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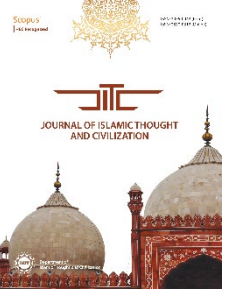
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# Scientific Studies of the Qur'ān in the Contemporary Era: An Analysis of Concept, History, and Methodology

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## Abstract

Significant efforts are made to revive scientific thinking, to require coordination through the application of the holistic elements of al-*Qur'ān's* scientific thinking. Therefore, methods in the scientific research of the *Qur'ān* were adapted according to the times and the development of civilizations. Hence, the current scientific study of the *Qur'ān* focused on the historiography to see its overall development. This study discussed the concept of scientific thought of the *Qur'ān* and its importance to the *I'jāz* of the *Qur'ān*. Additionally, the scholars' position in emphasizing the scientific study of the *Qur'ān* was also presented in this research. Moreover, the adopted method of analysis was library research, which examined the relevant written research materials. The analysis illustrated that the *Qur'ānic* scientific methodology included divine science based on the *I'jāz al-Ilāhī*, social science based on the *I'jāz al-Tashrī'ī*, and natural science based on the *I'jāz al-'Ilmī* and the development history offered comparisons of thoughts, which emerged during the Islamic civilization. Such *Qur'ānic* scientific methodology has led/conducted a deeper understanding of the *Qur'ān* and brought its study/interpretations to the public. Thus, this study is significant for exhibiting the importance of deepening the conceptual connection developed in the *Qur'ānic* scientific study with its historical development. This is to enable the application of epistemological thinking through scientific thinking in fulfilling human needs and the universal universe carefully and harmoniously.

**Keywords:** divine science, natural science, scientific methods, scientific *Qur'ān*, social science, the inimitability of Al-*Qur'ān*

## Introduction

There is no inherent conflict between Islam and science. However, Islam does not deny the role of science as long as it does not restrict the ethical framework of *Sharī'ah* to avoid the misuse for certain purposes. Reasonably, science has the potential to provide solutions to many human problems, primarily those concerning to material science. Osman Bakar emphasized the need to reconcile the role of intellectuals and science in contemporary world.<sup>1</sup> Pervez Hoodbhoy noted that traditionalists among Muslims should be aware that preventing the influence of secular spread on religion by denying science is not the right way.<sup>2</sup> Efforts must be made to reconcile religion and science, keeping in mind the religious framework.

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<sup>1</sup>Osman Bakar, *Tawhid and Science: Islamic Perspectives on Religion and Science* (Shah Alam: Araah pendidikan Sdn Bhd, 2008), 250.

<sup>2</sup>Pervez Hoodbhoy, *Islamic and Science: Religious Orthodoxy and the Battle for Rationality* (Kuala Lumpur: S. Abdul Majed & Co, 1992), 1.

Efforts to revive scientific thought in harmony with religion have been addressed but have not resonated due to their bondage by Western philosophy and its framework.<sup>3</sup> Understanding science is a fundamental approach to understanding the properties of nature. However, human civilization's development requires knowledge of natural science and other social sciences.<sup>4</sup> If science, which should be the will, is being made the goal, then the development of civilization disregards the values of humanity and society is influenced by scientism. Scientism is the understanding that accepts scientific values solely based on the argument of reason, placing the methods of science (systematic, logical, and objective) above all else and rejecting any argument based on religion or culture that cannot be analyzed scientifically.<sup>5</sup> As a result, not only people lose their humanizing values such as religious values and respect but they also would lose their lifestyles based on religious and national cultures.

Therefore, research on developing scientific studies of the *Qur'an* is necessary to establish the epistemology of thought in human civilization. This is especially true with regard to the method of scientific thought in the scientific *Qur'an*. It may improve the efforts of the global community in accepting and applying the guidance of the *Qur'an* according to the current universal needs. With a solid foundation, the epistemology of thinking would develop a clear and vital worldview for building civilization. Clear epistemological thinking is expected to produce an Islamic worldview that produces a science, which is not separated from religion.<sup>6</sup> The practice of science based on the knowledge of revelation leads to a scientific study of the *Qur'an*. By exploring the scientific elements inherent in the study of *Qur'anic* knowledge, the *Qur'an's* viewpoint can be further explained in relation with contemporary science.<sup>7</sup>

## 2. The Concept of Scientific Studies of The Qur'an

The scientific study of the *Qur'an* contains meanings that are closely interwoven with the philosophical concept of the *Qur'anic* science. It focuses on the philosophy contained in the *Qur'an*, which can be linked to scientific knowledge from three major perspectives: divine science, social science, and natural science. Therefore, Intellectual and systematic formulations of certain concepts are required to create a practice for a more directed and guided life.<sup>8</sup>

<sup>3</sup>Baharudin Ahmad, *Falsafah Sains dari Perspektif Islam* [The Philosophy of Science from Islamic Perspectives]. (Kuala Lumpur: Dewan Bahasa dan Pustaka, 2008), xiv.

<sup>4</sup>Mohd Yusoff Hj. Othman, "Sains Tanpa Agama – Buta, Agama Tanpa Sains – Tempang," *Science Without Religion is Lame, Religion Without Science is Blind*, in *Sains, Masyarakat dan Agama*, [Science, Society and Religion], ed. Abdul Salam Yusoff (Kuala Lumpur: Utusan Publications and Distributors Sdn Bhd), 34-35.

<sup>5</sup>Mohd Yusoff Hj. Othman, "Natijah Sains Barat," [Consequences of Western Science], in *Sains, Masyarakat dan Agama*, [Science, Society and Religion], ed. Abdul Salam Yusoff (Kuala Lumpur: Utusan Publications and Distributors Sdn Bhd, 2009), 79; Mohd Yusoff Hj. Othman, "Natijah Saintisme," [Consequences of Scientism], in *Sains, Masyarakat dan Agama* [Science, Society and Religion], ed., Abdul Salam Yusoff (Kuala Lumpur: Utusan Publications & Distributors Sdn Bhd, 2009), 84.

<sup>6</sup>Alparslan Açıkgenç, *Islamic Science towards a Definition* (Kuala Lumpur: International Institute of Islamic Thought and Civilization (ISTAC), 1996), 92.

<sup>7</sup>Selamat Amir, "Elemen Saintifik in Al-Qur'an: Analisis Terhadap Tafsir al-Sha'rawi Karangan Muhammad Mutawalli Al-Sha'rawi" [Scientific Elements in The Qur'an: Analysis of Tafsir al-Sha'rawi Written by Muhammad Mutawalli Al-Sha'rawi]. (PhD thesis, University of Malaya, Kuala Lumpur, 2016), 46.

<sup>8</sup>Ibid., 49.

## 2.1. Epistemology of Islamic Science and Western Science

Muslims must understand science and appreciate religion more fully because the meaning of life and reality is seen differently in this society and has a broader and more coherent perspectives.<sup>9</sup> Islamic scientific methods include empirical and non-empirical methods, while Western scientific methods are purely empirical. Strengthening the epistemology of Islamic and Western sciences (dedicated to modern science) can only be coordinated with the understanding of their historiography. Moreover, a constant philosophy of science is the basis for science to remain firm in its position. From the Western point of view, science does not care about the principle of value, which leads to adverse effects on nature and humanity.<sup>10</sup> Therefore, the West considers science as anything that gives value to human beings when it lies within them. This should be explained to the world as universal harmony, which lies in a clear understanding of the value that man should have.

### 2.2. The Epistemology of the Scientific of the *Qur'an*

The *Qur'anic* scientific study is an attempt to apply the integration of a part of scientific epistemology from the perspective of the *Qur'an*. The scientific study of the *Qur'an* is not subjected to the Western scientific method of thinking. It covers all areas of human life and can be divided into three scientific directions: divine science, social science, and natural science.

#### 2.2.1 Divine Science

Understanding divine science involves the English term 'divine' and the Arabic term 'ulūhiyyah', both have the same meaning of 'divinity'. From the epistemological point of view, divinity can be understood by the meaning of Allah as the God who is worshipped, while other than Allah are not worthy to be worshipped and called God.<sup>11</sup> Divine science brings a significant philosophy in the revival of science, which has created a real value in human life. It is proved that if a human being can know Allah and His rules, this clearly shows the continuity of the divine science in which the human being, knowing God, can worship Him perfectly. A man knows God that determines the retribution for man's good or evil deeds. Al-Kindī also mentioned that the philosophy of divine science or the metaphysical philosophy is the highest and thus declared the fact of the first truth (*al-Haqq al-Awwal*).<sup>12</sup> In this regard, the proof of scientific studies is a tool to explain the greatness of Allah, the Exalted.

Divine science is an element of science based on *tawhīd*, also translated as metaphysical and spiritual science, which is an observation and investigation of things beyond human habits or supernatural matters. It is also known as *Ijāz al-Qaṣaṣī wa al-Khabarī (al-Ghaybī)*.<sup>13</sup> The historiography of science has proven that there are two classes of scientists in this case: scientists who accepted metaphysical elements but rejected the aspect of *tawhīd* altogether. The other is a group of scientists who accepted metaphysics, while using some features of *tawhīd*.<sup>14</sup> Epistemologically, this divine science is clearly seen in the philosophical-scientific thought of the *Qur'an*, which

<sup>9</sup>Ahmad, *Falsafah Sains*, xix.

<sup>10</sup>Mohd Yusof Othman, "Penerokaan Al-Qur'an Melalui Sains [Exploration of The Qur'an Through Science]," in *Wacana Sejarah dan Falsafah Sains: Sains dan Masyarakat* [Discourse of History and Philosophy of Science: Science and Society], ed. Mohd Yusoff Hj Othman (Kuala Lumpur: Dewan Bahasa dan Pustaka, 2009), 642.

<sup>11</sup>Yahaya Jusoh and Azhar Muhammad, *Pendidikan Falsafah Sains Al-Qur'an* [Philosophy of Quranic Science Education] (Johor: Penerbit Universiti Teknologi Malaysia, 2007), 31.

<sup>12</sup>Ibid., 37.

<sup>13</sup>Maḥmud Aḥmad Ghāzī, *Al-Madkhal al-Wajīz Ilā Dirāsah al-Ijāz fī Kitāb al-'Azīz* (Beirut: Dār al-Bashā'ir al-Islāmiyyah, 2010), 217; Amir, "Elemen Saintifik", 94.

<sup>14</sup>Amir, "Elemen Saintifik", [Scientific Elements] 94.

includes the implementation of the thought, philosophy, and essence of certain verses of a divine nature.<sup>15</sup>

### 2.2.2 Social Science

Social Science is based on the word 'social' derived from the 'English language', which means society. It is also derived from the Arabic word *ijtimā'*, which means community, ummah, group or fellowship. Social science specializes in an approach contained in the *Qur'ān* as a result of studies or knowledge related to human behaviour and socio-cultural life in a society.<sup>16</sup> So, the social science concept from the *Qur'ān* is scientifically and explicitly proven in the social field of man to create a person who is aware about the essentiality of social life, which leads to various consequences if ignored.

The description of universal peace also depends on a balanced and orderly social situation. So, this also proves the close connection of social science with divine science. Human behaviour, which is the prime focus of social science studies in the *Qur'ān*, is thematically studied with specific social science interactions according to the suitability of the existing disciplines. The role of social science in contemporary *Qur'ānic* studies is to give a global relevance to this study, regardless of specific limitations and obstacles, such as religion and geography.

### 2.2.3 Natural Science

Through natural science, this study complements the scientific study of divinity and social science as an approach to *Qur'ānic* studies. In Arabic, it is closest to the word al-Kawniyyah. Kawn refers to the components of matter that make up nature. *Al-Kawn al-A'la* is a complete translation of Allah SWT. *Al-Kawnān* refers to the phenomena of the world and the hereafter, while the Arabic community uses the word al-Kawnī to refer to that which is supported by nature.<sup>17</sup> In English, "natural" is a term that refers to the universe. Although there are other terms such as cosmos, the term universe is given a holistic definition in the Encyclopedia Americana, which states that the universe: "Refers to the entire existing entity and process. Based on the meaning of this term, it includes all areas of natural existence, and various sciences such as astronomy, physics, and biology, which contribute to the understanding of man."<sup>18</sup>

Therefore, this study introduces natural science as a medium in the *Qur'ān*, which is inseparable from the knowledge of al-Kawniyyah (knowledge that discusses the general facts of the creation of nature in terms of its occurrence, origin, and state).<sup>19</sup> Epistemologically, natural science forms the basis of the philosophy of natural sciences in the *Qur'ān*. According to Muhammadi, natural sciences are divided into two sub-categories: life science, which deals with living beings in nature, such as humans, animals, and plants and the other is natural science, which deals with inanimate objects, such as rocks, mountains, oceans, wind, stars, and the sun.<sup>20</sup> Natural science studies include biology, chemistry, physics, mathematics, engineering, human nature, animal nature, medicine, and others.<sup>21</sup>

<sup>15</sup>Ibid.

<sup>16</sup>Jusoh and Muhammad, *Pendidikan Falsafah*, [Philosophical Education], 63-64.

<sup>17</sup>Amir, "Elemen Saintifik", 104.

<sup>18</sup>Grolier Incorporated, *The Encyclopedia Americana*, International ed. (Danbury Ct: Grolier, 2000), 27: 777.

<sup>19</sup>Māhir Aḥmad Al-Dawfī, *Ayāt al-'Ulūm al-Kawniyyah* (Beirut: Maktabah al-'Aṣriyyah, 2007), 1:79.

<sup>20</sup>Yahaya and Azhar, *Philosophy Education*, 178.

<sup>21</sup>Ibid., 181.

Therefore, the natural science approach is essential for a better understanding of the *Qur'ān*. 'Natural' itself is often associated with nature, whether *mushāhadah* (real) or the supernatural.<sup>22</sup> Thus, nature is seen as closely related to man because man depends on natural resources, whether limited or non-limited, they are specifically to be used and benefitted from.

### 3. Scientific *Qur'ān*: The Importance and Reasonableness of its use in the Integration of Science and Religion

The importance of the scientific *Qur'ān* is shown holistically, especially because it serves as one of the prime approaches presenting the connection between the *Qur'ān* and life from different angles. This is done in the present context of human civilization, which acknowledges a fact in different terms, thus, makes a man responsible for formulating questions according to the current state of knowledge.<sup>23</sup>

Indeed, more comprehensive studies in the field of the scientific *Qur'ān* require an analytical and critical approach. Muslims must make a scientific assessment of knowledge and reject *Qur'ānic* exegesis that does not conform to the outlined *ḍawābit* (standard). Scientific findings that appear impressive must be examined in detail, whether or not they are related to the interpretations. Osman Bakar also mentioned that the core of attention in Islam is reinforced by protecting human intellect and its correct use.<sup>24</sup>

Other interests are also subject to positive effects expected from this scientific study on the morality and ethics of Islamic science in teaching noble values, especially in the cultivation, appreciation, and practice of these values.<sup>25</sup> The development of an integrated morality goes hand in hand with the development of specific research, which deals with the approaches of the *Qur'ān* and can be presented in the current context. The issue of morality is fundamental as human civilization is constantly challenged by various advances that threaten humanity. This is the focus of Ahmad of Denffer, as pointed out by Ab. Halim. The particular focus was on issues related to the atmosphere of society, Islamic values, and the transformation of culture towards the implementation of Islamic values.<sup>26</sup> Thus, the importance of developing broader research in scientific *Al-Qur'ān* is linked to the validity of the scientific *Qur'ān* in integrating religion and science. It is appropriate to see the willingness of today's world in accepting the scientific *Al-Qur'ān*, considering the progress of human thought, which has evolved by various factors in the changing times.

### 4. The History of the Development of the Scientific *Qur'ān*

In examining the specific history related to the scientific *Qur'ān*, it is necessary to investigate the origin of the *Qur'ān*, namely by contemplating its miracles. This should be considered following the knowledge development of the *I'jāz al-Qur'ān*. It is essential to understand the history of the scientific *Qur'ān* because history is intertwined with the views of nature. These things are subject to the development of the human mind, which views things from related angles, either limited to a particular area or a broader perspective.

<sup>22</sup>Ibid., 180.

<sup>23</sup>Amir, "Elemen Saintifik", 67.

<sup>24</sup>Bakar, *Tawhīd*, 31.

<sup>25</sup>Ab. Halim bin Tamuri, "Al-Quran dan Alam Sebagai Sumber Ilmu Sains in Pendidikan" [Al-Qur'ān and Nature as a Source of Science in Education]" in *Pendidikan Sains Berteraskan Tauhīd* [Science Education Based on Tawhīd] (Bangi: Penerbit Universiti Kebangsaan Malaysia, 2014), 35.

<sup>26</sup>Ibid., 35.

#### 4.1 Development of *I'jaz al-Qur'ān* in the Chronology of the Muslim Civilization

Chronological development should be observed in the ages, which has existed in the process of human development over time. The development of knowledge in those times had a specific goal, primarily, the Muslims' advancement by not just expanding the treasures of scientists in general. Thus, this development could be seen in the period before Islam, the time of the Prophet (*SAW*), the period of logical phenomena, which has witnessed the rise of Islam intellectually, and contemporary times of human beings. Therefore, this study is necessary to indicate the initial historiographical contexts of the study of the *Qur'ān*, which has continued to the present day.

Concerning the historiography of science, which apparently began in the Greek civilization, Islam came up with historiographical submissions of Islamic science and empirical historical evidence that science must have had an earlier starting point than the Greek civilization. According to Islamic historiography, human efforts were the prime reason behind the creation of alphabets and letters, which were later used in writings as an achievement in the field of relations and intellectuals. In this way Allah, the Exalted, revealed the ability to write and read through the prophets and the books, for example, the metal technology of Iskandar Zulqarnayn and the shipbuilding technology at the time of Prophet Noah's (AS).<sup>27</sup> Early civilizations such as the Nile Valleys, Mesopotamia, and Indus showed evidence of early technologies for making fire, pottery, and metal, which the West recognised only as trial and error. They are in line with the Greek civilization, which has its scientific heyday, such as the pre-Sacrotic period, the period of Plato and Aristotle, the Hellenistic period, and the Roman-Greek period. The Roman-Greek period, also called the period of rationality, is one of the crucial points in the world history, as it coincided with the time of the spread of Christianity in Europe.<sup>28</sup> Meanwhile, the civilizations of ancient China, India, and Egypt largely drove the development of technology and knowledge. However, the Greek civilization contributed to the legacy of the logical approach based on the scientific thinking practiced today in the form of documentation.<sup>29</sup>

Times passed by until other civilizations appeared. The world, which experienced the Arab civilization of Jahiliyyah before the advent of Islam faced various challenges. These include the moral difficulties inherent in the Arab culture of the Jahiliyyah, the challenges in mastering literature based on the poems of the Jahiliyyah, the challenges in scientific, and philosophical forms, which were heavily influenced by the Hellenistic civilization. Therefore, the foundation of scientific tradition in Islam goes back to the first century of *Hijra* and is based on the intellect of that time.<sup>30</sup>

Debates on scientific traditions in Islam can be witnessed by examining the values of the *Qur'ānic* miracles from the time of the Prophet (*SAW*). Prophet Muhammad (*SAW*) always clarified to his Companions (RA), when they could not understand things, such as the meaning of the *Qur'ān*. At the same time, the pioneer in continuing the scientific study of the *Qur'ān* was the knowledge of the *balaghah* of the *Qur'ān*.<sup>31</sup> However, the Companions (RA) did not focus on the linguistic aspects

<sup>27</sup>Hairudin Harun, *Daripada Sains Yunani kepada Sains Islam* [From Greek Science to Islamic Science] (Kuala Lumpur: Penerbit Universiti Malaya, 2007), 36.

<sup>28</sup>Ibid., 39.

<sup>29</sup>Mohd Yusof Hj Othman, "Sains Islam: Mengimbu Zaman Silam Meneroka Masa Depan" [Islamic Science: Recalling the Past Exploring the Future]" in *Pendidikan Sains Berteraskan Tauhid* [Science Education Based on Tawhid], ed., Khalijah Mohd Salleh (Bangi: Penerbit Universiti Kebangsaan Malaysia, 2014), 14.

<sup>30</sup>Açikgenç, *Islamic Science*, 63-64.

<sup>31</sup>Hājī Khalīfah, *Kashf al-Zunūn 'An Asami al-Kutub wa al-Funūn* (Beirut: Dār al-'Ulūm al-Hadīthah, t.t), 1: 120.



of the *Qur'an* as this was not the primary need of the time and whatever was transmitted from the Prophet (*SAW*) was sufficient.<sup>32</sup>

Prophet (*SAW*) sayings were also practiced in the early days of Islam. The history of Muslim conquests over others were driven by the idealism of the *Qur'an*, not by materialism nor lust. The *Qur'an* teaches Islamic war ethics, such as protecting children, women, the elderly, and the weak. Likewise, trees, property, places of worship, and treasures of the knowledge must be preserved and not destroyed. Moreover, the contribution of intellect and learning is a way of self-salvation taught in Islam based on the teachings of the *Qur'an*.<sup>33</sup> The time of Mecca and Medina also played a vital role in the revival of knowledge in the following era. The beginnings of Islam showed that the knowledge development was advanced and oral knowledge was dominated at first, which then developed into a written tradition.<sup>34</sup>

The historiography of Islam, inspired by the teachings of the *Qur'an*, can be traced in the citations of al-Mas'ūdī (d.956) and Sa'īd al-Andalūsī (d.1070).<sup>35</sup> In the past, science and technology development paralleled the teachings of Islam under competent Muslim leadership. However, when Muslim leaders ignored Islamic teachings through abuse of power, Islam was overthrown by the Mongol invasion in 1258 CE. Around the 8th century, the Muslim community was awakened by the contributions and merits of Islamic scholars of that time.<sup>36</sup> In the 15th century, after the victory of Islam in Spain, Islam recovered with further advancement. Human civilization grew and stirred with different perspectives, philosophies, and principles due to the awakening of different civilizations at different times.<sup>37</sup>

Islamic science is the knowledge of understanding natural phenomena in the form of Islamic civilization. The scientific and technological activities are worth mentioning as they started much earlier, even before the advent of Islam. Due to this, the heyday of Islamic science is believed to have taken place between 700 AD-1350 AD. The development of Islamic science was seen in the 'Abbāsiyyah period, especially during the time of al-Ma'mūn. This era was influenced by Mu'tazi's thought, which was more rational and logical.<sup>38</sup> Translation from Greek civilization into Arabic was rapid, which encouraged research progress. The phenomenon of logic here was related to the age of foreign knowledge transfer to the Muslim community. Khalid bin Yazid, the grandson of Mu'āwiyah, ordered the translation of books on chemistry from Greek civilization into Arabic.<sup>39</sup> The translation was done immediately for medical knowledge. As a result, the rapid translation at the time of Caliph al-Ma'mūn, the library of Dār al-Ḥikmah was established. Waqf property was given to those who performed full-time translation. The translation was an alternative way to maximize available time and mastery of knowledge more effectively and quickly. Mahmood Zuhdi said that in knowledge transfer, the priority was to write practical patterns, such as mathematics, astronomy, and medicine.<sup>40</sup>

There are several names that contributed so much to the science of Islam and confirmed the scientificity of the *Qur'an*. They looked at the values taught in the *Qur'an* from the scientific point of view, which are divinity, society, and nature. These names include Jābir bin Ḥayyān (721-815 CE.

<sup>32</sup>Amir, "Elemen Saintifik", 73.

<sup>33</sup>Harun, *Daripada Sains*, 44.

<sup>34</sup>Açikgenç, *Islamic Science*, 64-65.

<sup>35</sup>Ibid., 13.

<sup>36</sup>Othman, "[Islamic Science: Re-calling]", 12.

<sup>37</sup>Ibid., 13.

<sup>38</sup>Ibid., 16.

<sup>39</sup>Mahmood Zuhdi Ab. Majid, *Tokoh-tokoh Kesarjanaan Sains Islam* [Figures of Islamic Science Scholars] (Kuala Lumpur: Dewan Bahasa dan Pustaka, 2003), 17.

<sup>40</sup>Ibid., 18.



C.E.) and al-Rāzī (865-925 C.E.) through their contributions in chemistry, Ibn Sīnā (980-1037 C.E.) in medicine, al-Kindī (801-873 C.E.) in physics, al-Birūnī (973-1050 C.E.) in various fields of science, and Ibn al-Haythamī (965-1039 C.E.) in optics. This proves that Islamic scholars pioneered these sciences, while Western scholars emerged later in the history. Among the Western scholars, Isaac Newton (1642-1727 AD) was in the same field as Ibn al-Haythamī, Copernicus (1473-1543 AD) and Galileo Galilei (1564-1642 AD) in the same field as al-Baṭṭānī and al-Birūnī, and later Francis Bacon (1561-1626 AD) in the scientific methods as Ibn Sīnā and al-Haythamī. The chronology of time also proved the superiority of Islamic science, which is the basis for the development of scientific sciences in human civilization.<sup>41</sup> Considering the development of Islamic science, which has continued with the scientific study of the *Qur'an*, it is also necessary to consider the history of the *I'jāz al-Qur'an* development, which was simultaneous and parallel. Knowledge of the *I'jāz al-Qur'an* was advanced in the early third century of the *Hijra* by several Islamic scholars, such as 'Alī ibn Rabn al-Ṭabarī, al-Nazzam, and al-Jāhiz. Al-Jāhiz was known through his work entitled *Nazm al-Qur'an* but it is not accessible in our time. Meanwhile, in the fourth century of the *Hijra*, scholars like Muḥammad ibn Yazīd al-Wāsiṭī, al-Rummānī, and al-Khaṭṭābī emerged in the field of scientific *Qur'anic* study. However, in the fifth century of the *Hijra* was predominantly covered by the advent of al-Jurjānī and al-Bāqillānī. It was known as the golden age with the emergence of many scholars who wrote works on the *I'jāz al-Qur'an*. In the sixth century, al-Ghazzālī and al-Zamaksharī emerged among others. Some famous scholars in the seventh century of the *Hijra* were al-Rāzī and al-Sakkākī. *I'jāz al-Qur'an* was actively discussed in *balāghah* debate, *faṣāḥah* and al-*I'jāz bi al-Nazm* by Ibn al-Qayyim al-Jawziyyah, al-Zarkashī, Ibn Kathīr, and many others. However, from the ninth until the 13th century of the *Hijra*, the debates on the *I'jāz al-Qur'an* were not as lively as in the previous centuries. Mainly, they focused on repeating and collecting previous opinions. Towards the 14th century of the *Hijra*, this era showed valuable additions in the study of the science of the *I'jāz al-Qur'an* or the emergence of new and independent ideas. Henceforth, it was recognised as the second golden age in the development of the science of the *I'jāz al-Qur'an*. Among the scholars who ushered in this era were Tanṭāwī Jawhārī, Muḥammad Mutawallī al-Sha'rāwī, and Muḥammad 'Abdullāh Dirāz.<sup>42</sup>

The present era is so synonymous with the second golden age. Among the Islamic scholars who affirmed modern science, while adhering to the teachings of the *Qur'an* and hadīths without neglecting religious values, are Sayyid Jamāl al-Dīn al-Afghānī, Muḥammad' Abduh, and Rashīd Riḍā.<sup>43</sup> Al-Afghānī even asserted that there is no incompatibility between science and the fundamentals of *tawhīd*.<sup>44</sup> Therefore, it is not permissible for Muslims to reject science, while the *Qur'an* is a source of science. Undoubtedly, in today's world, there are current challenges against, which science and technology are measured to judge the greatness and wisdom of human civilization. This has become increasingly evident in the last two centuries, which showed an obsession with science and technology in the development of man and his civilizational development.<sup>45</sup> Thus, the practice of science and technology is increasingly disappearing from the value of *tawhīdīk*, which plays a vital role in restoring the real values demanded in religion. This is because science and technology, or knowledge in general, can be something useful rather than adding harm to the chronology of human civilization. Obsession without a clear direction in the human reflection of the science and technology development is the destruction of spiritual and moral values. On the other hand, it can be observed that material power today affects all aspects of life. Therefore, it is necessary

<sup>41</sup>Othman, "Sains Islam," [Islamic Science], 16-17.

<sup>42</sup>Ṣalāh 'Abd al-Fattāh al-Khālīdī, *al-Bayān fī I'jāz al-Qur'an* ('Amman: Dār 'Ammār, 2014), 104-121.

<sup>43</sup>Bakar, *Tawhīd*, 220.

<sup>44</sup>Ibid., 228.

<sup>45</sup>Ibid., 243.

to master the study of the *Qur'an*, especially the scientific *Qur'an*, when facing opposition in various provocative issues.

Certainly, Islamic scholars have mastered their respective fields of expertise to correct and free human thought from influences, which exceed its limits, such as the secularisation of knowledge<sup>46</sup>, the concept of openness in science, and the cultivation of rational principles.<sup>47</sup> Those who have used their expertise to restore the value of *tawhīd* in human life are Yūsuf al-Qaradāwī<sup>48</sup>, Muḥammad al-Ghazzālī, Muḥammad Ḥusayn al-Dhahabī, Sa'īd Ramadān al-Būtī, Shawqī Abū Khalīl, and Muḥammad Muṣṭafā al-A'zamī.<sup>49</sup> In realising these *tawhīd* values, it is the duty of Islamic scholars and the general public to ensure better humanitarian development.

## 5. Islamic Scholars' stance and Methodology on the Scientific *Qur'an*

### 5.1 The Methodology of Scientific *Qur'an* in Contemporary Times

In general, the highlighted methodology of scientific *Qur'an* involves rules or principles used in determining the debate on scientific elements, which include divinity, social, and natural sciences in the *Qur'an*.<sup>50</sup> Thus, the methodology of the scientific *Qur'an* is to lay down the foundation the Divine (God's centre) as the main priority in planning the development, activities, and application of science, as well as accept foreign ideas that follow the conditions.<sup>51</sup> This attitude is to maintain *maslahah* and avoid *mafsadah*, as contained in *maqāṣid al-sharī'ah*. The scientific *Qur'an* methodology is known as the science of *tawhīdiyyah*, which is the basis for building science on the foundation of *tawhīd* by returning to Allah, the Exalted, as the Creator.

The science of *tawhīdiyyah* is fundamental to the scientific study of the *Qur'an*.<sup>52</sup> The structure of this methodology comprises three basic units: Allah (God), man, and nature. The *Qur'an* and the hadiths of the Prophet Muhammad (*SAW*) form the basis for the science of *tawhīd*. The science of the *tawhīd* becomes a component of the model of science, which comprises three main points: epistemology, methodology, and scientific activities.<sup>53</sup> Humanitarian civilization derived more benefit from this model of science, characterised by the science of *tawhīd*. The methodology of the scientific *Qur'an* cannot be separated from the framework of *tawhīd* science. Thus, some Islamic scientists have mastered in various sciences and technologies, as well as the realm of divine knowledge. They include al-Kindī, al-Rāzī, and al-Baytar. Unlike Western thought, which separated religion from the other sides of universal life, Islam emphasised the model of *tawhīdīk* science so, that universal balance and harmony can be holistically managed and shaped.<sup>54</sup> This model

<sup>46</sup>Harun, *Daripada Sains*, 10.

<sup>47</sup>Ahmad, *Falsafah Sains*, 152.

<sup>48</sup>Yūsuf al-Qaradāwī brings real understanding through his work *Kayf Nata'āmal Ma'a al-Qur'an al-'Azīm*. Among the examples of clues in the Quran on social matters (*jihād*, morality, legal verse) indirectly. See Yūsuf al-Qaradāwī, *Kayf Nata'āmal Ma'a al-Qur'an al-'Azīm* (Cairo: Dār al-Shurūq, 2000), 451-452.

<sup>49</sup>Tengku Intan Zarina Tengku Puji and Mazlan Ibrahim, [Allegation and Criticism of the Qur'an and Qur'anic Exegesis] in *Penyelewengan in Tafsīr al-Qur'an* [Distortion in Qur'anic Exegesis] in *Penyelewengan in Tafsīr al-Qur'an* [Deviations in Tafsīr al-Qur'an] (Bangi: Penerbit Universiti Kebangsaan Malaysia, 2017), 59.

<sup>50</sup>Selamat, "Elemen Saintifik", 81.

<sup>51</sup>Bakar, *Tawhid*, 96.

<sup>52</sup>Amir, "Elemen Saintifik", 83.

<sup>53</sup>Ibid., 84.

<sup>54</sup>Ahmad, *Falsafah Sains*, 88-89.

emphasised the nature of God's servanthood in scientists and scholars, as well as declared God's majesty as the universe's creator and administrator.

## 5.2 Examples of *Qur'ānic* Scientific Application

In presenting examples of methodological application of the scientific *Qur'ān* between divinity, social science, and natural science, they intertwined and form a universal cohesion. An example from the perspective of social science is the verse: "The believers are but brothers, so reckon between your brothers. And fear Allah so that you may receive mercy."<sup>55</sup> The verse can be termed as social capital, which appeared in the phrase '*Ikhwah*'. The concept of *Ikhwah* became the basis for the formation of the social capital of society. The idea of social capital is relevant to creating value in various spheres of life, including education and business. Social capital becomes a parallel source of interest with physical, financial, and human capital to build a more developed nation.<sup>56</sup>

The debate on social capital in the context of *Qur'ānic* studies is limited and not as extensive as that of Western scholars. The social, political, and economic issues are conceptually and practically advanced by them. In *Qur'ānic* studies, the development of social capital requires time and energy. Its development should be as important as that of human and physical capital. Social capital is defined as the level of trust, communication, relationships, cooperation, and norms of life that are fostered, formed, and shared by at least two specific individuals or groups within the social framework.<sup>57</sup>

According to the *Qur'ān*, an example that can be highlighted is an institution that has developed an excellent social network and the value of trust between individuals, thereby, doing a better job than social networks with less trust.<sup>58</sup> Malik Bennabi argued that the stronger the spiritual or religious relationship, the lower the social void and the higher the value of any social unit.<sup>59</sup> From a social science perspective, the verse is about the importance of the *Ukhuwwah* that Islam entails, which can develop holistic relationships within the community, leading to the effects of building significant social capital.<sup>60</sup> This is understood from the mandate for people to develop determination so that they can resolve conflicts, as well as fear God. The verse is also explained as God's promise to the God-fearing. Thus, social capital strengthened based on *taqwa*, which is a factor for Allah's blessings to His servants.<sup>61</sup> The methods inherited in this verse brought the implementation of a holistic social capital.

An example of natural science is found in Surah al-Waqi'ah, verses 75-76: "Then I swear by the setting of the stars, And indeed, it is an oath - if you could know - [most] great." The scientific focus of the verse is the oath of Allah, the Exalted, on the cycle of the stars. This verse contains, like other things, the components of astronomy. Overall, the knowledge of astronomy, known in Arabic as *Ilm al-Falak*, is a discipline that deals with the movement, course, and distribution of stars, as well as celestial bodies or other planets.<sup>62</sup> The astronomers of the Babylonian civilisation had been studying the horizon and noted the position and movement of the sun and stars since 1900 BC. On the other hand, the Greeks succeeded in making astronomy more scientific and emphasized its mathematical aspects.<sup>63</sup> Anaximenes (d. 525 BC) and Heroditus (d. 425 BC), as well as Ptolemy

<sup>55</sup>Al-Hujurat 49: 10.

<sup>56</sup>Amir, "Elemen Saintifik", 297-298.

<sup>57</sup>Ibid., 300.

<sup>58</sup> Ibid., 302.

<sup>59</sup>Malik Bennabi, *Fenomena al-Qur'ān*, [Phenomenon of the Qur'ān], trans. Rosiyah Abd. Latif (Kuala Lumpur: Institut Terjemahan Negara, 2008), 70

<sup>60</sup>Amir, "Elemen Saintifik", 317.

<sup>61</sup>Ibid., 317.

<sup>62</sup>Amir, "Elemen Saintifik", 465.

<sup>63</sup>Majid, *Tokoh-tokoh*, 92-93.

Claudius (d. 170 BC), were among the personalities honored by Western scholars for their contribution to astronomy. In the days of Abū Ja'far al-Manṣūr (d. 154 H/771 CE), the works of Sendhanta (al-Sind Hind) and Almagest (al-Mijisti) were consulted. Among these Islamic scholars, the ablest personalities in astronomy were al-Baṭṭānī (p. 317 H/929 C.E.), Ibn Bajjah al-Andalūsī (d. 533 H/1138 C.E.), and al-Qazwīnī (d. 682 H/1283 C.E.).<sup>64</sup>

The central word in unravelling natural science in the verse is (مَوَاقِعُ النُّجُومِ), which was interpreted by the earlier and contemporary exegetes. Qatādah and Ibn Abā Rabāḥ stated that *Mawāqī' al-Nujūm* is the place of the passage of the stars.<sup>65</sup> Ibn Kathīr referred to it as a path of stars that becomes a place of rising and shining.<sup>66</sup> Al-Marāghī explained it as the place where the stars fall and set in the sky.<sup>67</sup> Zaghāl al-Najjār described in detail the definition and specified that the stars are located on the ecliptic and even explained the wisdom behind Allah's oath to *Mawāqī' al-Nujūm*. There is a reference to His knowledge that there are no limits to the universe and the discovery by scientists that the closest star to earth is the sun, followed by al-Qantūrī (Proxima Centauri). What is seen from earth is not the physical nature of the star but rather a cluster of stars orbiting in its path. The reference to the place where the stars orbit proves the validity of the denial upon the classical scientists' declaration of the earth as the centre of the universe.<sup>68</sup> The use of *qasam* (oath) in this verse shows Allah SWT's extensive knowledge of unseen things. It is also a response to the disobedience of the disbelievers to the bounty of Allah, the Exalted, as in the previous verse. *Qasam* is also significant when associated with great and wondrous things. Moreover, what Allah, the Exalted, has used *qasam* as a matter known to the Arabs in connection with their *uslūb* of that time. Added to this is the use of (ل), which served as *la al-zā'idah* (addition) and *ta'kīd* (affirmation) in *qasam* (oath).<sup>69</sup> In this respect, *ishārāt* proves the *Qur'an* miracle in this verse, just as every discovery of the *I'jāz al-Qur'an* with the discovery of the ecliptical component in the zodiacal element strengthens the great *Qur'an*.

## 6. Analysis of the Relevance of Concept and History in Developing the Scientific Study of the *Qur'an*

The reality in the contemporary time showed the development of science as mentioned by Toby E. Huff (1995) in Othman's study with the following premises: scientists need to be confident and believe that nature is in a particular order. Secondly, the argument scientifically assumed that man can give the reason for the natural phenomenon, which he observed. The philosophy of natural science also assumed that both men and women, in the East or the West, are allowed to use their intellectual power, which allows them to ask questions and give reasons about a phenomenon observed. Finally, scientists concluded that man must be allowed and given the freedom to ask questions, question traditional practices based on scientific discoveries and challenge the validity of arguments presented in religious books through scientific methods.<sup>70</sup>

This conclusion is the result of separating science and religion until the emergence of the philosophy of scientism with paradoxes in human civilization today. Hence, it is appropriate to say

<sup>64</sup>Ibid., 96-100.

<sup>65</sup>Al-Qurtūbī, *al-Jāmi' li Ahkām al-Qur'an* (Kaherah: Dār al-Hadīth, 1994), 9:185-186.

<sup>66</sup>Ibn Kathīr, *Tafsīr Ibn Kathīr* (Saudi Arabia: Dār al-Salam, 2004), 4: 2759.

<sup>67</sup>Al-Zamakhsharī, *Tafsīr al-Kashshāf* (Beirut: Dār al-Fikr, 1994), 15: 187-188.

<sup>68</sup>Zaghāl al-Najjār, *Tafsīr al-Āyah al-Kawniyyah fī al-Qur'an al-Karām* (Cairo: Maktabah al-Shurūq al-Dawliyyah, 2007), 3: 421.

<sup>69</sup>Amir, "Elemen Saintifik," 359-360.

<sup>70</sup>Mohd Yusof Hj. Othman. "Sains Islam: Mengimbau Zaman Silam Meneroka Masa Depan," [Islamic Science: Calling on the Past and Exploring the Future], in *Pendidikan Sains Berteraskan Tauhid*, [Science Education Based on Tawhīd] ed. Khalijah Mohd Salleh (Bangi: Penerbit Universiti Kebangsaan Malaysia, 2014), 21.

that the scientific study method of the Qur'an is featured more, prominently for its acceptance, globally in an age that places great importance on scientific methods in proving the fields of life, specifically in treating significant world issues. The implication that all humankind has to face globally is the instability of ecosystems, such as flash floods, landslides, and major tsunami waves. Secondly, economic issues are affected by capitalism, so people exploited the existing financial system. This reinforces the legitimacy of the world to have an economic system that is monotheistic (*tawhidik*) and does not harm any party. Thirdly, social issues, especially moral values, are worsening over time so that the younger generation does not have a firm moral hold. Lastly, political issues that comprise the main agenda of involving science and technology, so that the noble values, which must be developed through them were ignored and sidelined.<sup>71</sup>

These series of issues would only be solved by solutions from religion, which can view the scope of life more broadly and monotheism. The importance of science and technology presented by Western scholars has never been denied by Islamic scientists. The fundamental difference between Islamic and Western scholars is that the former place, the belief that natural phenomena do not occur absolutely, like fire can only burn with God's permission.<sup>72</sup> The resolution of this comprehensive religious framework in human life is dedicated to the scientific study of the *Qur'an*, which has proven to be observable and experienced by Muslims and those who adhere to other religions. Here is the *Qur'an's* role in guiding the global world without any boundaries.

Presenting various appropriate solutions in the current context requires the research of a proficient and expert group to see a close correlation between the scientific concepts of the *Qur'an* and historical values in the scientific development of the *Qur'an*. In this context, not only scientists and scholars from all over the world need to understand the importance of connecting the two but also the community in general. This is to ensure that the concepts established in this era would stand firmly following the awakening of civilization to coincide with God's demands in the teachings of the *Qur'an*. This requires the cooperation from all parties to see the importance of developing the present civilization to create a good history for the future.

The history of the former has formed a growing and developed understanding. Knowledge and cultural development are factors of various methodologies in *Qur'anic* interpretation. The inheritance and improvement of the previous historical chronology have taught humankind the values of humanity in religion and its importance in nourishing a civilization that adheres to the values of *tawhidik*, not only in religious matters but also in all areas of life. This proves the nature of Islam, which is universal and fixed in principle but it would always follow the era and the place that it occupies. The principle of grounding the scientific method of the *Qur'an* in the *Qur'anic* interpretation methodology lies in its priority to achieve *Maqāṣid al-Sharī'ah*, which conforms to the standards outlined by scholars. A more thorough study of the scientific *Qur'an* can deal with *I'jāz al-Qur'an* following its current method.

## 7. Conclusion

It is an essential need for human civilization to emphasize the concept of the scientific study of the *Qur'an* to meet its current needs, which require scientific data to confirm every fact. This necessitates harmonization of the knowledge of understanding the *Qur'anic* interpretations and current scientific knowledge. Therefore, meeting this requirement is essentially important to understand the *Qur'an's* message and its miraculous nature, while also countering the allegations and contentions of scientists and contemporary secularists, which challenged its sanctity. The unity of *Qur'anic* scientific methodology includes divine science based on the *I'jāz al-Ilāhī*, social science based on the *I'jāz al-Tashrī'ī*, and natural science based on the *I'jāz al-'Ilmī*. The intellectual

<sup>71</sup>Ibid., 24.

<sup>72</sup>Ibid., 25

capacities of the current age, made *Qur'ānic* interpretations achievable for the scientific study of the *Qur'ān* to occupy a new space, globally.

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Author(s) declare that they have no conflicts of interest.

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