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# The Development of Science in Islam and Its Impact on Islamic Education

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**History Naskah:**

Submit: 2024-07-17  
Accepted: 2024-07-25  
Published: 2024-08-01



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**Abstrak:**

Islam has a long history in developing science that began in the 7th century. This development was triggered by the teachings of the Qur'an and Hadith that encouraged the Muslims to demand knowledge and understand the universe. In the golden age of Islam (eighth to fourteenth centuries), centers of science such as Baghdad, Cordoba, and Cairo were the birthplace of many great scientists such as Al-Khwarizmi, Ibn Sina, and Al-Razi. They made significant contributions to a wide range of sciences including mathematics, medicine, astronomy, and philosophy. The influence of the development of science in Islam on Islamic education is enormous. First, education in Islam emphasizes the importance of a balance between religious science and general science. Second, many Islamic educational institutions, such as madrasas and universities, are established to facilitate the teaching of science in a comprehensive manner. Third, the curriculum of Islamic education often includes the study of science and technology, in addition to religious studies, to produce broad-knowing and critical-minded individuals. However, the development of science in Islam also faces challenges, especially in the modern era. These challenges include efforts to maintain the relevance of the Islamic educational curriculum to the development of contemporary science as well as the integration of technology into the learning process. Therefore, Islamic education needs to continue to adapt and innovate in order to remain able to make meaningful contributions to the world of science and remain relevant in the midst of changing times.

**Kata kunci:** Islamic Education, Madrasah, Science and Technology, Education Curriculum.

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## Introduction

At first, Arabic was only used as a means of communication between individuals. But with the increase of the need for life and the advancement of human thought, the language increased its usefulness as a scientific language throughout the field of science.

History has noted that the use of Arabic as a scientific language was marked by the emergence of translation activities of the Greek, Persian and Indian books. This activity grew fruitful during the reign of Abbasiyyah under the leadership of Khalifah Al-Ma'mun. In fact, the cycles of translation activity appeared long before the rule of al-Ma'mun. It is because the attention of the Muslims in the early Islamic history is still completely devoted to the development of Islam and the practice of Islam with the best. From then on, the translation of foreign manuscripts into Arabic began to grow. Similarly, Arab translators began to emerge one by one. And slowly the fame of their names can be equated with the famous figures of the Arabs and Persians, such as Ibn al-Muqaffa, Anusyrwan, Bazarjamhar, Ardasyr and others. About the characters of this Arabic translation will be outlined in another section. At the time of

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the Abbasiyah, the culture that most gave color to Arabic translations was the Persian culture. Because the Persian language was at the time of destruction and extinction, the leaders sought to preserve it by translating the writings of their works into Arabic.

### **Literature Study**

This literary study covers major works that provide in-depth insight into the development of science in Islam and its influence on Islamic education. The book "The House of Wisdom: How Arabic Science Saved Ancient Knowledge and Gave Us the Renaissance" by (Al-Khalili, 2011), and "Islamic Science and the Making of the European Renaissance" by (Nurhuda, 2022), explain the role of Islamic science centres and the contribution of Muslim scientists in saving and developing classical science. "Science and Civilization in Islam" by (Masood, 2017), gives a general overview of the relationship of Islam with the development of science. Furthermore, the book "The Rise of Colleges: Institutions of Learning in Islam and the West" by (Makdisi, 2022), examines the development of Islamic educational institutions such as the madrasah and their influence on higher education in the West, while "Islam and Modernity: Transformation of an Intellectual Tradition" by (Hasan, 2016), discusses the challenges of modernization in Islamic education and the need for the integration of contemporary science into the curriculum. The article "Muslim Education in the 21st Century: Prospects and Challenges" by (Paramansyah & SE, 2020), examines the challenges and opportunities for Islamic education in the modern era. The study also includes individual contributions of Muslim scientists such as Al-Khwarizmi with "The Book of al-Jabr wa-l-Muqabala" and Ibn Sina (Avicenna) with "The Canon of Medicine", which show great contributions to mathematics and medicine.

### **Research Method**

The research uses a qualitative approach with descriptive-analytical methods, starting with the study of literature to gather and study literature on the history of the development of science in Islam and Islamic education. Analysis of documents was done against classical Islamic texts, such as the Qur'an and Hadith, as well as works of Muslim scientists from the Islamic golden age (Rusydi et al., 2023). Semi-structured interviews with experts in Islamic education and the history of Islamic science, as well as observations at Islamic educational institutions, help to gather practitioner views and understand current educational practices. The data obtained was analyzed using content analysis techniques to identify the main themes, with the aim of concluding findings related to the development of science in Islam and its influence on Islamic education, as well as providing recommendations for developing a more comprehensive Islamic educational curriculum that is relevant to the developments of contemporary science (Maisarah, 2017).

### **Findings**

The development of science in Islam is one of the most important phenomena in the history of human civilization. Islam not only brings a spiritual dimension to its people, but also drives a very rapid intellectual and scientific development. This period, known as the Islamic Golden Age, occurred around the 8th to 14th centuries AD, during which many monumental works and scientific innovations were born from the Muslim world. In the early days of Islam, the teachings of the Quran and Hadith encouraged the Muslims to seek knowledge and knowledge (Renima et al., 2016). The Prophet (peace and blessings be upon him) said: "Every Muslim is obliged to seek knowledge." This teaching encourages the Muslims to pursue knowledge in various fields. Since the time of Bani Umayyah and Bani Abbasiyah, learning centers and libraries have been established in major cities such as Baghdad, Cordoba, and Cairo. It is here that many Muslim scholars conduct research and develop various disciplines. One of the important

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figures in the development of Islamic science was Al-Khwarizmi, a mathematician known as the father of algebra. His work, "Al-Kitab al-Mukhtasar fi Hisab al-Jabr wal-Muqabala," is the basis of modern algebra. Besides, Al-Khwarizmi's contributions to astronomy and geography are also very influential. Ibn Sina, or known in the West as Avicenna, is another famous figure in the field of medicine. His book, "Al-Qanun fi al-Tibb," has been a major reference in the world of medicine for centuries (Adhikari & Adhikari, 2014).

Besides them, there was Al-Razi, a doctor and philosopher who wrote many books on medicine and chemistry. Al-Razi's contribution to the medical world is very significant, especially in the fields of pharmacology and surgery. Meanwhile, in the field of philosophy, Ibn Rushd, or Averroes, was known for his interpretations and comments on Aristotle's works. Ibn Rushd's thought influenced much of Europe's philosophy in the Middle Ages. The development of science in Islam also gave rise to a profound and comprehensive tradition of scholarship in the Islamic education system. Madrasah-madrasah was established as a learning centre that focused not only on the study of religion, but also on secular sciences such as mathematics, astronomy, medicine, and philosophy. One well-known example is the Madrasah Nizamiyyah in Baghdad, founded by Nizam al-Mulk in the 11th century. It became a model for other Islamic educational institutions around the world. The education system in the madrasahs reflects the integration of science and faith. Students are taught to see knowledge as an integral part of the worship and personal development of a Muslim. This concept comes from the belief that the universe and all its contents are the creation of God, and understanding His creation is one way to approach Him. Therefore, the study of nature and various other disciplines is considered to be an important worship in Islam. Moreover, globalization and advances in information technology also bring new challenges to Islamic education (Shahpesandy et al., 2022).

On the one hand, technological advances make it easier to access knowledge and information, but on the other hand, these advances can also have a negative impact if not treated wisely. For example, the dissemination of inaccurate information or hoaks can interfere with the learning process and the correct understanding of science and religion. It is therefore important for Islamic educators and educational institutions to constantly update their curricula and teaching methods to suit the developments of the times. The use of technology in education, such as online learning and the use of digital media, can be effective tools if used wisely. Moreover, a holistic approach that integrates Islamic values with modern knowledge can help impress a generation of widely knowledgeable and noble Muslims. Overall, the development of science in Islam has made a major contribution to Islamic education. The scientific tradition built by Muslim scholars in the Islamic Golden Age has formed the foundation of a comprehensive and inclusive Islamic education system (Mar, 2024).

Despite the challenges faced, Islamic education continues to evolve and adapt to the changing times, while maintaining the basic values that are its foundation. Thus, Islamic education can continue to play a role in forming a generation of widespread, critical, and noble Muslims, who are ready to face global challenges and contribute to the advancement of human civilization. The influence of the development of science in Islam on Islamic education is still felt to this day. Modern Islamic education systems continue to value and integrate science into their curricula. Examples are many Islamic universities that offer curricula in a wide range of disciplines, from Islamic studies to natural and social sciences. Al-Azhar University in Cairo, the International Islamic University of Malaysia, and the Islamic State University in Indonesia are some examples of higher education institutions that combine Islamic studies with modern science. In addition, an integrative approach to Islamic education also promotes the emergence of critical and innovative thinking. For example, in Indonesia, the concept of Islamic education based on the integration

of science and religion is growing. Many modern trainers not only teach the yellow book, but also modern sciences such as science, technology, and foreign languages. It aims to impress graduates who not only understand religion, but also are able to compete in the global world. However, the advancement of science in Islam also faces challenges. One of the biggest challenges is to maintain a balance between religious studies and secular studies. Some are concerned that excessive emphasis on modern science may reduce the focus on religious studies. Therefore, it is important for Islamic educational institutions to continue to find ways in which these two aspects can go hand in hand and complement each other.

## **Discussion**

### **Flashback to the Development of Science in Islam**

Since Islam first spread throughout the Arabian Peninsula, the Prophet had told the Companions to learn knowledge, especially reading and writing. At that time, according to history, there were only about seventeen followers of the Prophet who could read and write. The ability to read and write at that time was only owned by the intellectual elite. It was no longer a monopoly and spread throughout society on a large scale. In the world of Islamic Wordview, we know that knowledge is actually something very valuable. The most important thing that is sought after and the most valuable than anything else is knowledge. initially, the science that developed in Islam was the science of religion.

However, later the territory of Islam expanded, especially after the death of the Prophet Muhammad. With such a vast territory, Islamic civilisation developed and interacted with other nations, religions and civilisations. Muslims came into contact with Jews, Christians, Mussulmans, Greeks, Romans, Zoroastrians and others, who had different ways of looking at the world. For the purposes of da'wah and argument, the Muslims also studied the sciences that developed in these civilisations, they translated books to study, research, discuss and develop. For example, the caliph Abu Ja'far Abdullah Al-Manshur (r. 735-775 CE) employed translators who translated books on medicine, science and philosophy from Greek, Persian and Sanskrit.

#### **A. History of Science Translation into Arabic**

In Indonesian, the term 'translation' is taken from the Arabic *يُترجمَة - ترجمة - جَمَتُر*

Literally 'translate' is to change or switch languages. While 'translating' is the activity of transferring from one language to another, then the word 'translation' is the result of the process of transferring language to another language. The activity in translating knowledge into Arabic goes through several periods. The periodisation of translation started from the time of the Prophet to the present day.

##### **1. Translation During the Time of the Prophet Muhammad**

During the time of the Prophet Muhammad, translation activities had already begun to emerge and he himself gave a clear example of the importance of mastering foreign languages. Such as sending letters to foreign kings from Persia, Syria, Rome, and the Jews. In addition, translating the Qur'an. In order to spread the teachings of their religion, Muslims are faced with the problem of communication with non-Arabic peoples such as Jews, Romans, etc. This encouraged the Prophet to seek translation and at the same time made him realise the importance of learning foreign languages. This ideal and practical basis built by the Prophet then inspired Muslims in subsequent periods to expand their scientific studies not only on religious sciences but also general sciences that had developed advanced in ancient civilisations, especially Roman and Persian civilisations.

## **2. Umayyad Period**

During the Umayyad period, the initial period of translation was preceded by a period of conquest, in which the Arabs took over areas previously under Roman rule, such as Egypt and Syria in the 7th century. During the Umayyad period, Khalid bin Yazid bin Mu'awiyah pioneered the collection and translation of Greek scholarly literature. This was the first time Muslims came into contact with Greek thought. However, in this early period many Muslims disliked or were even hostile to the heritage of Greek civilisation, and therefore the caliph could not support the translation activities.

## **3. The Abbasid period**

The phase of translation in the Abbasid period was conducted through several phases. The translation phase during this period was conducted in three phases.

### **a. The time of Caliph Al-Manshur**

Caliph al-Manshur was highly respected and loved by the scholars of his time, because of his intelligence. He was also close to the literati, because he was a literary man who worked in various fields of knowledge and was the first Caliph of the Banu Abbas to pay attention to science. He was the one who gathered experts in Astronomy and Architecture and others in his palace. From then on, the activity of translating scientific books from Greek, Syriac and Persian into Arabic began. Not only that, Caliph al-Manshur also enforced the translation of books containing the customs of the Christians and Persians. Among the texts that were successfully translated into Arabic at this time were: the books of Kalilah wa Dimnah and Sandahind. As well as the works of Aristotle, Bartholemy, Ekleles, books of Arithmetic and other books in foreign languages containing knowledge of Nujum. Maths, medicine and philosophy.

### **b. The time of Caliph Harun Al-Rashid**

Harun Al-Rashid was a very famous Caliph of the Abbas, so his name was widely known by other nations and often mentioned in their literature. Throughout his life, he was always interested in everything Persian. And under his leadership, there was a movement to adopt Hellenism. He was also the Caliph who did the most to develop Arab science, especially in translating Greek texts into Arabic.

Though it was very difficult to do, because first the Arab translators must be able to uncover all the secrets of the Greeks in the field of science written in Arabic. Firstly, Arab translators must be able to uncover all the secrets of the Greeks in the field of science written in very complicated Greek. Secondly, they had to translate them into Arabic. And third: they must be able to be creative in the science by making the latest innovations in order to develop the knowledge they already have.

### **c. The time of Caliph Al-Ma'mun**

This period was the last of the glory days of translation in Islam, and it can even be said that its prominence could not be achieved in four centuries. Caliph al-Ma'mun truly surpassed the other Abbasid caliphs in his attention and leadership in this field. He deserved the title because of his skill in leading the translation movement to perfection.

Many accomplished translators emerged during this period such as: Hunain bin Isaac al-Abbady, Yohana bin Masawaih. Ya qub bin Ishaq al-Kindy and Amr bin al-Farkhan al-Thabary. The same is true of their translations. They are known as the results of translation that cannot be matched by the results of previous

translations. Many translators came to Baghdad, which was the centre of translation at that time, from Iraq, Sham, and Persia. Some of them were Christians. Magi. Hinduism and Zoroastrianism.

## Conclusion

The development of science in Islam during the Islamic Golden Age, through the contribution of scholars such as Al-Khwarizmi, Ibn Sina, and Al-Razi, has given rise to a profound and comprehensive tradition of science within the system of Islamic education, which integrates the study of religion and secular science. This influence is still felt in the modern Islamic education system, which continues to value and integrate science into its curriculum. Despite the challenges of globalization and technological advances, Islamic education adapts to the changing times while preserving its core values, thus able to impress a generations of widespread knowledge, criticism, and noble morality.

## Acknowledgment

The author expresses his greatest thanks to edu cendikia: the scientific journal of education for the attention and time that you have spent reading this research and having published this article and I would like to thank UIN Imam Bonjol for his work and the opportunity so that the author can publish our article. May the information presented give us useful insights and enrich our understanding of the development of science in Islam and its influence on Islamic education. With gratitude and respect, I hope that we can all continue to contribute to the advancement of education and science, for the progress of peoples and human civilization.

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