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PHILOSOPHY OF ISLAMIC SCIENCE: A LITERATURE STUDY

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Abstract

Philosophy drives humankind to identify problems, make classifications and think about finding a relevant solution. In order to form a more integrated philosophy of Islamic science, discussions need to contain three important elements, namely ontology, epistemology and axiology, which enhances these discussions. What is the focus in the literature by philosophers of Islamic science? What differentiates the philosophy of Islamic science and the philosophy of modern science? Thus, this study has two objectives, namely to determine the meaning of the philosophy of Islamic science and to analyse the trends in the literature pertaining to the ontology, epistemology and axiology of Islamic science. This library study found that discussions on the philosophy of Islamic science contained three elements, such as *tawheed* being the pillar of the philosophy of Islamic science, divine deliverance (*wahyu*) as a source of the philosophy of Islamic science as well as the role and values of humankind in the philosophy of Islamic science. These three elements had conclusively shown that there are differences between the philosophy of Islamic science and the philosophy of modern science. Moreover, the findings had also indicated that the philosophy of Islamic science was more holistic and balanced.

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Keywords: Philosophy, Islamic science, epistemology, ontology, axiology.



1. Introduction

Discussions on the philosophy of science have gone through its own process. Before the emergence of modern science, science was presumed to be a field of knowledge that evolved from time to time (Othman, 2017). According to Azhar (2013), it can determine when science, as a process, actually began. It could have begun during the primitive age, then went through the Palaeolithic age and moved through the civilization era that was beginning to develop and progress. At that time society was complex and a system for measuring development was introduced. Society began to start thinking, doing research as well as adducing various scientific ideas. This process was eventually called philosophy. Human civilization requires effort of manifestation of values in the scope of their own perspective. The statement above can be proved by the strong backup with meaning of science itself, it is values and includes the cultural worldview formed by human itself.

2. Problem Statement

At this moment in time, science was presumed to be important because it had a big impact on the philosophy of human thinking. The rise and development of the Islamic science discipline is evident in its effects until today. Among the fields of knowledge that have been affected by the development of science are astronomy, geography, physics, mathematics, cosmology, biology, medicine, pharmacy, architecture, education, zoology, botany, engineering and much more (Awang, 2003; Mohd Salleh, 2014; Suyurno, Sarwan, & Ramlan, 2006). Hence, the study on the philosophy of science in general is divided into three types, which is natural science, social science and applied science. Natural science includes physics, zoology, biology, chemistry etc. Unnatural science includes geography, history, economics, social science etc., while applied science involves fields such as engineering, medicine, electronics etc. (Noordin, 1992).

According to Awang (2003), all these fields contribute towards the development of civilization. It also symbolises the achievement of science and technology that drives humans towards a sense of humility and respect for knowledge. Usually the window to knowledge is limited to empirical knowledge but according to Islam, this also involves metaphysical and supernatural knowledge. Therefore, discussions on the philosophy of Islamic science should contain epistemology, ontology and axiology, either directly or indirectly.

3. Research Questions

This study has two research questions

- 3.1.** What is the meaning of the philosophy of Islamic science?
- 3.2.** What is the trend of Islamic science philosophy study?

4. Purpose of the Study

In order to satisfy this prerequisite, this study has two objectives, which is to determine the meaning of the philosophy of Islamic science and analyse the trends in literature pertaining to this

philosophy. Thus, to fulfil these two objectives, this study was divided into three, namely the meaning of the philosophy of Islamic science, analysis of literature pertaining to the philosophy of Islamic science and overall conclusions.

5. Research Methods

This study was qualitative in nature and used secondary data for reference and analysis (Neuman, 2014). In more detail, this study examined journals, books, chapters in books, theses and articles that focused on research regarding values and ethics in disciplines related to the philosophy of Islamic science

6. Findings

6.1. The Definition of the Philosophy of Islamic Science

In order to facilitate discussions in this section, the discussions were divided into two, namely the definition of philosophy and Islamic science. At the end of this section, this study will offer definitions that will be used throughout this working paper. From the aspect of epistemology, the word '*philosophy*' means the profound love for knowledge and wisdom. Knowledge is also associated with blessings, which refers to any field of knowledge, understanding, moral practice, expression of opinions or attitude that leads to happiness and ability to see the existence, the oneness and the greatness of God (Ismail, 2006; Ibrahim, 2015). According to Arabic, it is pronounced *filosof* or in its plural form, *falasifah* (Mohamad Zain, 2000), which is interpreted as 'knowledge for those who love blessings with all their heart' (Ismail, 2006). As for Muslim philosophers, al-Farabi defined blessings as the *makrifat* of Allah SWT (Long, 2008).

'Sains' originated from the Latin word *scientia*, meaning 'knowledge' (Sardar, 1992). Hence, when looking at Malay civilization, be it Malay or Indonesian, at the beginning the word '*sains*' was not widely used and it was replaced with the word 'knowledge' (Mohd Zain, 2000; Othman, 2017). Some studies (Sardar, 1991; Othman; 2010; Baharuddin, 2007) have stated that different civilizations had created different forms of science. The history of human civilization has shown that every civilization requires the manifestation of exclusive values in its own scope of *tasawwur* (world view). For instance, during the scientific advancement era in Europe, science referred to natural philosophy and the Islamic civilization era represented science as having a wider scope of knowledge. Nonetheless, unlike previous scientific philosophy mentioned by Ismail (2006), modern science has become a narrower field of study in which its definition is limited solely to science and technology studies. According to Hassan (2018), 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 basically promotion of an industrialised, materialistic and technocentric civilisation.

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 (Othman, 2010). According to Sardar (1992) and Nasr (2008), 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. Meanwhile, Ismail (2006) 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.

6.2. Literature Analysis: Philosophy of Islamic Science

Based on observations of previous studies, three main themes have been identified, namely the ontology, epistemology and axiology of Islamic science. The discussions on these studies are established in the following section.

6.2.1. Ontology of Islamic Science

Ontology means the study of Islamic Scientific Philosophy related to the existence of God, humans and the surrounding (Abdullah, 2010). Several scholars have discussed the existence of God from the *tawheed* perspective (Al-Attas, 2011; Bakar, 2011; Othman, 2014; Jusoh & Muhammad, 2007; Jumali, 2014). Researchers have found that discussions by several studies (al-Attas, 2011; Bakar, 2011; Othman, 2014 as well as Jusoh & Muhammad, 2007) were more comprehensive and covered issues pertaining to Islamic Scientific Philosophy. These studies have put forth the principle of *tawheed* science that has become the mainstay of natural and social sciences. In the meantime, Jumali (2014) only focused on the study of *tawheed* in science education.

Discussions about the existence of the universe created by Allah SWT have been the focus of several scholars. It relates inextricably with science and technology on par with the demand of modernization. Several studies have prominently showed the consistency between religion and science (Yahya 2001; Bucaille, 1997; Zainal, 2014; Naik, 2014; Tawfik, 2008). These studies have shown that the truth behind the Quran and science is similar to the existence of the sky and the earth, the biological existence of humans, truth behind the prohibited (haram) consumption of alcohol and pork, advantage of dietary practices according to the *sunnah* and much more. Research has found that these studies have two profound effects, such as being able to show the greatness of the Holy Quran as well as answer accusations thrown by orientalist's regarding Islam and the Quran itself.

In the meantime, Ibrahim, Wan Abas, and Cheok (2009) had focused on the advantages of solat from the scientific aspect. The advantages are stated in detail and involve all solat movements, either individually or collectively in a group. Besides that, there are other studies that appear to be more focused (Ismail, 2016; Al-Dawamy, 1999; Mohd Yusof, 2016). Ismail (2016) and Al-Dawamy (1999), had shed some light on the secrets of the cosmos. The al-Qur'an often states that, whether directly or otherwise, the earth, the galaxy, the sky and other cosmic objects do have an impact on astronomy, the yearly calendar, seasons and sailing. In the meantime, Amir, Mohd Noor, and Ahmad Helmi (2012), had interpreted al-*Ayat al-Kawniyyat fi al-Qur'an al-Karim* written by Zaghlul El-Najjar. The book debates the verses of the al-Qur'an using two methods, namely classic and scientific methodologies.

6.2.2. Epistemology of Islamic Science

Epistemology or the theory of knowledge in Islamic Scientific Philosophy refers to the position and hierarchy of Islamic scientific knowledge (Abdullah, 2010). Katanegara (2016) and Misbahudin (2015) showed that the epistemology of knowledge based on the al-Qur'an in an integrated manner allows humans to understand Allah SWT better and everything He has created. Unlike Western knowledge that places sensory capability as the main source of knowledge, Islam places another source of knowledge that is far greater and absolute, which is divine deliverance or *wahyu*. Comparatively, the study by Misbahudin (2015) related more to knowledge about epistemology and Islamic science. Tamuri (2014) agreed with suggestions by Katanegara (2016) Misbahudin (2015), who had suggested that the al-Qur'an is a source of knowledge. Nevertheless, Tamuri (2014) was more thorough in regards to the al-Qur'an and the Universe, where both have become the source of scientific knowledge in the field of education.

Shah (2010) had dealt with epistemology from a different perspective, which referred to the challenge faced by the epistemology of Islamic science. The confusion about epistemology has led to the disharmony between science and the framework of Islamic thoughts. Looking at the challenges of epistemology, Azhar (2013) talked about the same issue but the details referred more to the expansion history, science and technology and how they are influenced by both epistemology and methodology. Unlike the studies mentioned earlier, Mahdi (2014) only examined the contributions of Ibn Khaldun's thoughts. Ibn Khaldun is not only regarded as the pioneer of science, humanity and philosophy, but also for his contributions towards Islamic Scientific Philosophy. There are also other historical studies on Islamic science that only focus on the medical field, such as the study by Omar (2011). Meanwhile, Ab. Rahman, Sidik, & Mat Sidek, (2015) not only concentrated on the history of the medical field, but also investigated the impact of Islamic science on astronomy.

6.2.3. Ontology of Islamic Science

The theory of ethics and values in the philosophy of Islamic science is normally a study that discusses things that provide benefits or otherwise, whether materially or spiritually, and so on. Conclusively, the theory of values is either characteristically objective or subjective. (Abdullah, 2010). Isa (2009, 2013) has outlined discussions on the theory of values and ethics in a research method. According to the study, in order to ensure that research in the biotechnology field is at par with the current *fiqh*, bioethics is given priority so that it can resolve ethical issues in science and technology advancement. In a similar vein, Mohd Saifuddeen, Lee Wei, Ibrahim, and Mhd Khotib (2013) had studied the importance of bioethics but the more to tackle scientific and technological dilemmas. This is different from Mastor (2009), who was inclined towards the ethics of Muslim scientists themselves. Following this study, Muslim scientists had to bear two responsibilities, which was to fulfil their duties to Allah SWT and serve for the benefit of the people.

Next, Alias (2016) had dealt with free values in scientific studies, especially in Islamic-oriented studies. The issues in scientific research have also attracted other scholars, as there were several issues that emerged in the philosophy or application in studies. For instance, some studies (Adebayo, 2015; Shaikh Mohd Salleh & Baharuddin, 2007; Badrussyamni, 2015) have elaborated on the importance of Islamizing science and its impact on the greatness of Islamic science, which is vital to prevent it from being influenced by modern science. Meanwhile, the study by Badrussyamni (2015) was slightly different

as it only established the importance of spirituality and theology in the scientific aspects of Islam in general. Akhmetova (2016) focused on the contributions of science and technology in producing genetically modified food products but concerns were about issues related to religious, social and ethical based perspectives. Dimiyati (2016) studied aspects of integrating spirituality into efforts that improve the value chains of farm products. The study found that spirituality enhances the development of attitudes, behaviours and habits necessary for better technical and economic performance.

Meanwhile, Amir (2016) examined the analysis of *tafsir al-Sya'rawi* composed by Muhammad Mutawalli al-Sya'rawi, who was an Islamic science thinker. The study showed that the concept of scientific elements in the al-Qur'an encompasses three main parts, which are Divine Science, Social Science and Natural Science. Apart from that, al-Sya'rawi was also consistent in using the al-'Ilmi al-Naqli al-Ijtima'i method when interpreting scientific verses. Meanwhile, Azhar and Abdul Rahim (2010) had contributed towards the integration of scientific thinking and *shari'a* studies, especially in Malaysia. According to the study, there is a need to apply the element of scientific thinking in current *shari'a* studies as it is an urgent requirement in this era of globalisation. Therefore, the concern of the Muslim *fuqaha'* to offer solutions in addressing Islamic issues is very timely.

7. Conclusion

Based on the examination of previous literature, there were three elements that were frequently discussed, namely ontology, epistemology and axiology, which are important elements in the philosophy of Islamic science. These three elements are differentiating factors between the philosophy of Islamic science and the philosophy of modern science. From a more in-depth perspective, the scholar's contribution of ideas and thoughts had put *tawheed* in perspective according to the philosophy of Islamic science. Besides that, there have been efforts to integrate *naqli* and *aqli* but assuming that divine deliverance (*wahyu*) to be the main source of knowledge in Islam. In addition, this study has thrust the al-Qur'an as the supreme scripture based on scientific research and lastly, had elaborated on the morality and values of humans according to the philosophy of Islamic science.

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