islamic Philosophy	Aligning body balance with the concept of spirituality

Scientist	Science Field	Religious Field	Integration Method
Al-Farabi	Music, Philosophy	Islamic Theology	Creating a synthesis between Greek and Islamic philosophy
Ibn Rushd	Astronomy, Medicine	Astronomy, Medicine	Harmonizing Aristotelian philosophy with Islamic teachings
Al-Biruni	Geography, Physics	Islamic Calendar Study	Using scientific methods in determining the direction of the Qibla.

The Concept of Integration of Knowledge in Classical Islam

Integration of knowledge in classical Islam is not just a blend of religious knowledge and science but also reflects a strong epistemological framework. Some of the main principles in this integration of knowledge are: First, Tawhid is the Basis of Knowledge. Namely, All knowledge comes from Allah and aims to understand His creation. Second, Harmony between Revelation and Reason. Religious knowledge is obtained through revelation, while scientific knowledge is obtained through reason and observation, but the two are not contradictory. Third, Use of Rational and Empirical Methods. Namely, Muslim scientists do not only adhere to religious doctrine but also use logic and scientific methods in studying natural phenomena: fourth, the Application of Knowledge for the Benefit of the Community. Namely, Knowledge must be utilized for the welfare of humanity and not merely for the benefit of individuals (Abidin, 2005).

Integration of Findings with Previous Research

Although there have been many studies discussing the development of science in classical Islam, previous studies still leave a number of academic gaps that need to be explored further. One aspect that has not been widely studied is how the concept of integrating religious knowledge and science was applied in the thinking of classical Muslim scientists. So far, many studies have focused more on the individual achievements of Muslim scientists in specific fields, such as medicine, astronomy, or philosophy, but have not explicitly outlined how they harmonized scientific methods with religious principles (Iqbal, 2018).

The research conducted by Seyyed Hossein Nasr in his book *Science and Civilization in Islam* (1968) highlights the development of science in Islamic civilization and the vital role of Muslim scientists in adapting and developing science from other civilizations. Nasr

argues that Islam has a unique epistemological framework, which allows for the synthesis of religious and rational sciences. However, the study focuses more on the history of the development of science rather than an in-depth analysis of how the integration of science took place in the education and research systems of Muslim scientists (Quadir, 2011).

Dimitri Gutas discusses how the translation movement in Baghdad during the Abbasid Caliphate played an essential role in the development of science in the Islamic world. He highlights the process of translation and development of Greek thought by Muslim scholars but does not discuss the interaction between religious knowledge and science in the process. In his study, the integration that occurred is seen more as the assimilation of foreign ideas into the Islamic world, without paying special attention to how Muslim scholars built a unique approach that combined revealed knowledge with empirical knowledge (Gutas, 2010).

Alparslan Acikgenc (2014) introduced the concept of Islamic Scientific Tradition as a unique Islamic scientific system, where science functions not only to understand physical reality but also to achieve spiritual awareness, with monotheism as the primary epistemological foundation. However, his study is still theoretical and lacks in describing practical implementation in the classical Muslim scientific tradition. Meanwhile, the contribution of Islamic science to the European Renaissance, especially in astronomy and mathematics, focuses more on the transmission of science without discussing the development of integration between religious and scientific knowledge in the context of Islam (Acikgenc, 2014).

Research on the development of science in classical Islam generally focuses on historical aspects and individual contributions but does not delve deeply into the methods of integration of science applied. Few studies discuss the use of revelation as the basis for epistemology and the combination of rational, empirical methods and religious principles in the research of Muslim scientists. In addition, the social and intellectual impacts of this integration of science are also under-researched, especially its influence on the educational system and the structure of Islamic science. For example, systematic studies of the integrative curriculum in the Madrasah Nizamiyah or Baitul Hikmah that combined religious and scientific knowledge are still minimal, even though both institutions played an essential role in the dissemination of a coherent, cross-disciplinary educational model.

In addition, there has not been much research discussing how the integration of religious knowledge and science in classical Islam contributed to the intellectual transformation in the Western world during the Renaissance. Although some Western scientists, such as Roger Bacon and Copernicus, are known to have been influenced by the thoughts of Muslim scientists, research on how the concept of classical Islamic epistemology was adopted in the development of science in Europe is still limited.

In the modern context, Muslim thinkers such as Syed Naquib al-Attas and Ziauddin Sardar have argued that the dichotomy between religious knowledge and science in contemporary Muslim education is a legacy of colonialism that needs to be reformed (Fahrudin et al., 2020). However, how the model of integration of knowledge in classical Islam can be reapplied in the modern academic world remains an under-researched question. One of the main unanswered issues is how the concept of classical Islamic epistemology can provide a solution to the scientific crisis in the Islamic world today, especially in facing the challenges of globalization and technological progress. From these gaps, there are still many aspects of the integration of knowledge in classical Islam that need to be studied further.

Previous studies tend to highlight the achievements of Muslim scientists without discussing in depth how the concept of integration of knowledge is applied in their research. In addition, studies that systematically examine the social and intellectual impacts of this model of integration of knowledge, as well as its adaptation in modern education and research systems, are still minimal. This study attempts to fill this gap by providing an in-depth analysis of the pattern of integration of knowledge in classical Islam. By examining the various methods used by Muslim scientists in harmonizing religious and scientific knowledge, this study is expected to provide new, more comprehensive insights into the application of the classical Islamic scientific paradigm in today's academic and educational world. In addition, this study also aims to understand the extent to which the concept of integration of knowledge in classical Islam is still relevant in facing the challenges of modern science and how this model can be a solution to the dichotomy of knowledge that still occurs in the contemporary Islamic education system.

Identifying Science Integration Patterns

Classical Muslim scientists applied a unique approach to integrating religious and scientific knowledge, in contrast to the modern scientific paradigm, which tends to separate

empirical and normative knowledge. In the tradition of classical Islamic thought, knowledge is viewed as a unity that originates from God so that there is no dichotomy between revelation and reason or between religion and science. Based on an analysis of the works of various Muslim scientists, three main patterns of integration of knowledge that they applied were found, namely the rational-scriptural approach, the empirical-spiritual approach, and the mathematical-*tafsiriyah* approach (Siregar, 2014).

1. Rational-Scriptural Approach

   This approach emphasizes the use of philosophy and logic in understanding revelation and empirical science. Muslim scientists who use this approach not only accept revelation textually but also interpret and understand it using reason and rational methods. Examples of Scientists and their applications are Ibn Rushd (Averroes). He harmonized Aristotelian thought with Islam, stating that philosophy is not contrary to religion but can be used to understand revelation better. Second, Al-Farabi. He developed a Theory of happiness and political philosophy rooted in the Islamic concept of justice and Greek logic. Third, Al-Kindi. He analyzed the relationship between revelation and philosophy, arguing that truth in philosophy and religion comes from the same source. In this approach, logic is used to understand revelation, and revelation becomes a moral framework for philosophy and science (Gama, 2022).

2. Empirical-Spiritual Approach

   This approach emphasizes that empirical observation and scientific methods can be used to understand the greatness of God and the laws of nature that have been established in His law. Muslim scientists who use this approach do not only rely on textual evidence but also conduct experiments and observations to find scientific truth. Examples of scientists and their applications are Ibn Sina (Avicenna). He wrote *Al-Qanun fi al-Tibb*, in which he used empirical methods in medicine while still considering the spiritual aspects and balance of the body. Second, Al-Biruni. He made accurate astronomical and geographical measurements but still linked his findings to the concept of the greatness of God. Third, Jabir Ibn Hayyan. He developed chemistry with systematic laboratory experiments but still aligned it with the concept of divinity. This approach shows that science and religion do not need to be in conflict but can instead complement each other in understanding natural phenomena as signs of the greatness of God (verse *kauniyah*).

3. Mathematical-Interpretative Approach

This approach is more widely used in the fields of astronomy, mathematics, and astronomy, where Muslim scientists use calculation methods to understand and explain concepts in Islam. Examples of scientists and their applications are Al-Khwarizmi. He developed algebra and the decimal number system, which were later used in calculating the Islamic calendar. Second, Al-Battani. He determined the position of the stars and improved the calculation of prayer times using mathematical methods. Third, Nasir al-Din al-Tusi. He developed a more accurate astronomical model to determine the direction of the Qibla. In this approach, mathematics becomes a tool to understand the laws of Allah in the physical world so that science has not only practical functions but also spiritual value (Mahmud, 2024).

Model of Integration of Science in Classical Islam

Based on the patterns that have been identified, the integration of science in classical Islam did not occur randomly but based on systematic and structured methods. Muslim scientists did not only separate religious science and empirical science but instead created a model that harmonized the two with different approaches according to their fields of science (Azizah & Roqib, 2024).

Table 2. *Patterns of integration of science in classical Islam*

Approach	Related Scientists	Main Characteristics
Rational-Scriptural	Ibn Rushd, Al-Farabi, Al-Kindi	Using logic and philosophy to understand revelation.
Empirical-Spiritual	Ibn Sina, Al-Biruni, Jabir Ibn Hayyan	Using scientific methods to understand the laws of nature and the greatness of God.
Mathematical-Tafsiriyah	Al-Khwarizmi, Al-Battani, Nasir al-Din al-Tusi	Using mathematical calculations to explain religious concepts such as prayer times and the direction of the Qibla.

Through the identification of this pattern, this study provides a deeper understanding of how classical Islam builds an integrative epistemological framework, where religious knowledge and science are not separated but instead complement each other in a holistic knowledge system. Thus, the model of integration of knowledge applied by classical Muslim scientists is still very relevant to be applied in the modern education system and scientific discourse, especially in building a multidisciplinary approach that is not only based on science but also ethical and spiritual values (Solichin & Alim, 2023).

The Relevance of Science Integration in the Modern Era

In the modern era marked by the rapid development of science and technology, the integration of religious knowledge and science is becoming increasingly important. The world today faces various significant challenges, ranging from moral crises and environmental degradation to social inequality. The secular paradigm that separates science from religious values often results in a reductionist approach, where science is only understood in a materialistic framework without considering ethical and spiritual dimensions (Nudin, 2020). In contrast, the integrative approach developed by classical Muslim scholars offers a more holistic model in which science is not only a tool for exploring the physical world but also a means to achieving human wisdom and well-being. This model is still very relevant in the context of modern science, whether in education, research, or public policy.

1. Relevance in Education

   Modern education systems often adopt an approach that separates science from ethics and spirituality. As a result, science is taught technically without considering the moral aspects of its application. It has led to the emergence of scientists and professionals who are very skilled in their fields but lack ethical awareness in the use of that science (Ichsan et al., 2023).

   The integrative approach developed by classical Muslim scholars can be used as an alternative model for the modern education system by applying several main principles. First, integration between empirical science and moral values, where science is not only taught from a technical perspective but also linked to ethical and spiritual principles aimed at the welfare of humanity. Second, holistic-based education teaches science not only from a rational and empirical aspect but also considers the transcendental dimension and broader wisdom. Third, building global and humanitarian awareness, where education instills social responsibility so that science is not used solely for personal or industrial interests but also for the welfare of humanity as a whole (Solichin & Alim, 2023).

2. Relevance in Research and Innovation

   One of the challenges in modern scientific research is the tendency to pursue technological progress without considering the social and ethical impacts. In some cases, scientific innovation actually creates new problems, such as the over-exploitation

of natural resources, the misuse of technology in weapons of mass destruction, or genetic manipulation without considering the moral consequences (Suyanto, 2024).

The approach developed by classical Muslim scholars emphasizes that research and innovation must be based on ethical values and aimed at the welfare of humanity. This principle can be applied in various fields of modern research, including first, bioethics and medicine, namely the integration of modern medical science with Islamic ethical principles in issues such as organ transplantation, reproductive technology, and genetic engineering; second, environmental and sustainability science, which emphasizes the importance of balancing the exploration of natural resources with the principles of sustainability and ecological responsibility. This classical approach provides a strong moral foundation for the development of contemporary science. Third, Artificial Intelligence and Technology Ethics, namely developing artificial intelligence that is not only technically efficient but also takes into account moral aspects and social justice.

This research model based on ethics and social responsibility is increasingly being promoted in various scientific institutions and global organizations, showing that the concept of science integration developed in classical Islam still has strong relevance in the world of contemporary research (Hilmi, 2020).

3. Relevance in Public Policy and Development

Many public policies today are made based on empirical data and economic models without considering the humanitarian aspects and spiritual values. As a result, development often leads to widening social gaps, exploitation of labor, and increasingly severe environmental damage. An integrative approach in the classical Islamic tradition can offer solutions for public policies that are more oriented towards the welfare of society by prioritizing fundamental principles.

Some of these principles include: first, the balance between material and spiritual aspects, where economic development does not only focus on growth alone but also social welfare and human happiness. Second, the principle of social justice emphasizes the importance of fair distribution of wealth, as reflected in the concepts of zakat, waqf, and sadaqah, which can be an effective alternative in poverty alleviation policies. Third, sustainability-based development, which is based on the concept of Khalifah fil ard (humans as leaders on earth), teaches responsibility in managing natural

resources. This principle is very relevant to modern environmental policies. Currently, several countries have begun to adopt the principles of Islamic economics and sustainable development, such as the concept of Islamic Social Finance, which is applied in various Muslim countries to reduce poverty and economic inequality (Hamiddin & Rapanna, 2020).

4. Relevance in Global Scientific Discourse

In the modern philosophy of science, there is significant debate about the relationship between science, religion, and ethics. Many scientists and philosophers have sought to find an approach that makes science not just a tool for material exploration but also has a deeper meaning and purpose. An integrative approach in the classical Islamic tradition can make a significant contribution to this discussion by offering a concept of epistemology that is not only based on empiricism and rationalism but also accommodates revelation and spiritual values as essential sources of knowledge (Makiah, 2021).

Some important concepts that can be considered in the global scientific discourse include: first, Islamic epistemology as an alternative to scientific positivism that often ignores non-material aspects in understanding reality; second, a transdisciplinary approach that does not separate science based on secular and religious categories, but instead views them as a complementary unity; and third, ethics in science and technology that emphasizes the importance of scientists' responsibility in developing science for the benefit of humanity. These approaches are not only relevant in the context of the Islamic world but are also an integral part of the global discussion on the future of science and its role in society (Syarif & Thabrani, 2021).

CONCLUSION

From the various aspects that have been discussed, it can be concluded that the concept of integration of science developed by classical Muslim scientists remains very relevant in the modern era because this approach not only provides a comprehensive epistemological framework but also offers solutions to various contemporary problems in education, research, public policy, and global scientific discourse. By applying the principles of integration of science that have proven effective in classical Islamic history, the modern world has the potential to build a scientific system that is more holistic, ethical, and

oriented towards the welfare of humanity. The discussion of the integration of science in the classical Islamic tradition shows that early Muslim scientists adopted a holistic approach that eliminated the dichotomy between religious knowledge and science, instead integrating them through a rational-scriptural, empirical-spiritual, and mathematical-*tafsiriyah* approach. This integrative model has made a significant contribution to the advancement of Islamic civilization and has become an essential foundation for the development of global science. By adapting these principles in a modern context, the world can face global challenges in a more ethical, sustainable, and human welfare-focused manner. Therefore, re-adopting the mindset of classical Muslim scientists is not only a respect for intellectual heritage but also a strategic step in building a more advanced and sustainable civilization.

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