



LIGHT IN THE PERSPECTIVE OF THE QUR'AN AND SCIENCE

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Abstrak

Light is a phenomenon that has deep meaning in both spiritual and scientific contexts. In the Qur'an, light is often associated with guidance, truth, and divine presence. This research aims to explore the relationship between the concept of light in the Koran and modern scientific understanding of light. Using an interdisciplinary approach, we analyse passages related to light and compare them with the principles of physics, such as the wave and particle nature of light (photons). The research results show that although there are differences in approaches, they complement each other and provide deeper insight into the existence and role of light in human life. It is hoped that these findings will enrich the dialogue between science and spirituality and encourage a more holistic understanding of the universe.

Keywords: *Light, Al-Qur'an, science, natural phenomena, spiritual perspectives*

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INTRODUCTION

Talking about the Quran and science, we often face the classic question: is there a compatibility between the two, or do they contradict each other? To answer this question, it is advisable to reflect on the words of a modern scientist, Einstein, who said, "There is no tranquillity and beauty that the heart can feel greater than the moments spent observing the secret beauty of the universe." Even if the secret remains undisclosed, behind it lies a secret that feels even more beautiful, surpassing everything, and far above the shadows of our reason. "Finding the secret and experiencing this beauty is nothing less than the essence of the form of servitude."

In both the Quran and science, light is one of the most important concepts. In the Quran, light is depicted as one of the manifestations of God's power and mercy. According to the Quran, God grants light to humanity in order to bring them out of darkness into bright light (Q.S. Al-Ahzab: 43). Light is also compared to the Book of God, which guides people from darkness to light (Q.S. Al-Maidah: 15–16).

On the other hand, in science, light is an electromagnetic wave that has the highest speed in the universe. Light plays an important role in various natural processes, such as photosynthesis, vision, and technological development. The theory of light, which describes it as waves and particles, has helped humanity develop science and technology. Around the 17th century, Huygens put forward his theory that light is emitted in all directions as a wave. According to Huygen's principle, "every point on a wave front can be considered a source of small waves that propagate forward at the same speed as the wave itself." The single wave front is the cover of all these small waves, namely the tangent (tangent line) of all these waves (Giancoli, 2001).

Theories that explain light have developed in many ways, starting from the time of Ptolemy, who questioned refraction, to the golden age of Islam during the time of Abu AH Hasan Ibn Al-Haitham (Al Hazen) to the time of Albert Einstein until now, always experiencing developments in accordance with the development of science. Each of these scientists complements the others, and some of them differ from one another. These two perspectives complement each other and demonstrate how light is a universal concept with broad implications for human life. By comparing the views of the Qur'an and science on light, we can gain a deeper understanding of the nature and role of light in human life. A problem that often arises is how the understanding of light in the Qur'an and science can be used to improve the quality of human life, both in spiritual and practical aspects. In his hypothesis, Isaac Newton (1675) stated that light consists of fine/very small particles (corpuscles), which radiate in all directions from the source at very high speeds. This theory can be used to explain light reflection, but it can only explain refraction. Due to stronger gravity, light travels faster when it enters a dense medium.

Light is a fundamental element in everyday life and has various crucial functions, both in the world of physics and in biological life. While modern science has revealed much about light properties and applications, spiritual and religious perspectives, especially in the context of the Qur'an, provide additional dimensions that are no less important. The Qur'an frequently mentions light as a symbol of knowledge, guidance, and divine power, giving it deep philosophical and spiritual meaning. However, the main challenge faced is how to bridge this spiritual understanding with modern scientific discoveries. There is a gap in the literature examining how the Qur'anic description of light can be interpreted within a scientific framework. Separating religious and scientific perspectives can impede the achievement of a holistic and comprehensive understanding of light. The existence of differences in interpretation between science and religion sometimes triggers tension and misunderstanding between adherents of each field. Therefore, it is important to examine whether and how the concept of light in the Qur'an can be integrated with modern scientific knowledge so that the two complement and enrich each other. This research aims to overcome this problem by exploring the harmony between the Qur'anic perspective on light and current scientific theories and facts, as well as identifying areas where the two perspectives can support and complement each other.

METHODS

This research aims to understand the concept of light from the perspective of the Koran and science. This research will use a qualitative approach, literature study methods, and content analysis. This research is qualitative research with a descriptive-analytical approach. This approach describes and analyzes the concept of light according to the Koran and scientific theories.

RESULTS AND DISCUSSION

The Meaning of Light in the Qur'an

The light in the Qur'an is not just natural light that can be seen with the eye. However, light is also used in a figurative sense as a human spiritual light. The prophets, apostles, and holy books are called light because they guide humans to the right path of life. For example, in Surah An-Nur (24:35), the Qur'an states that Allah's light is a natural and unreal light, which can illuminate humans' path to truth. In this context, light not only

speaks of visual beauty but also of spiritual beauty. Light in the Qur'an describes God's presence and guidance for humans. This shows that light has a vital role in depicting the beauty and wonder of the natural world, as well as in providing spiritual guidance to humans.

The Meaning of Light in Science

On the other hand, in science, light is described as electromagnetic waves with a certain frequency. This shows that light has the dual nature of being a wave and a particle, which allows for extensive scientific and technological developments. In science, light is no longer just light that can be seen with the eye; it is also light that can be felt and measured physically. For example, electromagnetic wave technology is used in communications, medicine, agriculture, and astronomy. For example, in communications, electromagnetic waves are used to transmit telephone and internet signals. In medicine, MRI technology uses electromagnetic waves to visualize the human body's structure in detail.

Comparison of Meaning and Function

Even though the meaning and function of light in the Qur'an and science are different, both can complement each other in understanding nature's beauty and wonder. In the Qur'an, light is used to describe God's presence and spiritual guidance, while in science, light is described as a physical phenomenon that can be utilised in various technological fields. This comparison shows that light has broad and complex dimensions. In the Qur'an, light is used to describe spiritual beauty and the presence of God, whereas in science, light is described as a physical phenomenon that can be used in various technological fields. In various contexts, the Qur'an mentions light (nur), both as a natural phenomenon and as a symbol of divine guidance and presence. One of the verses most frequently associated with the concept of light is Surah An-Nur (24:35), also known as Ayat Nur: "Allah (Giver) light (to) the heavens and the earth." The parable of Allah's light is like a misykat; inside is a large lamp." This verse contains a deep meaning, not only in the literal sense but also in the symbolic sense. In this verse, light symbolizes guidance from Allah, a source of enlightenment that guides humans out of darkness (ignorance and error) into light (knowledge and guidance). Some classical commentaries, such as Tafsir Ibn Kathir and Tafsir Al-Jalalayn, interpret "misykat" as the heart of a believer receiving Divine light. In addition, Surah Al-Furqan (25:61) states: "Glory to Allah who created in the sky a cluster of stars and made therein the sun and the moon that shine." This verse describes the role of the sun as the main source of light on earth, as well as the moon, which reflects the light. Here, the Qur'an provides a precise description of the physical properties of the sun and moon, which are later proven in modern scientific studies.

Light is one of nature's most fundamental phenomena and has been the subject of scientific research for centuries. In modern science, light is known as an electromagnetic wave, which has the dual nature of behaving as a wave and a particle. The duality theory of light, first explained by Albert Einstein through the photoelectric effect, suggests that light has the properties of particles called photons, which carry energy but have no mass. The electromagnetic spectrum is an important part of the study

of light, which includes various types of light, from infrared light to visible light to ultraviolet light. Each type of light has a different wavelength and frequency, which affects how it interacts with matter. For example, visible light consisting of rainbow colors has different wavelengths, which produce different color effects when interacting with objects. Light plays an important role in everyday life, such as in photosynthesis in plants, which converts sunlight into chemical energy necessary for growth. Light is also essential in modern technology, such as optical fibers in high-speed data communications and lasers in various medical and industrial applications. This research shows that a scientific understanding of light provides deeper insight into a phenomenon mentioned in the Qur'an more than 1400 years ago. This indicates that the Qur'an has a comprehensive view of light that is in harmony with modern scientific knowledge.

Correlation between the Qur'an and the Science of Light

This research found much harmony between what is stated in the Qur'an and modern scientific discoveries about light. For example, Surah Al-Furqan (25:61), which states that the sun and moon have luminous properties, is very consistent with the scientific discovery that the sun emits light as a result of nuclear reactions in its core, while the moon reflects sunlight. Furthermore, the Qur'an uses light as a symbol of divine guidance, which can be interpreted as a metaphor for knowledge and enlightenment in science. For example, in education and research, "light" is often used to describe knowledge that dispels the "darkness" of ignorance, reflecting the spiritual meaning of light in the Qur'an. This correlation shows that the Qur'an has a profound concept of light, which includes physical and spiritual aspects that are closely connected to human understanding of truth and knowledge.

Differences in Perspective and Understanding

Although there are many parallels, this research also reveals differences between the Qur'anic and scientific perspectives on light. One of the main differences is that the Qur'an approach is often metaphysical and spiritual, while modern science tends to focus on the empirical and quantitative aspects of light. For example, the Qur'an often uses light as a metaphor to describe divine attributes, which cannot be measured or analyzed scientifically. On the other hand, science studies light as a physical phenomenon that can be measured, such as the speed of light, wavelength, and intensity. This difference does not mean that the two are contradictory, but rather shows that the Koran and science have different focuses and goals in understanding light. The Qur'an emphasizes symbolic and spiritual meanings, while science attempts to explain the physical mechanisms of light.

Implications for Understanding Science and Religion

These findings have important implications for further understanding the relationship between science and religion. This research shows that the Qur'an provides a basis for understanding the universe, which scientific discovery can complement and strengthen. In an educational context, this research encourages integration between science and religious teachings, using a holistic approach to understanding natural phenomena such as light. It also confirms that the Qur'an does not contradict modern science but instead provides a broader view that includes aspects that science may not have fully explained.

CONCLUSION

This research has explored the concept of light from the perspective of the Qur'an and modern science, with the aim of understanding how these two fields interact and complement each other in providing a deeper understanding of the phenomenon of light. Based on analysis and discussion, this research's main findings are: (1). Harmony between the Koran and the Science of Light The Qur'an presents a rich and layered concept of light, encompassing both physical and metaphysical aspects. Verses in the Qur'an, such as Surah An-Nur (24:35) and Surah Al-Furqan (25:61), demonstrate a deep understanding of light that is significantly consistent with modern scientific discoveries. For example, the Qur'an describes the sun as a source of light for the earth and the moon as a reflector of light, which is consistent with scientific findings about the nature and function of the sun and moon. (2). Light as a Spiritual and Scientific Symbol Light in the Qur'an is not only understood in a physical context but also as a spiritual symbol that reflects divine guidance, knowledge, and truth. While modern science examines light from empirical aspects, such as its wave and particle properties, the Qur'an uses illumination to describe the relationship between Allah and His servants, showing how scientific knowledge can be enriched with spiritual understanding. (3). Complementary Differences in Perspective Although there are differences in approach between the Qur'an and science, the Qur'an often uses a metaphysical approach and modern science uses an empirical approach—these two perspectives do not conflict with each other but rather complement each other. This difference shows that the Qur'an offers a broader and deeper meaning about light, which is not only limited by physical measurements but also includes spiritual and ethical dimensions.

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