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THE CONCEPT OF ISLAMIC SCIENCE ACCORDING TO ALPARSLAN ACIKGENC: A STUDY ON CONTEMPORARY ISLAMIC EPISTEMOLOGY

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ABSTRACT

This article delves into the concept of Islamic science as articulated by Alparslan Acikgenc, a contemporary issue in Islamic epistemology. The study is set against the backdrop of the impact of secular Western science and the dominance of the Western modern science paradigm, rooted in Western philosophy, values, and culture. This context highlights the fact that science is not neutral but inherently value-laden, which calls for a deeper exploration and development of Islamic science. Alparslan Acikgenc, a notable Islamic scholar, provides a definition of Islamic science that is intricately linked to the Islamic worldview, which serves as a fundamental framework for Islamic science.. Firstly, Alparslan posits that a scientist's worldview is inseparable from the science they produce, indicating that the underlying beliefs and perspectives of scientists shape their scientific output. Secondly, he argues that a systematic Islamic worldview is necessary for the development of Islamic science, suggesting that without this foundational basis, the science produced will not align with Islamic principles. Thirdly, Alparslan acknowledges that while these definitions are not universally absolute, they hold conventional universality. This means that despite potential differences in opinions among scientists, as long as they share the same worldview, the resulting science will be consistent and coherent. This research underscores the importance of developing Islamic science within its own epistemological framework, thereby challenging the hegemony of Western scientific paradigms and highlighting the significance of cultural and philosophical values in shaping scientific knowledges.

Keywords: *Islamic science, Alparslan Acikgenc, Islamic epistemology, Western science, Islamic worldview, value-laden science.*

ABSTRAK

Artikel ini membahas konsep sains Islam yang diartikulasikan oleh Alparslan Acikgenc, sebuah isu kontemporer dalam epistemologi Islam. Kajian ini dilatarbelakangi oleh dampak sains Barat sekuler dan dominasi paradigma sains modern Barat, yang berakar pada filosofi, nilai, dan budaya Barat. Konteks ini menyoroti fakta bahwa sains tidaklah netral, tetapi secara inheren sarat dengan nilai, yang membutuhkan eksplorasi dan pengembangan sains Islam yang lebih dalam. Alparslan Acikgenc, seorang cendekiawan Islam terkemuka, memberikan definisi sains Islam yang terkait erat dengan pandangan dunia Islam, yang berfungsi sebagai kerangka kerja mendasar bagi sains Islam. Pertama, Alparslan berpendapat bahwa pandangan dunia seorang ilmuwan tidak dapat dipisahkan dari ilmu pengetahuan yang mereka hasilkan, yang mengindikasikan bahwa keyakinan dan perspektif yang mendasari para ilmuwan membentuk hasil ilmiah mereka. Kedua, ia berpendapat bahwa pandangan dunia Islam yang sistematis diperlukan untuk pengembangan ilmu pengetahuan Islam, menunjukkan bahwa tanpa dasar yang kuat, ilmu pengetahuan yang dihasilkan tidak akan sejalan dengan prinsip-prinsip Islam. Ketiga, Alparslan mengakui bahwa meskipun definisi-definisi tersebut tidak bersifat absolut secara universal, definisi-definisi tersebut memiliki universalitas konvensional. Artinya, meskipun terdapat potensi perbedaan pendapat di antara para ilmuwan, selama mereka memiliki pandangan dunia yang sama, ilmu pengetahuan yang dihasilkan akan konsisten dan koheren. Penelitian ini menggarisbawahi pentingnya mengembangkan sains Islam dalam kerangka epistemologinya sendiri, sehingga menantang hegemoni paradigma ilmiah Barat dan menyoroti pentingnya nilai-nilai budaya dan filosofis dalam membentuk pengetahuan ilmiah.

Kata kunci: *Sains Islam, Alparslan Acikgenc, epistemologi Islam, sains Barat, pandangan dunia Islam, sains yang sarat nilai.*

A. INTRODUCTION

The discourse surrounding the philosophy of science and contemporary epistemology has had a distinct and noteworthy progression. Before the emergence of modern science, the field of science was acknowledged as a realm of knowledge that underwent progressive development.[1] The advancement of scientific knowledge has had a profound influence on a wide range of academic disciplines, including astronomy, geography, physics, mathematics, cosmology, biology, medicine, pharmacy, architecture, education, zoology, botany, engineering, and numerous others.[2]

All of these disciplines contribute to the advancement of human civilization. Furthermore, it serves as a representation of the advancements in science and technology that propel individuals into a state of modesty and reverence for intellectual pursuits. Typically, the scope of knowledge is commonly confined to empirical knowledge. However, within the Islamic framework, knowledge encompasses not only empirical knowledge, but also metaphysical and supernatural knowledge.[3] Currently, science was regarded as significant due to its profound influence on the philosophical underpinnings of human cognition. The emergence and evolution of the discipline of Islamic science is readily apparent in its enduring impact on contemporary society.

The terms "Islamization of Knowledge" and "Islamic Science" are frequently employed and subject to ongoing discussions at present. During

[1] M. Y. Othman, *Sains Dalam Ekosistem Ilmu* (Kuala Lumpur: Dewan Bahasa dan Pustaka, 2017), 43.

[2] S. M. S. Shaikh Mohd Salleh and Azizan Baharuddin, "Significance of Science and Scientific Thought from the Islamic Perspective," *Centre of Quranic Research International Journal*, 2011, 75.

[3] R. Awang, *Philosophy of Science and Development in a New Dimension* (Skudai: Penerbit Universiti Teknologi Malaysia, 2003), 31.

the 1960s and 1970s, prominent scholars such as Seyyeed Hossein Nasr, Syed Muhammad Naquib al-Attas, and Jaafer Sheikh Idris engaged in scholarly discourse pertaining to the subject of Islamic Science. Isma'il Raji al-Faruqi and Seyed Ali Ashraf emerged as notable figures in this particular domain throughout the 1980s. The inaugural World Conference on Muslim Education took place in the city of Mecca during the month of April in the year 1977. During the conference, a multitude of eminent experts from many global regions brought attention to the process of Islamisation in a wide range of academic subjects.

In recent decades, the International Institute of Islamic Thought based in Virginia, USA, and with branches in various global capitals, has engaged extensively in this field. In addition, numerous international conferences have addressed this topic in both Islamic and Western countries, while several scientific journals have emerged. The American Journal of Islamic Social Sciences (USA), Journal of Islamic Science (India), Muslim Education Quarterly (UK), and other publications have covered this topic. Furthermore, many books and journals have been published which deal with this subject.[4] These facts suggest that the discussion surrounding the Islamisation of science and the sustainability of Islamic science is currently a widely discussed topic.

The idea of Islamisation of science and Islamic science spearheaded by Muslim scholars is based on at least two issues. First, the secularisation of science that has a negative impact to Islam.[5] From an ontological

[4] M. S. Hanapi and S. Said, "Philosophy Of Islamic Science: A Literature Study, Role(s) and Relevance of Humanities for Sustainable Development," in *European Proceedings of Social and Behavioural Sciences*, 2019, 316, https://doi.org/https://doi.org/10.15405/epsbs.2019.09.34.

[5] Harvey Cox, *The Secular City* (New York: McaMillan Company, 1965), 25; Wan Mohd Nor Wan Daud, *Islamisasi Ilmu-Ilmu Kontemporer Dan Peran Universitas Islam*

perspective, science views nature and its laws, including humans, as material beings without the intervention of God. This could potentially discredit and negate God's role in science. From an epistemological perspective, science does not consider text or revelation as sources of knowledge due to doubts and distrust of them as references in advancing and developing science. However, this perspective does not align with Islamic views. Meanwhile, in the axiological aspect, the West does not associate the advancement of science with values, morality, spirituality, and religiosity. It is based on the separation of God from science and the discrediting of text (revelation) in science.[6]

Second, the hegemony of Western modern science paradigm coupled with the rapid development of science today has made modern science built on a foundation of philosophy, values and culture typical of the West which has many conflicts with Islam.[7] Therefore, the difference in worldview between the West and Islam in modern science is an important factor that makes science is not neutral but value-laden. From these facts, it is necessary to explore the concept of islamisation of modern science and

Dalam Konteks Dewesternisasi Dan Dekolonisasi, ed. Tim INSISTS (Bogor: UIKA dan CASIS UTM, 2013), 13–14.

[6] In the context of education, one of the negative impacts is that secular Western sciences eventually replace the position of religious sciences in the Islamic school curriculum. The position of Western science replacing the religious sciences has, today, resulted in many Islamic Universities being founded, but these institutions are only Islamic in name, while the philosophy, content and aims of their education do not reflect the Islamic worldview at all. Mulyadi Kartanegara, *MengIslamkan Nalar: Sebuah Respon Terhadap Modernitas* (Jakarta: Erlangga, 2007), 31; Ismail Fajeri Al-Attas, *Sungai Tak Bermuara: Risalah Konsep Ilmu Dalam Islam* (Jakarta: Diwan Publishing, 2006), 73.

[7] For example, the West formulates its view of reality and truth not based on revelation and the foundations of religious beliefs, but based on cultural traditions reinforced by philosophical foundations. Where are these philosophical foundations that depart from speculation or conjecture related only to secular life which is centered on humans as physical self and rational power as the only force that will reveal all the secrets of nature and its relation to existence. Syed Muhammad Naquib Al-Attas, *Islam Dan Sekularisme*, ed. M.A Dr. Khalif Muammar (Bogor: PIMPIN, 2010), 171.

further development of Islamic science as a step and effort to counter the problems of modern secular science and the hegemony of Western science with an atheist view.

As a follow-up idea to the Islamisation of science, the idea of Islamic science is interesting to study because there are numerous thinkers and scientists who offer innovative ideas for its development, one of which is Alparslan Acikgen who delve into this topic. He provides his definition of Islamic science, linking it to Islamic Worldview that serves as a crucial framework for the advancement of Islamic Science. Alparslan's ideas in this case are heavily influenced by Al-Attas, leading to few discrepancies between the perspectives of these two scholars.[8]

From the brief explanations above, this research endeavors to explicate Alparslan Acikgenc's concept of Islamic science as a means to reinforce the impact of secular Western science that is not rooted in religion. The author posits that Islamic science can offer an alternative perspective in constructing a scientific tradition that aligns with the Islamic worldview as one of the issues in Islamic epistemology in the contemporary era.

To show the novelty of this research, the researcher will detail some previous studies. An article entitled "Epistemology of Islamic Science: A Search for Ideal Form and Format of Scientific Design for Islamic Higher Education in Indonesia" which discusses the relationship between religion and science which continues to be a discussion within Indonesian Islamic scientists, especially in many state universities.[9] The next article "Statum

[8] Alparslan Ackgenc, *Islamic Science: Towards a Definition* (Kuala Lumpur: International Institute of Islamic Thought and Civilization (ISTAC), 1996), iii–v.

[9] Moch Iqbal and Adisel, "EPISTEMOLOGY OF ISLAMIC SCIENCE : A Searching for Ideal Form and Format of Scientific Design for Islamic Higher Education in Indonesia," *MADANIA* 5, no. 1 (2021): 101–12.

Agama dalam Sejarah Sains Islam dan Sains Modern" concludes that religion is inherently inseparable from science. Islamic science adheres to religion (dîn), while Modern science is no longer based on religion, until it accumulates in the damage caused.[10] Furthermore, the article entitled "Hubungan Agama dan Sains: Telaah Kritis Sejarah Filsafat Sains Islam dan Modern" found that historically, Islamic science was built on revelation that was confirmed by reason and observation. On the other hand, the birth of modern science refers to the secularisation movement and the rejection of the truth of Church doctrine.[11] From some of these studies, overall the discourse of Islamic Science is an issue that is widely discussed with several other authoritative figures, but there is no research that discusses the concept of Islamic Science initiated by Alparslan Acikgenc specifically. So, it can be concluded that this research has novelty value and can add references for researchers who explore topics around Islamic Science and also the figure of Alparslan Acikgenc.

B. METHODS

This research is a qualitative research with library research model[12] and uses descriptive and analysis method.[13] The descriptive method involves describing the state or characteristics of a group of individuals, an

[10] Mohammad Muslih et al., "STATUM AGAMA DALAM SEJARAH SAINS ISLAM DAN SAINS MODERN," *Fikri : Jurnal Kajian Agama, Sosial Dan Budaya* 6, no. 2 SE-Articles (August 12, 2022): 89–105, https://doi.org/10.25217/jf.v6i2.1845.

[11] Nur Hadi Ihsan et al., "Hubungan Agama Dan Sains: Telaah Kritis Sejarah Filsafat Sains Islam Dan Modern," *Intizar* 27, no. 2 (November 30, 2021): 97–111, https://doi.org/10.19109/intizar.v27i2.9527.

[12] Mestika Zed, *Metode Penelitian Kepustakaan* (Jakarta: Yayasan Obor Indonesia, 2004), 41.

[13] Mariano M. Ariola, *Principles and Methods of Research* (Manilla: REX Book Store, 2006), 12; Gyung-Jin Park, *Analytic Methods for Design Practice* (London: Springer, 2006), 42.

object, a set of conditions, a system of ideas, or a class of events.[14] The objective of this method is to provide a methodical, objective, and precise depiction of the facts, attributes, and connections among the phenomena or objects under investigation.[15] While in the analysis method is a research activity which consists of the series of activities to parse, differentiate and sort out an object of research to regroup according to certain criteria and look for the relationship and then interpret the meaning.[16] In this series of activities, the researcher will observe the object in detail by outlining its constituent components or assembling these components for further study.[17] The primary data source is *Islamic Science Towards a Definition* by Alparslan Ackikgenc along with several related journals, books and articles as secondary data. The data are analyzed by connecting, describing, sometimes comparing, and even clashing with the views of other figures and thinkers in an integrated and coherent manner on the issues. These data were obtained using content analysis techniques.[18]

C. FINDING AND DISCUSSION

The Discourse of Religion and Science

Since the beginning of the development of science in the West, the problems of the relationship of religion (Christianity) and science has been

[14] Rosemarie Rizzo Parse, *Qualitative Inquiry: The Path of Sciencing*, (London: NLN Press, 2001) p. 57.

[15] Mariano M. Ariola, *Principles and Methods of Research*, (Manila: REX Book Store, 2006) p. 47.

[16] Gyung-Jin Park, *Analytic Methods for Design Practice*, (London: Springer, 2007) p. 6.

[17] Kenneth M. Sayre, *Plato's Analytic Method*, (Chicago: University of Chicago Press, 1969) p. 22-25.

[18] Hamzah Amir, *Metode Penelitian Kepustakaan* (Jakarta: Literasi Nusantara, 2020), 53.

occurred in the early third century, 204 AD. The competition between Science which is the legacy of Greek philosophy and Christianity which has undergone theological formulation. Surely such formulations believes that the doctrine of the church is the absolute truth that is higher than the other and if the truth does not conform will not be recognized and considered against religious truth or christian church. The tension between religion and science was clearly seen at the time of the murder of Hypatia, a female scientist, in 415 M which was then followed by burning of the Alexandrian library.[19] Such is the authority of the truth of the Church which continues to violence against scientists who hold different views.

In 1543 M, a scientist named Nicolaus Copernicus (1473-1543) published a paper stating a theory that the sun as the center of the universe (Heliocentric), which was contrary to the view of the church. This view was then strengthened with empirical observations using telescopes by Galileo Galilei (1564-1643), Johannes Kepler (1571-1630) and Francis Beacon (1561-1626), who in the end these figures were called the Renaissance figures.[20] This Heliocentric theory has shaken human belief in religion, especially Christianity which dominated Europe at that time. The new paradigm offered by the world of science about the universe is contradictory and conflicting to the religious view, which is at that time the church had a view of the Earth as the center of the solar system (Geocentric). Then, in the seventeenth century, the revolution of thought came known as the Enlightenment (*Aufklärung*), which was born from the thought of Isaac

[19] Alexandrian or Iskandarian Library is a library of scientific laboratory that was established several centuries BC. It contains many scientific works of scientists since the heyday of Greece. One of them is Aristarchus's book which states that the earth is only one of the planets around the sun which the theory will find 20 centuries later. Ach. Maimun Syamsuddin, *Integrasi Multidimensi Agama Dan Sains* (Jogjakarta: Diva Press, 2012), 51.

[20] Syamsuddin, 54.

Newton (1642-1727) who made science part of Western culture.[21] Based on historical facts, the relationship between science and religion in the West was triggered by the failure of Christianity to maintain its dogma and its opposition to the development of science. This made religion and science in the West experience endless conflict and led to the dichotomy between science and religion.

The emergence of the dichotomy problem has received responses from scientists and religionists, including Ian Graeme Barbour. In his book Nature, Human Nature, and God, Barbour proposes four positions in the relationship between science and religion, namely conflict, independence, dialogue, and integration. The detailed explanation is as follows:

First is conflict which views science and religion as two opposing poles. Barbour explained that this paradigm held that a scientist would not easily believe in the truth of science. Religion is said to be unable to explain and prove its beliefs empirically and rationally. Thus scientists assume that truth can only be obtained through science not by religion. On the other hand, the religionist assume that science does not have the authority to explain all things because of the limitations of reason possessed by humans. Second is independence which assumes that religion and science have their own problem, different region, autonomous, independent, separate and valid methods. There is no need for dialogue and interaction because religion and science have their respective sources of authority. The basis of scientific authority is logical coherence and experimental conformity, while

[21] Baharuddin, "Relasi Antara Science Dengan Agama" Al-Hikmah IAIN Pontianak, Vol 8, No. 2, 2014. Page 72-85.

in religion comes from Revelation. This view offers that science and religion complement each other and do not undermine each other.[22]

Third is dialogue which states that there is a connection between science and religion that can support each other, discuss, strengthen and influence in discussing life's problems. In this case, he said between religion and science have similarities that can be dialogue and can even support each other so that there is a constructive communicative relationship between science and religion. The last is integration which states that religion and science can be united and combined to solve life's problems. Some of the proponents of this view see similarities between scientific discoveries in religion, or religion is seen as providing many things about beliefs that are in line with modern science. However, these beliefs must and need to be reformulated in specific scientific theories. These scientific theories are elaborated systematically with interrelated concepts from both science and religion.[23]

The four models of approach that Barbour illustrates are possibilities constructed according to Modern scientific dogma, while the type of dialogue and integration is a more promising way to bring scientific insights and religious insights in an integrated manner rather than conflict and independence.[24]A similar but not the same view as Barbour was put forward by John F. Hought[25], who divided religious and scientific approaches into

[22] Ian G. Barbour, *Nature Human Nature and God* (Augsburge Fortress: Fortress Press, 2002), 30.

[23] Barbour, 32.

[24] Waston, "*Hubungan Sains Dan Agama: Refleksi Filosofis atas Pemikiran Ian G. Barbour*" PROFETIKA University of Muhammadiyah Surakarta, Jurnal Studi Islam, Vol. 15, No. 1, June 2014. Page 76 – 89.

[25] John F. Haught is an American theologian. He is a Distinguished Research Professor at Georgetown University. He specializes in Roman Catholic systematic theology, with a particular interest in issues pertaining to physical cosmology, evolutionary biology, geology, and Christianity. He graduated from St. Mary's Seminary and University

Conflict, Contrast, Contact and Confirmation. These four views can be seen as a kind of typology as Barbour made, but Hought also sees it as a kind of journey.[26] However, Barbour and Haught's views on integration only focused on that science as a product in the form of theory. In fact, many experts claim that science is a process in a more complicated dimension, so it does not only touch one dimension of science.

In response, Mikael Stenmark, a religious philosopher at Uppala University, believes the previous typology is still common, universal and static. According to Stenmark, the relation between religion and science should be so complex, diverse and dynamic. Based on this, Stenmark proposes a more dynamic and evolving pattern in accordance with the realities of religion and science. Stenmark divides it into five views in the relation between religion and science; 1) independent view, 2) contact view, 3) monist view, 4) complete scientific expansionist view, and 5) complete religious expansionist view. Then, to establish the relationship between religion and science, a clear picture is needed. In that case, Stenmark makes it in four dimensions; social dimension, teleological dimension, epistemological dimension, and theoretical dimension. With these four

in Baltimore in 1964 and subsequently received his Ph.D in theology from The Catholic University of America in Washington DC in 1968. In 2002, Haught received the Owen Garrigan Award in Science and Religion, in 2004 the Sophia Award for Theological Excellence, and in 2008 a "Friend of Darwin Award" from the National Center for Science Education. Muhammad Thoyib, "*Model Integrasi Sains dan Agama dalam Perspektif J.F Haught dan M.Golshani: Landasan Filosofis bagi Penguatan PTAI di Indonesia*" AKADEMIKA: Jurnal Peradaban Islam Vol. 18 No. 1 2013 (STAIN Ponorogo. 2013), 4-5.

[26] John F. Haught, *Perjumpaan Sains dan Agama*, translated by Franciscus Burgias. (Bandung: Mizan cooperated with CRCS, dan ICAS Jakarta, 2004), 17-19.

dimensions, the relation of religion and science can be made more realistic, historical and proportional.[27]

The dichotomy problem has also received responses from some Muslim scholars to reconcile the relationship between religion and science. Among the models of integration of Islam and science are such as the Islamisation of science led by Syed Muhammad Naquib Al-Attas and Ismail Raji al-Faruqi, the Islamic Science Research Programme (ISRP) initiated by Adi Setia,[28] Alparslan Acikgenc with the idea of Islamic Science,[29] and Muhammad Muslih who borrowed Imre Lakatos' model in developing the Scientific research programme implemented at University of Darussalam Gontor,[30] the Scientificization of Islam which was initiated by Kuntowijoyo, Integration modelled on the tree of Science designed by Imam Suprayogo, Interconnection Integration by Amin Abdullah, and others also emerged.[31] Everything aims to address the challenges faced by Muslims today, particularly the separation between Islam and science.[32] This indicates that the discourse between Islam and science is a necessity and has become a major topic of discussion among Muslim scientists, scholars, and intellectuals.

[27] Mikael Stenmark, *How to Relate Science and Religion, A Multidimensional Model* (Cambridge: William B. Berdmas Publishing, 2004), 251-254. *Ach. Maimun Syamsuddin, Integrasi Multidimensi....,* 37.

[28] Adi Setia, "Dewesternizing & Islamizing the Sciences : Neo-Ghazalian, Operationalizing Vision, Attasian," *Islam and Secularism*, 2010, 1–30.

[29] Ackgenc, *Islamic Science: Towards a Definition*, 34–35.

[30] Muslih M, "Sains Islam Dalam Diskursus Filsafat Ilmu," *Kalam* 8, no. 1 (2014): 22–23.

[31] Juhana, Natsir, and Haryanti, "Integrasi Ilmu M. Amin Abdullah Dan Kuntowijoyo," 193.

[32] Muhamad Mustaqim, "Pengilmuan Islam Dan Problem Dikotomi Pendidikan," *Jurnal Penelitian* 9, no. 2 (August 1, 2015): 259, http://journal.stainkudus.ac.id/index.php/jurnalPenelitian/article/view/1321.

On the other hand, the perspective of Muslim scientists, who perceive science and religion as non-conflicting domains, diverges significantly from prevailing notions in the genealogy of thought. The pursuit of scientific knowledge among Muslim scientists does not inherently impact their religious beliefs. For Muslim scientists, science serves as a realm of rational evidence, logical reasoning, and empirical inquiry, rooted in the teachings of the Qur'an. The primary source of the Qur'an is regarded as divine revelation from God, and its principles are subsequently implemented by the Messenger of Allah, as elucidated in the Hadith. Muslim scientists or scholars further contribute to this body of knowledge by uncovering smaller concepts, commonly referred to as seminal concepts. This assertion underscores the compatibility and absence of contradiction between science and Islam.

Regarding the potential contradiction between science and religion, al-Faruqi posits that a resolution to this issue can be achieved through the harmonisation or alignment of the perspectives held by these two domains. Al-Faruqi provides an illustrative scenario wherein the possibility arises of a contradiction between revelation and reason. Certainly, a comprehensive elucidation of this seeming paradox is warranted. According to al-Faruqi, there is no inherent superiority between reason and revelation.

In the Islamic context, it is important to note that while there may exist instances where revelation appears to contradict reason, such contradictions are not seen to be definitive or conclusive, but rather represent a stage in the ongoing process of understanding and reconciling these two sources of knowledge. Islam offers a means by which the comprehension of divine revelation can be enhanced, and logical knowledge can be subjected to more rigorous examination. This phenomenon arises from the potential for human

comprehension and interpretation of revelation to be less comprehensive and perhaps overlook certain aspects, in comparison to the use of rational reasoning. Muslim scientists demonstrate rationality by integrating two distinct sources of reality, namely revelation and reason.[33]

The reason behind the absence of contradictions between science and religion among Muslim scientists can be attributed to the unity of thought or framework that is rooted in the Islamic worldview. This unity of thought provides a comprehensive perspective for understanding the world, enabling Muslim scientists to reconcile scientific knowledge with their religious beliefs. One prevalent issue among contemporary scientists pertains to their limited capacity to integrate revelation into their reasoning processes and evaluate phenomena based on empirical evidence. The requirement for proof or a scientific method is deemed necessary for the acceptance of any claim or concept. In instances where a matter cannot be substantiated scientifically, individuals tend to withhold acceptance of its validity within the realm of science. Ultimately, contemporary scientists find themselves adrift, grappling with uncertainty and wavering in their intellectual pursuits. Muslim scientists possess the capacity to reason metaphysical facts, whereas their rationality is limited in this regard.

Islamic Science: Definition and Concept

In order to facilitate discussions in this section, the discussions were divided into two, first is the definition of science and the second is the definition of Islamic science.

[33] Isma'il Raji Al-Faruqi, *Al-Tauhid: Its Implications for Thought and Life* (United States of America: The International Institute of Islamic Thought (IIIT), 1998), 47.

The term "Science" has its origins in the Latin word "scientia," which translates to "knowledge."[34] Therefore, when examining the Malay civilization, whether in the context of Malay or Indonesian society, it can be observed that the term “sains” was not commonly employed initially, and instead, it was substituted with the term knowledge.[35] Several studies have posited that various civilizations have developed distinct manifestations of scientific knowledge and practises. The historical record of human civilisation has demonstrated that each civilization necessitates the expression of distinct values within its own framework of tasawwur, or worldview. During the period of scientific progress in Europe, the term "science" denoted the field of natural philosophy, while in the Islamic civilization age, science was characterised by a broader range of knowledge.[36]

Nonetheless, unlike previous scientific philosophy mentioned, modern science has become a narrower field of study in which its definition is limited solely to science and technology studies.[37] According to Hassan, the scientific method which is based on empirical and measurable evidence and the principle of objectivity. Is the assurance that facts can be separated from values in natural science. This means the knowledge of natural science

[34] Z. Sardar, *Hujah Sains Islam*, ed. Abdul Latif Samian (Kuala Lumpur: Dewan Bahasa dan Pustaka, 1992), 23.

[35] Mohamad Zain. S., *Pengenalan Sejarah Dan Falsafah Sains* (Bangi: Penerbit Universiti Kebangsaan Malaysia, 2000), 52; Othman, *Sains Dalam Ekosistem Ilmu*, 43.

[36] Z. Sardar, *Sentuhan Midas Sains, Nilai Dan Persekitaran Menurut Islam Dan Barat.*, ed. Rosnani Hashim and Abdul Karim Abdul Ghani (Kuala Lumpur: Dewan Bahasa dan Pustaka, 1991), 75; A. Baharuddin, *Pendekatan Holistik Agama Dan Sains: Mekanisme Dan Penghayatan Penyelesaian Alternatif.*, ed. Syed Muhammad Dawilah Al-Edrus (Kuala Lumpur: Dewan Bahasa dan Pustaka, 2007), 39.

[37] M. R. Ismail, *Falsafah Sains Pendekatan Kualitatif.* (Kuala Lumpur: Dewan Bahasa dan Pustaka, 2006), 28.

basically promotion of an industrialised, materialistic and technocentric civilisation.[38]

According to other Islamic scholars, science refers to a process that explains the phenomenon of the universe using certain methods that are characteristically scientific, but does not go beyond the boundary of the tawheed of Allah SWT.[39] According to Sardar and Nasr, Islamic science encompasses several activities, which operate within the framework of Islamic values that help seek the truth and resolve problems. This means that the aim, tool, method and process have to be based on Islam.[40] Meanwhile, Ismail pointed out that studying the law of the universe means studying the law of Allah SWT and this is part of human activities. Meanwhile, the decree by Allah SWT serves as the main source in science. Experiments serve as the second source for studying sunnat Allah. This distinguishes modern science from Islamic science.[41]

Alparslan has his own definition of science. He defines, "*science as a body of knowledge (in the sense of discipline), which arises as a result of the process of determining a subject matter that is investigated by a scholarly developed method producing theories.*"[42] This definition is supported by his opinion that all disciplines in science are composed of four essential characters, subject matter, method, theory and accumulated body of knowledge.

[38] M. K. Hassan, *Natural Science from the Worldview of the Qur'an.* (Kuala Lumpur: Institut Terjemahan dan Buku Malaysia Berhad, 2018), 73.

[39] M. Y. Othman, *Islam Dan Sains Dari Perspektif Sejarah Dan Al-Qur'an.*, ed. A Baharuddin and S.M El- Askarey (Kuala Lumpur: Islam dan Sains Dalam Pembangunan Tamadun, 2010), 49.

[40] Sardar, *Hujah Sains Islam*, 65; S. H. Nasr, *Islam Dan Sains Moden*, ed. Baharudin Ahmad (Kuala Lumpur: Dewan Bahasa dan Pustaka, 2008), 78.

[41] Ismail, *Falsafah Sains Pendekatan Kualitatif.*, 62.

[42] Ackgenc, *Islamic Science: Towards a Definition*, 35.

With the arrangement of the four essential characters in science, at the same time making science universal. This is because the existence of science cannot be separated from these four characteristics. However, the terms essential and universal here, do not make science absolute universally. According to him, there is no thought, discovery or technology produced by humans that is absolute. The term absolute can only refer to something that is beyond the limits of ordinary human ability or what can be called "divine". So, both from the definition to the characteristics of science are not absolute but conventional. Indirectly, this opinion also undermines the view of the adherents of scientism who say that only through science, truth can be achieved.[43]

Although the definition that has been stated earlier is universal (conventional), its application in the research programme is certainly different by each scientist, therefore it cannot be said to be universal. This is because the application of each of these concepts requires a *conceptual environment*. Alparslan simplifies the term with the worldview of each scientist. As a result, scientists view science with their respective worldviews. This opinion is supported by Mawdudi, he explained:

> "*In all sciences, there are two aspects. One aspect consists of realities of nature, i.e. facts. Another aspect is the human viewpoint which classifies these facts, moulds them into theories and fonnulates some concepts. These two aspects need to be distinguished. As far as the facts are concerned, they are universal; they are just facts. But, for instance, the Marxist mentality organizes these facts according to Marxist outlook. You hear such terms as Russian science or*

[43] Ackgenc, 34–35.

> *Communist philosophy. Communism has a particular view of universe and man; it has its own theory of history as well . . . Thus, every child in the communist societies learns the science developed according to communist ideology. Similar is the case with Western scientists. They have their own peculiar concept of the universe, God and man . . . From these examples, we can see that each ideology shapes knowledge and science according to its own point of view*."[44]

Andre Linde, the celebrated Russian cosmologist, sums up the matter elegantly and agreed with this subject, "*When scientists start their work, they are subconsciously influenced by their cultural traditions*."[45] Therefore, when confronted with inquiries regarding the fundamental characteristics of the cosmos and the need to discern among existing explanations, our preexisting cognitive frameworks play a significant role in our decision-making process. Theistic individuals understand current facts via a specific framework, while atheists perceive them through a different framework. Put differently, the perspective held by a scientist provides them with guidance while formulating ideas and choosing which theories to pursue. The significance of worldview in the advancement of scientific knowledge, particularly within the context of Islamic science, can be inferred.

The term worldview discussed earlier, in Alparslan's terms, is called the *conceptual environment*. This conceptual environment starts from the most general concepts, such as knowledge (*'Ilm*), science and scientific disciplines then gives birth to specific theoretical concepts such as truth, theory, method, experiment, observation and so on. these concepts are

[44] A. Mawdudi, "Moudoodi on Science," *Journal of Islamic Science* 10, no. no.2 (1998): 81.

[45] Andrei Linde, "New Scientist," *New Scientist*, October 4, 1997.

called *scientific conceptual schemes*, another term is the *context of sciences*. Here, the context is certainly based on the conceptual environment (worldview). So, it is impossible if the context and worldview of a scientist are separate or not related to each other.

In that case, individuals do science according to their worldview which is the ultimate foundation of activities. From this argument, Alparslan considers that Islamic science needs to be shaded by the Islamic worldview which is followed by the Islamic context of sciences. He defines Islamic Science as follows:

> "*Islamic science is that scientific activity which takes place ultimately within the Islamic Worldview (which can now be identified also as the Islamic conceptual environment); but as an extension of it directly within the Islamic scientific conceptual scheme (which can be identified also as the Islamic context of science)*."[46]

Alparslan concludes in detail his definition of Islamic science in the following figure:

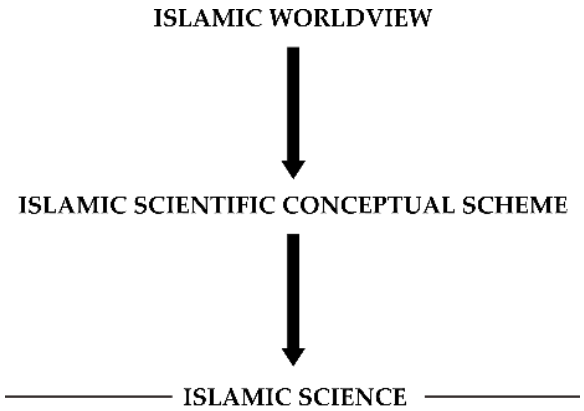

Figure 1. The Concept of Islamic Science

[46] Ackgenc, *Islamic Science: Towards a Definition*, 38.

Based on the definition above, Alparslan menunjukkan bahwa komponen utama dalam pembentukkan Islamic Science adalah Islamic Worldview yang digunakan sebagai landasan dalam kegiatan ilmiah. Lebih lanjut, every scientific activity carried out, including Islamic Worldview, must include four universal characteristics in order to qualify as science. The four criteria are referred to as the conceptual scheme of Islamic science, including 1) Well-defined subject matter, 2) A clearly formulated method, 3) Well-formulated body of theory, and 4) An accumulated body of knowledge.

Alparslan added, as explained earlier, that these definitions and criteria are not absolutely universal but only conventionally universal. So it is very possible between one scientist and another scientist, between one philosopher and another philosopher differ in opinion.[47] However, just like the four schools in *fiqh*, although the application is different, but actually refers to the same source, al-Qur'an and al-Hadith. So, although there are differences regarding the definition and criteria of science, if the source is the same as well as the worldview, the resulting science is also no different from the others.

Building an Islamic Science Framework Based on Islamic Worldview

Scientific investigation can be conducted within various metaphysical frameworks, both theistic and atheistic. The divergence lies in objectives and outcomes. If undertaken in a theistic context, the practical outcomes aim to promote human prosperity and well-being. However, when pursued within a secular setting, no assurances are given about the immunity of outcomes from harm. In the last century, there were numerous instances of

[47] Ackgenc, 38–39.

science yielding destructive results.[48] Richard Thompson of La Jolla Research Institute in California has elaborated on this subject:

> "*The understanding of nature as a machine has resulted in much technological progress, but now we find people throughout the world abandoning supremacy, a struggle that culminates in the construction of more and more deadly machines of mass destruction*."[49]

The history of science has shown that value systems affect the orientation of science. In the words of John Brooke, the British Historian of science, *"The direction and application of scientific research clearly can be different under different value systems. And since human values are often organically linked with religious beliefs, the latter can still be presented as relevant to the orientation of science and technology.*"[50]

In Islam, human beings are God's vicegerents on the earth and are responsible for its prosperity. Thus, in the Qur'an and the Islamic tradition, knowledge which is accompanied by faith is considered a means of prosperity, "*knowledge prospers through faith*".[51] The participation of scientists in the projects that have led to the pollution of the environment or the destruction of human beings is a good witness for a science which has not had a proper orientation. According to Dr. Maurice H. Wilkins, the 1962 Nobel Prize winner in Medicine, about half the world's scientists and engineers are now engaged in war program.[52]

[48] Mehdi Golshani, "How to Make Sense of 'Islamic Science'?," *American Journal of Islam and Society* 1, no. 3 (2000): 10.

[49] Singh and Gomatam, *Synthesis* of *Science and Religion,* 235.

[50] John H. Brooke, *Science and Religion: Some Historical Perspectives* (Cambridge: Cambridge University Press, 1991), 336.

[51] S. Al-Saleh, *Nahj Al-Balaghah* (Beirut, Lebanon, 1967), 219.

[52] T.D. Singh and Ravi A. Gomatam, *Synthesis of Science and Religion: Critical Essays and Dialogues* (Florida: Institute of Vaishnava Studies, 1988), 219.

With the advancements in scientific knowledge over the twentieth century, particularly in the areas of genetics and biotechnology, have heightened the significance of scientists' ethical obligations. Religion, namely the Islamic worldview, can be regarded as an effective means of mitigating the potential misapplication of science and technology. For this reason, Al-Attas reformulates the definition of key concepts of the Islamic worldview such as *din, adab, mithaq, 'ilm, haqiqah*, justice, happiness and so on.[53]

On the other side, developing an Islamic science framework requires discussing epistemology in science, specifically related to the Quran. The Quran presents two worlds, namely *ghayb*, which means Unseen World (*'alam al-ghayb*), and *shahadah*, which refers to the Visible World (*'alam al-shahadah*). It is evident that the *ghayb* cannot be understood in the same way as the *shahadah*. In Alparslan's term, the Unseen World (*'alam al-ghayb*) is the Absolute realm, while the Visible World (*'alam al-shahadah*) is the Physical realm.

[53] Syed Muhammad Naquib Al-Attas, *Prolegomena to the Metaphysics of Islam: An Exposition of the Fundamental Elements of the Worldview of Islam* (Kuala Lumpur: International Institute of Islamic Thought and Civilization (ISTAC), 1995).

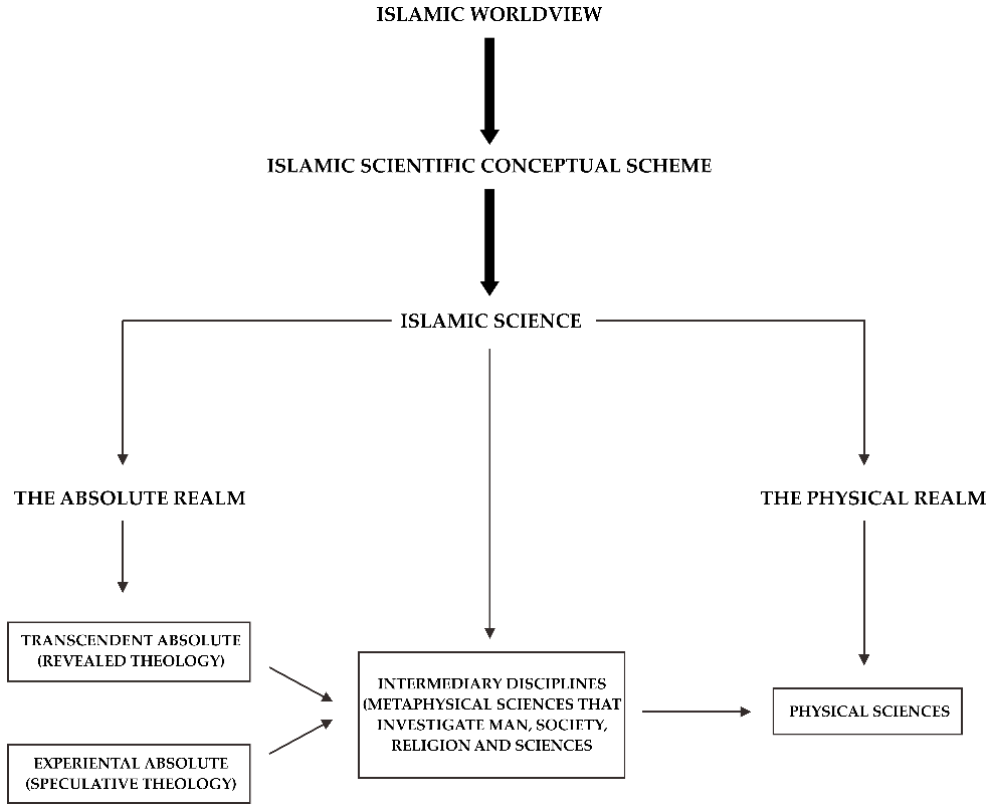

Figure 2. The Islamic Science Framework

However, Allah explains in the Qur'an that there are humans who are able to gain knowledge of the *ghayb*, namely messengers chosen by Him and *ghayb* things shown by Allah to humans.[54] The verse states that the realm of the unseen can only be known through revelation. Because the realm of *ghayb*, called the absolute realm, no human being has the direct means or senses to know it. Unlike the *'alam shahadah* (visible world) which can be known through the five senses and reflective thinking.[55]

The examination of two ontological realities derived from the Qur'an, which serve as foundational concepts in the Islamic worldview, reveals the

[54] QS. Al-Jin 72 and Hud: 11
[55] Ackgenc, *Islamic Science: Towards a Definition*, 44–49.

emergence of two distinct forms of knowledge. The initial aspect of understanding the physical realm (*shahadah*) is encapsulated in the Islamic worldview through the concept of *'ilm*. Furthermore, the comprehension of the absolute domain (*ghayb*), commonly referred to as *ma'rifah*, has been consistently articulated by scholars of the past. The concepts of *'ilm* and *ma'rifah* are distinct and should not be conflated, as they pertain to separate forms of knowledge. While the pursuit of knowledge, known as *'Ilm*, encompasses both practical and theoretical aspects, the acquisition of spiritual understanding, referred to as *ma'rifah*, is limited to experiential means and can only be truly comprehended via personal experience and heartfelt engagement.

In this exposition, Alparslan proceeded to categorise knowledge pertaining to the absolute realm into two distinct branches, namely the Transcendent Absolute, also known as Revealed Theology, and the Experiential Absolute, also referred to as Speculative Theology. The initial section introduces the topic of the absolute ghayb, encompassing subjects such as the divine nature, resurrection, heaven, and hell. The second perspective, on the other hand, focuses on presenting knowledge in a state of *ma'rifah*. This includes concepts such as the existence of God, the possibility of life after death, freedom, and other theological matters. This scientific discipline also serves as a means of connecting the transcendent realm with the physical realm.

The second cluster of scientific disciplines pertains to the investigation of human beings, society, religion, and the fundamental nature of science. This collective entity occupies an intermediary position, situated between the transcendent and physical domains. In addition, it is imperative for these disciplines to incorporate Islamic sources as their foundation and

employ an experimental-observational methodology alongside rational techniques. Within the physical realm, various disciplines are explored, including physics, astronomy, biology, as well as abstract sciences such as mathematics and logic.[56]

From the explanation above, it can be concluded that Alparslan emphasises Islamic science is not only based on empirical or rational methods as in modern Western science but also involves revelation as the main source of knowledge. Instead, he divides the two dimensions that make up Islamic science, namely the unseen world (‘alam al-ghayb) as the absolute realm and the visible world (’alam al-shahadah) as the physical realm. For him, revelation is one component of Islamic epistemology that cannot be ignored. Islamic sources such as the Qur'an and Hadith provide a very strong metaphysical and ethical foundation in the development of science. Thus, to show its holistic nature, science in Islam does not separate between material and spiritual aspects because every branch of science has a spiritual dimension that leads to a deeper understanding of God and His creation.

Reconstructing Islamic Science in the Modern Context

One of the major challenges for Islamic thinkers today is how to rebuild Islamic Science in a modern context. Many contemporary Muslim thinkers argue that Muslims need to develop a paradigm of science that is in accordance with the Islamic Worldview but still able to compete in the modern world dominated by secular science. This requires reconstructing the epistemology, methodology, and goals of science to be in accordance

[56] Ackgenc, 58–60.

with Islamic principles. In this case, Alparslan tries to realise it with the concept of Islamic Science which is based on classical Islamic epistemological principles but contextualised in the modern world.

Alparslan's first step is to emphasise that the basis of Islamic science is Islamic epistemology, which is fundamentally different from Western secular epistemology. In his view, science in Islam does not only involve empirical experience or rationality alone but also includes revelation as the main source of knowledge. Revelation provides humans with a metaphysical perspective that goes beyond a materialistic understanding of the world and the universe. According to him, revelation, reason, and the senses must work together to gain a more complete and profound understanding of reality.[57]

On the other hand, Alparslan also criticises modern secular science for its reductionistic and materialistic tendencies. Modern science often ignores the spiritual and ethical dimensions of reality, resulting in a fragmented understanding. In this view, science does not provide a deeper meaning to life, but instead focuses only on the control and exploitation of nature for practical and material purposes.[58] A similar opinion is also conveyed by Seyyed Hossein Nasr; he argues that materialism in modern science eliminates the sacred dimension of nature. Nature is no longer seen as a manifestation of God's greatness or a'verse' (sign) that shows His existence, but only as an object that can be exploited for human interests, encouraging the exploitation of nature without considering long-term impacts, both morally and ecologically.[59]

[57] Ackgenc, 25–26.

[58] Alparslan Ackgenc, *Being and Existence in Islamic Philosophy* (Istanbul: Fatih University Press, 2000), 34–35.

[59] Seyyed Hossein Nasr, *Man and Nature: The Spiritual Crisis in Modern Man* (London: Unwin Paperbacks, 1990), 15.

The most important aspect of Islamic Science is that it must be holistic, meaning that it cannot separate the spiritual and material aspects of reality. In Islam, the universe is seen as 'ayat' or signs from Allah, so every natural phenomenon has a higher spiritual meaning. Therefore, Islamic Science must integrate spiritual, ethical and empirical dimensions in its approach.[60] The methodology should also be open to revelation, intuition, and spiritual experience, in addition to empirical observation and rational analysis.[61]

In its development, the reconstruction of Islamic Science must be based on the Islamic Worldview which includes beliefs about Tawhid (the oneness of Allah), Khalifah (humans as representatives of Allah on earth), and Akhirat (life after death). The relationship between Islamic Science and Islamic Worldview is very close, where Islamic Science is understood, developed, and applied based on the Islamic Worldview framework. Islamic Worldview provides a philosophical foundation that allows science to develop ethically and responsibly. In other words, science in Islam does not only function for pragmatic purposes, but must also lead humans to spiritual attainment and happiness in the hereafter.[62]

In addition, the biggest challenge in the reconstruction of Islamic Science is how to integrate modern technology with Islamic principles without being trapped in materialism or secularism. Alparslan argues that Muslims must have the courage to develop new methodologies that can accommodate the development of modern science, but remain faithful to

[60] Ackgenc, *Being and Existence in Islamic Philosophy*, 40.

[61] Alparslan Ackgenc, *Epistemological Foundations of Islamic Science* (Kuala Lumpur: International Institute of Islamic Thought and Civilization (ISTAC), 1996), 58–60.

[62] Ackgenc, *Islamic Science: Towards a Definition*, 76–77.

Islamic ethical and moral values.[63] He also recognises that current Islamic science is still not fully able to compete with modern science. Therefore, a deep reconstruction of the epistemology and methodology of Islamic Science is needed to fit the challenges of modern times.[64] However, this effort must still be done without leaving the basic principles of Islamic epistemology so that Islamic science can contribute to the development of a more ethical and responsible global science.

E. CONCLUDING REMARKS

The idea of Islamisation of Science and the development of Islamic Science is currently a highly debated topic. This is due to the influence of Western science that makes their benchmarks acceptable and even must be accepted by society, especially scientists. Thus, they claim that Western science is universal and absolute on the other hand. With this worldview, Western science is currently detached from religious elements, which is called secular. In this case, science, which should aim for human prosperity and well-being, becomes a science that produces damage. Therefore, the development of Islamic science is very important at this time to overcome this problem.

Alparslan sees the problem and explains that every science produced by a scientist is inseparable from his conceptual environment, in this case meaning worldview. So, to develop an Islamic science, a systematic Islamic wordview is needed as a fundamental basis for its development. This opinion is based on his definition of Islamic science which consists of Islamic worldview and Islamic scientific conceptual scheme. Alparslan

[63] Ackgenc, 80.
[64] Ackgenc, 72.

added that these definitions and criteria are not absolutely universal, but only conventionally universal. In his view, although there are differences regarding the definition and criteria of science, if it is shaded by the same worldview, the resulting science is also no different from the others.

In the face of the epistemological crisis faced by Muslims today, Alparslan Açıkgenç offers a solution, namely the reconstruction of Islamic Science. By basing science on an Islamic epistemology that includes revelation, reason, and empirical experience, and strengthening the integration between science and spiritual ethics, Açıkgenç provides a more holistic and humanised vision of science. This reconstruction is not only essential for the revival of Islamic civilisation, but can also contribute to the development of a more ethical and responsible global science.

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