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Research Article

The Relationship of Islam and Modern Science

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Abstract
The relationship between Islam and modern science has a long history and significant contributions to the development of science. During the golden age of Islamic civilization, many Muslim scientists successfully developed various disciplines, such as mathematics, astronomy, medicine, and philosophy. These contributions not only had a significant impact on Islamic civilization itself but also on the development of global science. The Middle Ages witnessed the birth of prominent scientists such as Al-Khwarizmi, Ibn Sina, and Al-Razi, whose works remain recognized today. However, over time, significant challenges have emerged in the development of science in the Islamic world, particularly with the advent of secularism and modernity. In this context, the integration of religious knowledge and science has become a crucial issue, with balance being considered vital to the education and development of Muslims. This article examines the development of science in Islam, explains the relationship between religious

knowledge and science, and analyzes the challenges faced by Muslims in developing science in the modern era.

Keywords: Islam, Sains Modern, Integrasi Ilmu Agama, Sekularisme, Modernitas.

INTRODUCTION

The relationship between Islam and modern science is a topic that has been the subject of intense debate and research among scientists and thinkers. The long history of Islamic civilization demonstrates that this religion not only influences the spiritual dimension but also makes significant contributions to the development of science and technology. Since the heyday of Islamic civilization in the Middle Ages, Muslims have produced knowledge spanning various fields, from mathematics and astronomy to medicine and physics, to philosophy. However, with the passage of time and the advancement of science in the Western world, Islam's role in modern science has often been overlooked. In this context, it is important to re-examine how Islam interacts with science and how these two dimensions can be integrated to produce a more holistic approach to education and thought.

Islam's contribution to science began in the early days of Islamic civilization, when Muslim scientists played a crucial role in developing and disseminating knowledge. In the early centuries, Muslim scientists, such as al-Khwarizmi, known as the "father of algebra," developed fundamental mathematical concepts that underpin the development of modern science. Other figures, such as Ibn Sina (Avicenna), advanced medicine and philosophy, while al-Razi contributed to chemistry and medicine. These achievements demonstrate that Islam did not view science as separate from religion, but rather as a means to understand God's creation and advance civilization.

Furthermore, great libraries such as the House of Wisdom (Bayt al-Hikma) in Baghdad became intellectual centers that brought knowledge from various parts of the world, including Greece, India, and Persia, which were then translated and developed by Muslim scholars. These discoveries formed the foundation of modern science. Therefore, the contribution of Muslim scientists to the history of science cannot be separated from the role of Islam, which underlies the belief that knowledge is part of worship and a means of understanding God's will.

As a religion that teaches its followers to seek knowledge and develop intellectual abilities, Islam has a profound view of the relationship between religion and science. The concept that science is a revelation from God sent down to understand His creation provides a spiritual foundation for scientists in developing knowledge. In Islamic teachings, the pursuit of knowledge is considered an act of worship, and the Prophet Muhammad (peace be upon him) himself emphasized the importance of seeking knowledge, both religious and worldly.

The integration of religious knowledge and modern science is crucial in education, particularly in the context of Islamic education. Education that combines these two dimensions enables individuals to develop broad intellectual

abilities, while remaining grounded in the moral and ethical values taught in religion. Such education not only produces competent scientists in scientific fields, but also individuals with spiritual awareness and social responsibility. Thus, the integration of religious knowledge and science not only guarantees technological progress but also ensures that the knowledge developed can be used for the good of humanity.

Although Islam has a long tradition of developing science, Muslims face significant challenges in addressing science in the modern era. One major challenge is the influence of secularism, which emphasizes the separation of religion and science. Within the framework of secularism, religion is viewed as a separate entity from worldly life, including science. This view has the potential to create a dichotomy between religious knowledge and general knowledge, where the two are considered unrelated or even contradictory.

Furthermore, modernity, with all its technological and industrial impacts, often leads Muslims to become dependent on Western science, which is sometimes inconsistent with Islamic values. Some modern ideas developed in the Western world, such as materialism and empiricism, sometimes clash with more metaphysical and transcendent religious teachings. This tension requires Muslims to rethink how modern science can be integrated with Islamic values without losing its spiritual and moral essence.

This dichotomy of knowledge presents difficulties for the younger generation who wish to pursue scientific knowledge without abandoning their religious identity. Therefore, the challenges faced are not only a matter of

RESEARCH METHODS

a. Research Type

This research uses a qualitative approach using literature review and case study methods. Qualitative methods allow researchers to analyze in depth the relationship between Islam and science and the challenges faced by Muslims in facing modern science.

b. Research Design

This research design consists of three main parts, each aimed at answering questions relevant to the previously mentioned topics. The research steps are systematically explained as follows:

1. Development of Science in Islam

   In this section, the research will investigate the contributions of Muslims to the development of science throughout history. Some prominent Muslim scientists that will be discussed include:

   a) Al-Khwarizmi: Contributions to mathematics, particularly in the development of algebra.
   b) Ibn Sina (Avicenna): Contributions to medicine and philosophy.
   c) Al-Razi: Development of medicine and chemistry.
   d) Ibn al-Haytham: Pioneer in optics and scientific experimentation.
   e) Al-Farabi: Connecting Aristotelian thought with Islamic thought.

The method used is historiographic analysis, which examines historical sources, both classical texts and contemporary research, discussing the influence of Muslim scientists on the development of modern science. This research will explore how the discoveries of Muslim scientists formed the basis for the development of modern science in various fields, such as mathematics, astronomy, medicine, and the philosophy of science.

2. Integration of Religious Knowledge with Science/General Knowledge

This research will discuss the importance of integrating religious knowledge (Islamic knowledge) with general knowledge (science) in education, especially among Muslims. This research examines two main aspects:

a) The Relationship between Religious Knowledge and Science: Presenting the views of contemporary Muslim scholars who support the integration of religious knowledge and science, including the thoughts of Muslim scholars and intellectuals who seek to balance the two, such as Imam Ghazali, who views knowledge as a tool for drawing closer to God, and Fazlur Rahman, who proposes a scientific understanding within the context of religious texts.
b) The Importance of Balance between Religious Knowledge and Science in Education: This research will also examine various educational models that integrate these two fields, such as modern Islamic education programs that combine religious studies with science. This can be seen in a number of universities in Muslim countries, including Indonesia.

The methods used for this section include literature review and interviews with academics and education practitioners in West Sulawesi who implement an integrated approach to religious knowledge and science.

3. Challenges of Science in the Modern Era

In this section, the research will identify the challenges faced by Muslims in developing science in the modern era. Some of the challenges discussed include:

a) Secularism and Modernity: An analysis of how secularism, which separates religion from science, influences Muslim scientific thought, and how modernity shapes Muslim societies' perspectives on science.
b) The Dichotomy of Science: This research will explore the dichotomy between religious knowledge (Islamic knowledge) and modern science (general knowledge), and how this can hinder the development of science among Muslims.
c) Epistemological Crisis: The research will also examine the epistemological crisis in Muslim society, where there are differing views on how to obtain valid knowledge between religious knowledge and modern science.

The methods used include interviews with religious leaders, scientists, and academics in West Sulawesi, as well as a survey of the local Muslim community to determine their views on science and religion, and the challenges they face in developing knowledge.

4. Case Study in West Sulawesi

   As part of this research, a case study in West Sulawesi will be conducted to analyze how Muslim communities in this region face the challenges of modern scientific knowledge, as well as how they integrate religious knowledge with science in their education and daily lives. This research will cover:

   a) The State of Islamic Education in West Sulawesi: This includes an analysis of the Islamic and science education curricula implemented in madrasas and schools in West Sulawesi, as well as efforts made to integrate the two fields.
   b) Scientific and Research Activities: This will assess the contribution of universities and educational institutions in West Sulawesi to the development of science and the challenges they face, such as limited funding and resources.
   c) Interviews with local communities: To understand the views of the people of West Sulawesi on science and religion, and how they view science and religion.

c. Collection Techniques

1. Literature Study: Analyzing books, articles, and scientific journals relevant to the research theme, both from classical and modern sources.
2. Interviews: Conducting in-depth interviews with academics, education practitioners, religious leaders, and scientists in West Sulawesi.
3. Survey: Collecting data from the general public through a questionnaire regarding their views on the relationship between Islam and science.
4. Observation: Direct observation at several madrasahs (Islamic schools), schools, and educational institutions in West Sulawesi that implement an integrative approach between religious knowledge and science.

d. Analysis

The collected data will be analyzed using a thematic analysis approach to identify emerging patterns related to the relationship between Islam and science, the integration of religious knowledge with general knowledge, and the challenges facing Muslims in the modern era. The analysis will also be conducted to understand the perceptions of the West Sulawesi community regarding these issues.

RESULTS AND DISCUSSION

Debate about connection between Islam and modern science is often seen as as conflict or tension between religious beliefs and knowledge empirical. However history long Islamic civilization proves that integration religious knowledge and science are not matter new. In fact, Islam has become center civilization world science and produce monumental contribution that became foundation knowledge modern knowledge. Discussion This aim give description comprehensive about development knowledge knowledge in Islam, integration religious knowledge and science, as well as challenges faced Muslims in the modern era, enriched with studies cases in West Sulawesi.

Development Knowledge Knowledge in Islam

a. Islam's Contribution to Development Knowledge Knowledge

Islamic civilization in the classical period (8th to 14th century AD) was characterized by with development knowledge rapid knowledge. This is No let go from Spirit scientifically driven by religious principles that encourage man For *think, explore, and understand natural universe*.

A number of contribution important among others:

1. Science Mathematics and Astronomy
   a) Al-Khwarizmi introduced draft algebra and algorithms, which became base for modern mathematics.
   b) Al-Battani perfected calculation astronomy and calendar, influence observatory astronomy Europe.

2. Science Medicine and Pharmacy
   a) Ibn Sina (Avicenna) wrote Al-Qanun fi al- Tibb, which became reference medical major in Europe until 17th century.
   b) Al-Razi (Rhazes) differentiates smallpox and measles as well as write work about systematic pharmacy.

3. Philosophy and Methodology Scientific
   a) Al-Farabi and Ibn Rushd (Averroes) translated and developed it Aristotle's works, formulated approach rational to knowledge.
   b) Scientific method beginning develop through work observation experimentation, and logic.

4. Technology and Engineering
   a) Banū Musa siblings creating automata and instruments complex mechanics.
   b) Al-Jazari wrote Buku fi ma' rifat al- hiyal al- handasiyya, book techniques that influence modern engineering.

b. Characters Muslim Scientists and Their Legacy

A number of figure play a role big in distribution knowledge knowledge:

Figure	Field	Contribution
Al-Khwarizmi	Mathematics	Basic algebra, algorithms
Ibn Sina	Medicine, Philosophy	*Al-Qanun fi al- Tibb*, diagnosis system
Al-Razi	Medicine, Chemistry	Distinction disease, pharmacy
Al-Battani	Astronomy	Calculation astronomy accurate
Al-Farabi	Philosophy	Integration of rationalism and theology
Ibn Rushd	Philosophy	Reconciliation between religion and philosophy

Contribution This show that Islam is not only accept science, but rather become source productivity knowledge knowledge.

Integration of Religious Knowledge with Science/ General Knowledge

a. Foundation Theological Integration

In Islam, religion and science general No should separated in a way firm Because both of them originate from source the same truth: the reality created by God. Al-Qur'an and hadith often push people For observe phenomenon nature (*erse kauniyah*) as sign power God who is implicit push investigation scientific Framework integration This loading

1. Monotheism as runway epistemological: all knowledge considered originate from One source truth (God).
2. Knowledge knowledge as worship: seeking knowledge considered part from devotion to Lord.
3. Dialogue between nash (religious text) and empirical: interpretation religious texts in harmony with observation scientific If done in a way contextual.

b. Importance Balance in the World of Education

Integration between religious education and modern science in institutions education must implanted since early Because:

1. Prevent **dichotomy the science** that separates science from moral and spiritual values,
2. Push Muslim students and scientists have **his holistic vision-**science No only technical but also ethical.
3. Ensure that progress knowledge knowledge No lost spiritual and humanitarian values.

In modern education, integration This can realized through:

1. Curriculum based integration Islamic values and science, for example eye studying Islamic philosophy of science.
2. Study interdisciplinary that combines draft theological with method scientific contemporary.
3. Formation center Islamic and Science research at universities for unite these two domains in a way systematic.

Challenges Knowledge Knowledge in the Modern Era

a. Global Challenges for Muslims Knowledge Knowledge

Even though Islam has history strong in development of science, Muslims today This face a number of challenge main:

1. Secularism and Modernity

Secularism tend separate religion from life public and education. In the context of This:

a) Science is viewed as a free domain from moral or religious values.
b) Religion is separated to realm private just.
c) This matter cause knowledge modern knowledge often assessed contradictory with religious teachings, even though Lots Muslim scientists have show that science and religion are compatible If understood in a way Correct.

2. **Dichotomy Knowledge**

   Many institutions separate education knowledge knowledge general and religious knowledge in general strict. The impact:

   a) Student not enough capable see connection between spiritual values and knowledge empirical.
   b) Lack of learning models integrated make part generation feel that Islam does not relevant with knowledge modern knowledge.

3. **Limitations Infrastructure and Research**

   Some Muslim majority countries still left behind in matter:

   a) Investment study
   b) Facility laboratory
   c) Collaboration international in research modern science

   At the global level, this slow down participation Muslim scientists in innovation contemporary.

b. Case Study: Challenges and Efforts in West Sulawesi

The Reality of Education and Science in West Sulawesi

West Sulawesi, as one of the provinces in Indonesia with a strong Muslim community base, reflecting dynamics connection between Islam and development knowledge knowledge:

1. **Formal education**
   a) Many schools and colleges universities that have study programs religious and general knowledge.
   b) However, integration between second field Still weak, especially in practice separate learning.
2. **Public Awareness**
   a) Values religion has a big influence pattern think public.
   b) There is a tendency see modern science as something neutral from spiritual values, so that interpretation knowledge often outside context Islamic teachings.
3. **Research and Innovation Challenges**
   a) Limitations facility study make students and academics face difficulty in develop quality research .
   b) Collaboration with centers study national or international still minimal.

c. Integration Efforts and Solutions

For overcome challenge mentioned, some Relevant efforts in West Sulawesi include:

1. **Strengthening Curriculum Integrated**

   Develop a curriculum that combines Islamic values with ability scientific, such as:

   a) Subject Islamic philosophy of science
   b) Discussion interdisciplinary about ethics and technology
2. **Empowerment of Research Institutions**
   a) Increase facility research at local universities.
   b) Weaving partnership with institution national / international for the transfer of knowledge and technology.

3. **Teacher and Lecturer Development**
   a) Training for power educator in approach interdisciplinary between science and religion.
   b) Integrative workshops and scientific seminars involving scholars and scientist.
4. **Formation Community Scientific**

   Facilitation community scientists Muslim local For share research and collaboration.

CONCLUSION

1. The Development of Science in Islam

Islam has made significant contributions to the development of science, particularly during the Islamic Golden Age between the 8th and 14th centuries. Muslim scientists such as Al-Razi (medicine), Ibn Sina (physician and philosopher), Al-Khwarizmi (mathematics and astronomy), and Ibn al-Haytham (optics and physics) played a crucial role in the development of science. They not only developed theories and practices in various disciplines such as astronomy, mathematics, medicine, and chemistry, but also transformed and translated knowledge from Greek and Indian traditions into Arabic, which was then transmitted to Europe, forming the foundation of the Western Renaissance. These contributions demonstrate that Islam has a strong scientific foundation, focusing on the pursuit of knowledge for the advancement of humanity and the development of societal welfare.

2. Integration of Religious Knowledge with Science/General Studies

The integration of religious knowledge and science is an important concept in Islam. Numerous verses in the Quran and Hadith encourage Muslims to seek knowledge, both in religious and worldly fields. Therefore, Islam does not separate the two; Religious knowledge serves to understand humanity's relationship with God, while worldly knowledge is used to understand the universe and improve the quality of human life. In the context of education, it is important to balance the two so that Muslims do not fall into a dichotomy that limits the development of knowledge within the scientific world. In modern education, the greatest challenge is how to integrate religious education with science without sacrificing either aspect. This approach requires emphasizing moral and ethical values in science, so that science can be used for the good of humanity in accordance with Islamic teachings.

3. Challenges of Science in the Modern Era

In this modern era, the development of science among Muslims faces various challenges, particularly those related to issues of secularism and modernity. Secularism, which separates religion from everyday life, often hinders Muslims from developing science in accordance with religious values. On the other hand, modernity, which often focuses on technological and scientific developments without considering moral values, can lead to imbalances in society. The dichotomy of science that separates religious knowledge from general knowledge often exacerbates this situation, creating a chasm between the two. In this context,

it is important to strive for holistic education that not only emphasizes the technical aspects of science, but also the morals and ethics contained in Islamic teachings.

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