THE CONCEPT OF SCIENCE IN PHILOSOPHY REVIEW
(STUDY ASPECTS OF ONTOLOGY, EPISTEMOLOGY AND AXIOLOGY OF SCIENCE)

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Abstract
This paper discusses the concept of Science in the context of a philosophical review. A philosophical review is an examination of the concept of science through ontology, epistemology, and axiology. According to the findings of this study, ontology of science investigates the nature of a science's existence or the nature of a science's existent object of study. Science studies both matter and immaterial objects. The classification of science is often separated into two, namely religious science and general science, based on the aim of study of science. Epistemology is the method, source, and condition of a science's validity. Allah SWT is the source of knowledge in Islam. Additionally, man observes and experiments on the verses of Allah SWT using the senses, mind and intuition. Axiology is the science of value. The Axiology of science is in the framework of the implementation of human duties, namely abd’Allah and khalifah fil ardh.

Keyword: Science; ontology; epistemology; axiology

Abstrak

Kata Kunci: Ilmu pengetahuan; ontologi; epistemologi; aksiologi
INTRODUCTION

Allah SWT commanded the Prophet Muhammad Saw to *iqra'* (recite) his commands. This demonstrates the need of reading for a Muslim to learn Allah SWT's advice given to man in order for him to know him. The reading command, Read not only the commands provided in the Qur'an and Hadith, but also the *sunnatullah*, or natural events found in the universe.

The command of Allah SWT, invites people to think by reading the verses of Allah SWT, both *qauliyah* verses and *kauniyah* verses. Reading the verses of Allah SWT in the form of *qauliyah* verses is done by study or interpretation, while *kauniyah* verses are not only done with understanding and interpretation, but also accompanied by observation and experimentation. The result of the process of reading the verse of Allah SWT produces knowledge that all as a form of devotion to Allah SWT. Allah SWT also describes man as *khalifah fil ardh*, guardians, the agent of prosperity on Earth, where the knowledge gained through the process of thinking, observation and experimentation in order to find the guidance of Allah SWT which furthers it as a form of implementation of the purpose of his life is to serve Allah SWT, the Creator.

This science, *haikat*, will be discussed philosophically. In certain ways, the study of science employs logical, analytical, critical, radical, systematic, and universal thinking processes. The philosophical approach also entails seeing Science through the lenses of ontology, epistemology, and axiology. Ontology studies the nature of science's existence, epistemology investigates the sources and methods of getting science, and axiology investigates the use or advantages of science. In simple terms, the study of ontology is concerned with what is science? Epistemology, what is the method of obtaining such knowledge? And Axiology, what is science for? Based on this, the researcher is interested in studying, "the concept of Science in Islam in the review of Philosophy (study aspects of ontology, epistemology, and Axiology of Science)."
Previous academics, including Uswatun Khasanah, have explored the notion of Science from the perspective of philosophy under the term ontology, epistemology, and axiology of education. The study's findings are as follows:

RESEARCH METHODOLOGY

This study uses the approach of the library (library research). Where, the library approach makes the library as a source of information in assessing research problems. Information is obtained from books, journals, articles, proceedings. As for the source of data or information in this study there are two primary sources and secondary sources. Primary sources are the main or principal sources of information in this study, while secondary sources are supporting information that explains or reinforces information related to the research discussed.

The primary sources in this study include, Bahrum's essay with the title Ontology, Epistemology, Axiology in the Sulesana Islamic Insight Journal. Secondary sources include books and articles that are relevant to the topic or theme of the study. Once the information and data relevant to the problem are collected, they are further classified according to the formulation of the problem. Furthermore, the data is analyzed using the method of content analysis or content analysis and then draw conclusions related to the concept of Science from the aspects of ontology, epistemology and axiology.

RESEARCH RESULTS AND DISCUSSION

1. Ontology of Science

Ontology is derived from the words ontos and logos. Ontos means (something tangible), while logos (theory of the existence of something or the nature that exists), based on this meaning, the language of Ontology means the science of the nature that exists. Ontology is also the basic nature of a reality or truth inherent in it (Anwar, 2018).
The fact that there is known by humans based on an object that is studied so as to produce knowledge (Bahrum, SE, M.Ak, 2013).

According to Jujun S. Suriasumantri, ontology is as a basis in determining the scope of a material/ object which is the study of the existence of something or existing reality (Suriasumantri, 2011). Mahfud mentioned ontology examines the nature of the existence of everything that exists and that may exist (Mahfud, 2018). Ontology is an essential characteristic of a generally valid object of science (Malli, 2019). Thus, ontology encompasses the problem of the existing nature that is the basis of the truth of a reality. In simple terms, ontology talks about what exactly is the nature of the existing? And briefly ontology explains the question of what. What exactly is this science?

In Islam, knowledge is a tool for humans to know Allah SWT through His creation, with which humans also carry out Allah SWT's mandate as khalifah fil ardh to preserve the nature of his creation with the best. Science in Arabic comes from the word ‘ilm which means “to know” (Muhammad Fadhlulloh Mubarok, 2020). The notion of knowledge begins with research that shows the level of thinking or human thinking. To know something, awareness of the senses as the first step in the process of perception. In addition to the power of mind, humans are also equipped with the ability to name objects using symbols. A verse related to this is found in the Qur'an, Surah Albaqarah/2: 31.

The verse instructs man to explore, discover, and study science. This implies the relevance of Science for the wellbeing of human life, even as a means of knowing Allah SWT, the Creator of the cosmos and its contents. Study in order to gain knowledge in order to commit oneself and flourish the Earth is in accordance with the commandment that Allah SWT given to man as khalifah fil ardh.

In this regard, the question that emerges is what field is the study of science?
When discussing the object of this science, everything that exists in nature is included. This understanding of science's ontology is based on Allah SWT's words in the Qur'an, *Surah Al-Alaq/I-5*.

The verse gives the command *iqra* ' means “read” as the first revelation is meant a command or encouragement for Muslims to read the laws of Allah SWT both contained in the Qur'an and the provisions of Allah SWT in this universe which is often called *sunnatullah* or the laws of Allah SWT. Allah SWT teaches knowledge through two ways; both the *qalam* (written) and *maa lam ya'lam* (unwritten). Knowledge through *qalam* is understood as knowledge obtained through writing. Writing has symbols/ letters, language, sound, text, script, etc. This is the Holy Qur'an and *Sunnah*. Knowledge that is not yet known, meaning not written, not spoken, and not symbolic are what meant by the laws that apply to the creatures of Allah SWT or called *sunnatullah*.

Based on this, it is clear that science is divided into two categories. The science derived from *Nash* is Religious Science, whereas the science derived from nature is general science. However, the two are not dichotomous or separate when it comes to explaining Allah SWT's verses or referents.

Classical Greek philosophers such as Plato and Aristotle also classified science. Plato classified science into two kinds, namely the natural sciences and metaphysical Sciences. Aristotle classified science into three groups, namely the theoretical sciences which include engineering, astronomy and the science of reckoning. *Amaliyah* science includes morals, economics and Social Sciences. Production science includes the science of *Syar'i* and *balaghah* (Fistiyanti, 2017).

The classification of Sciences in the Islamic world developed during the Golden Age of Islam or Abbasid. At this time, Islam has a variety of scientists who are experts in various fields including Al-Ghazali, Ibn Sina, Ibn Rushd and so forth. Here is the
classification of science according to some experts:

a. Al-Ghazali. Al-Ghazali divided science into two categories: religious science (fardhu ain) and general science (fardhu kifayah). Religious knowledge, or fardhu ain, is required for everyone to study, including faith and worship. General science, also known as fardhu kifayah, is a science that is relevant to the needs of many people or society but is not required for everyone. This science comprises medical science, sociology, philosophy, psychology, and so on (Anam, 2022).

b. Ibnu Sina. Ibnu Sina distinguished knowledge from philosophy (wisdom). He divides science into two categories: theoretical science and practical science. Theoretical knowledge (hikmah nazariyah), which is related to human knowledge but does not applicable in practice. This theoretical science addresses metaphysical (Divinity), mathematical (riyadhiyah), and physical (thabi'iyah) concerns. Moreover, practical knowledge (hikmah 'amaliyah) refers to something that is used or applied. Ethics (khuluqiyah), controlling family and household relations, economics, governing the people's connection with the state, and prophethood are all examples of practical knowledge. (Khasanah et al., 2020).

c. Ibnu Khaldun. Ibnu Khaldun divided knowledge into two groups, namely naqliyyah and aqliyah. Naqliyyah is a science based on authority or traditional knowledge which includes the Al-Qur'an, Al-Qur'an science, interpretation, hadith, hadith science, ushul fiqh, fiqh, theology, Sufism and language. Aqliyah is a science based on mind or rational arguments which includes logic, mathematics, natural science and metaphysics.

According to the opinions of several of these experts, science incorporates a wide range of religious and general issues. Both are manifestations of Allah SWT's knowledge, as described repeatedly in the Qur'an. This demonstrates the significance of science in the history of human life, as well as in the performance of human duties such as khalifah fil ardh dan abd Allah (servant of Allah SWT).

Thus, it can be understood that science in Islam is ontologically not only limited to the problem of religious science but also the problem of General Science. Knowledge
is not only related to matter but also immaterial. Science includes various branches of science. It is different from the Western view. Science is only the physical (matter), which can be sensed and accepted by mind, so when it comes to nonphysical issues it is not categorized into science because it does not meet the criteria as a science. In the Western view the criterion of truth of science is based on empiricism and rationalism.

2. Epistemology of Science.

Epistemology is a component of philosophy that studies the truth of a science how to obtain it and how to source it (Rokhmah, 2021). Epistemology is a method, means, procedures to achieve it and as a parameter of truth and classification of science (Anwar, 2018).

a. Methods of Acquiring Science

In the study of epistemology, knowledge is obtained through two events, namely through human effort and given by Allah SWT.

Al-Ghazali mentioned that the source of knowledge in Islam, both religious knowledge (fardhu ‘ain) and general science (fardhu kifayah) can be obtained through the senses, intellectual and intuitive heart (Anam, 2022). The senses are skills (power) possessed by humans to know the outside world, including the eyes, ears, nose, skin, tongue. It all comes down to knowing and observing the environment. So with the ability (power) possessed by each of these senses humans can see the changes that occur in an object by digging a variety of information.

The method of empiricism is the learning of knowledge by the senses. Empiricism maintains that knowledge is gained from field experience or facts. This sensation is supported by the human senses. This empirical method can be used in conjunction with the inductive method. Because the inductive technique of knowledge acquisition transforms facts (specific) into concepts (general).

The mind is a distinct soul/mental skill that people possess. Because of this
distinction, humans serve as Allah SWT's representatives on Earth. Philosophers define human intellectual power as the ability to abstract from universal notions that have been abstracted from particular objects. As for the way of mind to investigate physical objects perceived by the sense organs is to ask some questions so that the questions arise What, Where, Why, Who, When, Which, and others.

Al-Ghazali mentions four functions of mind. First, mind is a gharizah (instinct) which has the ability to distinguish and absorb various sciences; second, mind is the ability to know the possible and impossible; third, mind is an experience, such as insight into history; fourth that with the human mind is able to control their desires by considering in terms of good and bad (Anam, 2022).

Based on the opinion of some experts, it states that mind is an important means of obtaining knowledge. Mind is able to obtain evidence based on logical, radical, systematic arguments against an object to produce a concept. The existence of mind in man makes him get a great mandate from Allah SWT, namely khalifah fil ardh. Muslim philosophers such as Al-Kindi, Ibn Sina, Al-Ghazali use mind in the search for truth (science). The result of acquiring knowledge with the use of mind is known as the method of rationalism. Rationalists argue that knowledge is acquired through human mind (ideas). This method of rationalism can also be paired with the deductive method. Because, in the deductive method of science acquisition is based on general concepts then to the specific. In the Qur'an there are many verses that use words that instruct humans to use mind or think about Allah SWT's creation. As the word of Allah SWT says. In Qur’an Surah Al-Baqarah/2: 164. This verse describes the command of Allah SWT to humans to use their minds to understand and study the phenomena that occur in the universe. It is a sign or a sign of Allah SWT's grace. These are signs for people to understand. In Qur’an Surah Yunus: 101 also describes the urge for Muslims to make observations using mind. Observation of phenomena as an effort to see the signs of the greatness of Allah SWT, which will lead humans to submission and obedience to their Creator (`abd Allah).

Intuition or Qalb, is knowledge obtained by way without going through a
particular reasoning process. One of the Muslim philosophers who used intuition as a means of acquiring knowledge was Al-Ghazali. According to Al-Ghazali the intellect and the senses are limited in understanding objects. Ibn Sina mentions intuition with *al-hads al-qudsi* (sacred intuition).

Ibn Sina mentions this power is usually possessed by the Guardians (prophets). This power is very much needed, because intuition can capture things that the senses and mind cannot. This happens because mind often fails in understanding things as they are.

*Qalb* is a dimension of the soul in humans who not only have the ability to understand, but also to live. Prof. Baharuddin mentioned that *qalb* has dual intelligence, namely rational and emotional intelligence.

Hence, it can be understood that the method of obtaining knowledge is carried out by means of empiricism (experience through the senses), rationalism (ideas through mind) and intuition through *qalb*.

1. Source of Science.

What is meant by the source of knowledge is the origin or something from which humans can get information about objects of science of different nature. Science is based on the word of Allah SWT in Qur’an *Surah Al-Alaq*/1-5. This verse explains that Allah SWT as a source of knowledge, gives guidance to humans to recite his verses both *bil qalam* and *malam ya’lam*. *Bil qalam*, in the form of text, symbol means *qauliyah* verses, while the *malam ya’lam*, not in the form of text, and symbol. And that is the nature of it. What is meant is the nature (*kauniyah* verse).
Based on this image, it can be understood that the source of all knowledge is Allah SWT, The Truth (Al-Haqq), both religious and general knowledge. Where, Allah SWT is the source of truth including truth in order to obtain knowledge. The religious sciences (naqliyah) are based on “authority” not mind. The authority in question is the Qur'an and Hadith, which act as an interpretation of it, so the main source of religious knowledge is the Holy Book. The source of general knowledge is the universe (kauniyah) that lies before us in the form of the universe and its contents with the solar system that complements it. All of them as objects or means for humans to conduct experiments, observation of Allah SWT's guidance so as to produce science. Epistemology in Islam is a view of life that leads to the life of this world and the hereafter (Harahap, 2020).

Religious Science and general science are both verses of Allah SWT, religious sciences (qauliyah verse) and general science (kauniyah verse). And because both verses of Allah SWT then, both point to the true reality and the source of truth that is Allah SWT, so that both complement each other in showing the knowledge of Allah SWT. According to Ghazali as quoted by M. Gizali said that the search for truth is in the absolute truth that is Allah SWT. Allah SWT is the source of truth through the help of

**Picture 1. The sources of Science**
Allah SWT in the form of guidance (guidance). Truth can be achieved through the efforts of self-approach to the source of truth that is Allah SWT (Gi-iazali, n.d.).

As a result, they complement each other and interpret the reading of the verses of kauniyah (the universe) by doing research and observation so that knowledge is obtained. It turns out that long before the researchers did a deep assessment of the nature of Allah SWT had explained it in the Qur'an. As an example of the science of the origin of the universe. In physics we know the Big bang Theory, (big bang), this universe evolutionarily evolved.

So centuries before the scientific theory (the big bang Theory) was discovered by experts, Allah SWT described it in the Qur'an. That Allah SWT expands the heavens or expands the universe so that the galaxies that fill them are away from us. As the word of Allah SWT says in Qur'an Surah Adz-Zariyat:47 which means, “and the sky we build by (Our) power and indeed we are powerful”.

Another example is the theory of gravity discovered by Isaac Newton in the 17th century. This theory states that the force of attraction of the earth that makes objects always fall down. Allah SWT explains it in the Qur'an Surah Al-Baqarah/2:74. This verse explains about the universe is also subject to its creator. Such is the law of nature. The order of nature is a form of submission to the Creator.

More example is a very important one with which we need to keep in mind, which is about the creation of man. In the biological science of the human reproductive system, that the fetus is formed from the meeting of the sperm with the fertilized egg then into several phases morula, blastula, gastrula. Where in each phase there are changes that subsequently form the embryo or fetus. After arriving at the phase of embryo formation, science says that the baby starts to move, but the baby's movements in this phase are still smooth, so the baby starts to be played with classical music. Allah SWT has made it clear in the scriptures. Al-Mu'minun/12-14.

This verse describes the process of human creation starting from the process of min-thin (starch soil meaning food nutrients as a source of growth for humans to
produce reproductive enzymes), nuthfah (fluid, meeting sperm with ovum), alaqah (a clot of blood), mudghah (a lump of meat), izhaman (bones), lahma (wrapped again with meat and important organs), khalqan akhar (other shaped creatures/fetus). The conclusions of human investigation on the process of its formation turn out to be the same as recounted in the Qur’an. This was explained by Allah SWT centuries ago, when mankind had only recently discovered scientific facts in the 15th century (Middle Ages).

From this image, and the previous examples, it can be understood that science is centered on Allah SWT as the core or driving force of each of his creations. Allah SWT has guided mankind to the right path and the right path. Thus, man studies and interprets the verses of Allah SWT in the form of Revelation, which is accompanied by observation and experimentation of his creation (the universe and mankind), so that man acquires knowledge. As the word of Allah SWT says in the Qur’an Surah Fushshilat/41: 53. This verse describes the signs of Allah SWT through his creation.

**Kauniyah** verse states that the universe is a manifestation of Allah SWT’s strength and magnificence. Nature as a mirror or reflection of Allah SWT’s characteristics. According to Seyyed Hosein Nasr, "when Muslim scientists study such rich natural phenomena (sunnatullah), they do so not just to satisfy mere curiosity, but to closely observe the traces of Allah SWT. Natural phenomena are not independent realities, but rather signs of Allah SWT’s verses, through which we are given instructions about the Oneness and existence of Allah SWT (Kartanegara, 2011). Allah
SWT gives humans a set of potentials to be able to know His existence and Oneness through His creation, so that the concept of science in Islam is epistemologically believed to be the concept of Allah SWT’s Unity (Unification of the Creator), because Allah SWT is the source of all sources of knowledge.

2. Axiology of Science

Axiology is a branch of philosophy that deals with values. Axiology is also called the theory of value. Values as a measure of truth, ethics and morals as a normative basis in the development and application of science (Mubin, 2020). In this case, it means to study the purpose or benefits of science. In simple Axiology ask about aka where the science is directed? (Ekawati, 2013). The purpose of science as a benefit to mankind and also the universe. However, in its development, science must be guided by revelation as a control over the implementation of science. Just Like A. Baiquni mentioned that the development of technology for the welfare of mankind is developed in accordance with religious norms. With science, it makes it easy for humans in their lives. Science can also be a way of understanding the teachings of Islam in kaffah or syamil.

Keeping the results of intizhar in the universe around us, whether distant like the Galaxy or the Milky Way, stars, Sun, and Moon, or near like the Earth, mountains, oceans, wind, rain, and rivers are all Allah SWT's creations. This demonstrates the relationship between Allah SWT's verses and scientific results.

Allah SWT is so gracious to mankind. Mind as a means to know Allah SWT. It is Allah SWT's way of revealing Himself to all of creations. So, when mankind is able to produce knowledge and discover the secrets of Allah SWT through natural phenomena (sunnatullah), He is even more amazed at the power of Allah SWT so that it adds and thickens faith. Because we increase our confidence that the Qur'an is not man-made but the revelation of Allah SWT who correctly states what is in nature, which after centuries later is understood by mankind with intizhar. As the saying goes "like a tree, the more contained the more down". The illustration for a person with knowledge is that the more knowledgeable a person becomes, the more he obeys and
submits (worshiping to glorify Him), because he realizes that Allah SWT has power over all things. Thus, the effort to understand science in order to carry out the task as ‘abd Allah dan khalifah fil ardh. As the word of Allah SWT says in the Qur’an Surah Az-Zariyat: 56.

Worship has a broad sense in this context; obey all commandments and avoid all prohibitions. We worship in order to gain His approval. According to Al-Ghazali, the route in Ma'rifatullah is knowledge of the universe. Ma'rifatullah is a rung or level on the path to knowing Allah SWT through His creation.

Science can also advance a nation. History has proven that the progress of a nation in this world is closely related to science. Because knowledge is what brings a nation to glory (Suparman Syukur, 2007). Islamic history has also recorded the success of Islam in the Abbasid period in a fairly long span of time (from the 8th-13th centuries). This achievement was marked by Islam's advancement in numerous sectors of science, resulting in Islam being the center of civilization. Islam was able to pass down scientists such as Al-Kindi, Al-Farabi, Ibnu Sina, Al-Ghazali, Ibn Rushd, and others. Humans can dominate the world with knowledge. This is what Allah SWT says in Qur’an Surah Ar-Rahman:33 essentially instructs humanity to study Allah SWT’s creations, both in the heavens and on Earth, in order to learn lessons or gain insight.

Table 1

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<td>Ontology</td>
<td>- Science is not only physical (material) but also nonphysical (immaterial). Physical Sciences in the form of general sciences while nonphysical Sciences in the form of religious sciences.</td>
<td>- Science is only physical (material). Physical Sciences in the form of General Sciences.</td>
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<td>- Religious knowledge derived from Revelation includes the science of Tauhid, Shari’ah, Fiqh, history, Hadith, morals. General science derived from human</td>
<td>- Nonphysical sciences (religion is not legally considered a science because it cannot be sensed). So in this view, science is only empirical and rational.</td>
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acquisition includes science (mathematics, physics, astronomy, medicine and so forth); social Science (History, Sociology, History, Geography, Pancasila and so forth); humaioa science (philosophy, art and language).
- Religious Science and general science are integrated.

- The science of religion is separate / dichotomous.
- Religion and science are considered two opposite things because the objects studied are different. Science examines the physical while religion is nonphysical (abstract).

| Epistemology | - The source of knowledge in Islam is Allah SWT through his verses (both qauliyah and kauniyah). Human beings interpret the verses of Allah SWT dengan way of interpretation accompanied by observation. The study is carried out by means of senses, reason and intuition. Methods are carried out not only empirically, rationalistically but also in conformity with revelation. |
| - The source of knowledge from Man by means of reason and senses. Science is obtained by the method of empiricism or inductive, rationalism or deductive. |

| Axiology | - As a benefit to humanity in their daily lives and as a bridge to reaching afterlife aspirations. In other words, the goal of knowledge is to be happy in this world and the next.
- Rahmatan lil ’alamin
- Ubudiayah means of carrying out obligations as ’abd Allah and khalifah fil ardh.
- Increase faith (Tauhid). |
| - Ease of human life. |

**CONCLUSION**

Based on the study of the concept of Science in the review of philosophy, it can be understood that:

Ontology is the study of the existence or object of something. Ontology of Science in the form of material and immaterial science or religious science and general science. The
epistemology of science is the source, method and condition or criterion of the truth of science. The source of knowledge is the senses, reason and intuition, all three of which come from Allah SWT. The source of knowledge is Allah SWT. The method of science is by inductive or empiricism and deductive or rationalism. Axiology is a science that examines the value, benefits of a science. Axiology of Science for human welfare and to know its creator in order to carry out his duties as khalifah fil ardh dan `abd Allah (servant of Allah SWT).

References


