

## Scientific Methods in the Study of Islamic Philosophy and Science

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### Abstract

*The source of all knowledge is Allah SWT. However, this is evidenced by the verses of the Qur'an which say that knowledge comes from Allah and as a teacher (teacher). Muslim scientists are of the opinion that what Western philosophers put forward about how to acquire knowledge is not as perfect and complete as that which Allah conveys in the Qur'an. The scientific method is a method or certain steps that must be taken in order to carry out a scientific project. The scientific method can also be interpreted as a way of applying logical principles to the discovery, validation and explanation of truth. There are several scientific methods in Islam, namely the bayani method, the burhani method, the tajribi method, and the irfani method. The commentators use the bayani method in studying and exploring the knowledge contained in the Qur'an, the philosophers apply the burhani method in understanding non-physical objects, the scientists apply the tajribi method to study physical objects and the Sufis apply the irfani method to witnessing non-physical objects.*

### Keywords

method; science; Islam



## I. Introduction

Philosophy is the process of gathering knowledge about things that are real or unreal or can also be called abstract from God, humans, and the universe so that knowledge increases, understanding increases and leads us to act more appropriately in carrying out everything.

In essence, humans have a great curiosity and are difficult to satisfy. If one or more wants and needs are met, then humans desire to achieve other and higher needs. In an effort to fulfill curiosity, there are various and many paths that can be taken by humans themselves.

In order to satisfy their curiosity, humans make various efforts, both conscious and unconscious efforts. Efforts carried out without awareness (meaning without a clear design and planning or steps). In addition, efforts are made consciously by using and relying on thought processes (reasoning), namely with certain steps and carried out through research, trials, and this is known as a science.

In the study of Islamic epistemology, it is undeniable that the source of all knowledge is Allah, the Most Knowledgeable, who is the source of knowledge. As His word:

قَالَ إِنَّمَا الْعِلْمُ عِنْدَ اللَّهِ وَأُبَلِّغُكُمْ مَا أُرْسِلْتُ بِهِ وَلَكِنِّي أَرَاكُمْ قَوْمًا تَجْهَلُونَ

Meaning: Verily knowledge is with Allah and I convey to you what I was sent with it. But I see you are a group that does not know.

Because knowledge itself is one of the attributes of Allah, then all knowledge comes from Him so that Allah is the only source of knowledge. Muslim scientists, revealed that western scientists involved in obtaining knowledge were not as complete as that informed in the Qur'an. According to Nurgiyantoro in Putriyanti (2019), religious education values are high spiritual values and absolutely come from human belief in God. In connection with this, Islamic religious teachers are required to have good efforts to improve the quality of Islamic religious education. Islamic religious education teachers basically include five main elements, namely the Qur'an, faith, morals, fiqh, and more emphasis on the development of religious teachings science and culture (Adiyono, 2021). The position and function of the Qur'an other than as a holy book of the Qur'an is as a way of life for those who are pious and as a guide or guidance for humanity (Sinaga, 2020). Interpretation Al-Quran which is considered capable of being a solution of the above conditions experienced extraordinary development (Nirwana, 2020). The Qur'an introduces ways to gain knowledge that are very comprehensive, such as drawing lessons from travel, carrying out a critical view of nature and its phenomena, paying attention to and taking lessons from history. One of the features of the epistemology of the Qur'an is its information about objects that do not appear, no matter how sharp the eyes or mind in analyzing the object (M. Quraish Shihab, 2010).

Mulyadi, an Indonesian Muslim intellectual, explained that there is one scientific method in the West that is recognized for disclosing knowledge, namely observation or experiment (tajribi method). Meanwhile, in Islamic epistemology, there are three more methods that the Western intellectual world will not recognize and practice. There are four methods recognized in Islam, namely: tajribi, burhani, irfani and bayani methods (Al Rasyidin and Ja'far, 2015).

## **II. Review of Literature**

### **Understanding the Scientific Method**

Method comes from the word Meta which means through, and hodos which means way. Method is the way something is obtained, done, and used. The scientific word comes from the English term 'science' which is usually given the meaning as a more limited special science, namely as systematic knowledge about the physical or material world (systematic knowledge of the physical or material word). The term science is taken from Arabic; "alima, ya'lamu, 'ilman" which means to understand or understand. In English, the term science comes from the word science, which comes from the Latin scientia from the verb scire, which means to study and know. So the scientific method is a certain way or step to find out physical and non-physical objects by approaching the truth. The scientific method is a procedure in obtaining knowledge which is called science (science). So science (science) is knowledge that is obtained through the scientific method (Jujun S Sumantri, 2019).

In Islamic epistemology there are two types of knowledge, namely religious science and natural science. Both types of knowledge have been recognized in Islam as scientific knowledge and developed by the scientific method. Islam does not distinguish, as is the case in the West, between the terms science and knowledge. Science is physical and empirical, while knowledge is non-physical, such as mental concepts and metaphysics. The occurrence of an accident this term also affects the Indonesian language.

Basically the general pattern in the scientific method can be used by looking at the history of the development of science itself which has been going on from century to century. At the same time by looking at the development of science, it can be understood that the spread of knowledge into many branches, among others, is also related to the scientific method used.

### III. Research Methods

#### 3.1 Data Collection Method

Researchers used data collection methods in this study, namely the study of literature. Literature study here means that the author obtains data sources from books, journals, and other sources.

#### 3.2 Data Analysis

This type of research is a qualitative research. Data analysis in this study is inductive analysis, what is meant by induction analysis technique is drawing conclusions starting from statements or specific facts to general conclusions. In this context, the researcher collects research data, then analyzes it and draws a conclusion.

### IV. Discussion

#### 4.1 Bayani Method

Bayan language means explanation. Bayani is a method based on the authority of the text (nash). Bayani method is a method that uses text in obtaining knowledge. Bayani method based on text in seeking knowledge. Phenomena and nature that occur in reality will be searched based on the authority of the text. In the context of Islamic thought, the bayani method is a method of interpretation or takwil applied by commentators in exploring knowledge from the Qur'an and hadith.

In exploring the meaning of a text or interpretation, it is one of the scientific methods that is recognized as a source of knowledge. Through this method, a commentator explores the meaning that is hidden or hidden behind the text of God that is in accordance with the tendency of the commentator. But that is why in the books of commentary a variety of information is found about the basics of science. Such as the discussion of commentators on the basics of religion, science, natural science, social science, and humanities science (Ahmad Tafsir, 2015).

In the Islamic world, bayani has become the dominant school, especially in the study of religious sciences. In this case Allah says:

هَذَا بَيَانٌ لِلنَّاسِ وَهُدًى وَمَوْعِظَةٌ لِّلْمُتَّقِينَ

Meaning: This (the Qur'an) is a clear explanation for all humans, and is a guide and a lesson for those who are pious.

The key to acquiring knowledge and truth is faith and total surrender. The Qur'an, like the universe, is a source of broad and deep knowledge, so to understand it or study it properly requires the right method. Muslim scientists call it the bayani method.

To find out in revealing the reality of the universe from within the Qur'an, by the bayani method the verses are classified into several categories, such as muhkamat verses and mutasyabihat (ambiguous) verses.

To obtain knowledge from the text of the Bayani method, there are two ways. First, adhering to the editorial (pronunciation) of the text, using Arabic rules such as nahwu and sharf. Second, adhering to the meaning of the text by using logic, reasoning or ratio as a means of analysis.

## 4.2 Burhani Method

Burhan language means clear arguments to obtain truth and knowledge through the thought process. Burhan emphasizes process and rational analysis. Burhan can be interpreted as thinking activity in order to establish a proposition. In a burhani sense, it can be interpreted as thinking activity to determine propositions through the inference method.

The burhani method is a method that uses reason to acquire knowledge. This method relies heavily on reason in seeking knowledge. In the view of adherents of this epistemology, reason has the ability to find various kinds of knowledge, even their words and reason can also be used to find truth in any field, including truth in religion.

In Islamic history, the burhani method was used by rationalists consisting of philosophers and theologians as the method used to find rational theories. In the field of paripatetic philosophy using this method, big names such as al-Kindi, al-Farabi, Ibn Sina and Ibn Rushd were born. From the theologians who used this method, Muktazilah and Shia sects were born, and by using the method from the jurists, a very rational school was born, namely the Hanafi School. Not to forget the exegetes who are under the direction of the Burhani method, so that the interpretation of bi al-Ra'yi was born (Muhammad Husain Adz-Zahabi, 2005).

In either philosophy, either Western philosophy or Islamic philosophy, the term used for the Burhani method is rationalism. The burhani method is a teaching that comes from the teachings of the Qur'an. This can be proven by the existence of so many verses of the Qur'an that command to think, analyze and others. One of the words of Allah:

أَتَأْمُرُونَ النَّاسَ بِالْبِرِّ وَتَنْسَوْنَ أَنْفُسَكُمْ وَأَنْتُمْ تَتْلُونَ الْكِتَابَ أَفَلَا تَعْقِلُونَ

Meaning: Why do you tell other people (to do) good deeds, while you forget yourself, even though you read the book (Torah)? Don't you think.

## 4.3 Tajribi Method

The tajribi language means experiment, so the tajribi method is the same as the "experiment method." The tajribi method is a method that uses the observation of the senses in obtaining knowledge. The tajribi method relies heavily on the senses in studying and researching material objects which are the source of knowledge. Classical scientists have applied this method in their struggle with science, so that they mastered the rational sciences such as metaphysics, mathematics, medicine, psychology, physics, ethics, economics and politics. What is even more amazing is that apart from mastering the rational sciences, they also explore intuitive methods at the end of their lives, as seen in the figure of encyclopedic scientists such as Ibn Sina (Abuddin Nata, 2012).

If observed carefully, this method is strongly encouraged by the Koran to be developed in understanding material nature. The Qur'an's encouragement is evidenced by the large number of Qur'anic verses that command observations and experiments in various material objects. Among them are the words of Allah:

إِنَّ فِي خَلْقِ السَّمُوتِ وَالْأَرْضِ وَاخْتِلَافِ اللَّيْلِ وَالنَّهَارِ وَالْفَلَاحِ الَّتِي تَجْرِي فِي الْبَحْرِ بِمَا يَنْفَعُ النَّاسَ وَمَا أَنْزَلَ اللَّهُ مِنَ السَّمَاءِ مِنْ مَّاءٍ فَأَحْيَا بِهِ الْأَرْضَ بَعْدَ مَوْتِهَا وَبَثَّ فِيهَا مِنْ كُلِّ دَابَّةٍ وَتَصْرِيفِ الرِّيْحِ وَالسَّحَابِ الْمُسَخَّرِ بَيْنَ السَّمَاءِ وَالْأَرْضِ لَآيَاتٍ لِقَوْمٍ يَعْقِلُونَ

Meaning: Verily in the creation of the heavens and the earth, the alternation of night and day, ships that sail from the sea with (load) that is beneficial to humans, what Allah sends down from the sky is water, then He gives life to the earth after it dies (drys). and he spreads in it

various kinds of animals, and the control of the winds and clouds between the heavens and the earth, (all that) indeed, are signs (of Allah's greatness) for those who understand.

قُلْ أَنْظَرُوا مَاذَا فِي السَّمُوتِ وَالْأَرْضِ وَمَا تُغْنِي الْآيَاتُ وَالنُّذُرُ عَنْ قَوْمٍ لَا يُؤْمِنُونَ

Meaning: Say, "Pay attention to what is in the heavens and on the earth!" Signs (of Allah's greatness) are not useful, and messengers who warn those who do not believe.

To make more objective and accurate observations of an object. The tajribi method must also follow the steps or procedures in drawing conclusions or decisions, either deductive (analogous) or inductive (drawing conclusions).

#### 4.4 Irfani Method

Linguistically the word 'irfan' is a masdar form of the word 'arafa which means al-'ilm (Science). Irfani can be defined as the highest type of knowledge that is presented to the heart through kasyf or inspiration. It is a part of Islamic epistemology which is identical with hudhuri, isyraqi or intuitive science (Mulyadhi Kartanegara, 2006).

The irfani method is a method that uses experience in gaining knowledge. This method uses direct experience or witness in revealing the knowledge gained through irradiating the essence of God to humans. According to philosophy, this 'irfani' method is better known as intuition. Some philosophers divide intuition into three kinds. First, based on sensory experience, such as knowledge of the color and smell of an object. Second, based on reasoning and axioms, such as the A is A, the A is not B or the number 10 is more than the number 9. Third, a brilliant idea that appears suddenly. As experienced by the Greek mathematician Archimedes (212-287 AD) when he was confused to prove whether King Hieron's crown was really pure gold or had it been mixed by goldsmiths who made it with materials other than gold? But what is amazing is that the answer to the confusion was found not when thinking, but the answer was "informed" by God while swimming. From that experience, then this expert came up with the idea of what was later named with specific gravity (M. Quraish Shihab, 2006).

According to the commentator M. Quraish Shihab, this intuition can happen in the real world, but it can also happen in sleep. Dreams experienced by humans are often experienced by humans in an implied form, then the meaning of the dream is only realized when the truth is proven in the real world. The repetition of a dream which is later proven in the real world can produce the same interpretation for the dream (M. Quraish Shihab, 2008).

The irfani method has been informed by Allah in the first revelation that the Prophet Muhammad received. Allah says:

اقْرَأْ بِاسْمِ رَبِّكَ الَّذِي خَلَقَ الْإِنْسَانَ مِنْ عَلَقٍ اقْرَأْ وَرَبُّكَ الْأَكْرَمُ الَّذِي عَلَّمَ بِالْقَلَمِ عَلَّمَ الْإِنْسَانَ مَا لَمْ يَعْلَمْ

Thus, the acquisition of irfani type of knowledge is a scientific method that is recognized in Islamic teachings even though it is denied in the Western scientific method.

## V. Conclusion

Based on the description above, the following conclusions can be drawn; First, the source of all knowledge is Allah, because knowledge itself is one of the attributes of Allah, so all knowledge comes from Him so that Allah is the only source of knowledge. Second, scientific epistemology in Islam is much more complete than epistemology in Western

scholarship. Third, the scientific method in Islam, namely the bayani method, the burhani method, the tajribi method, and the irfani method. The commentators use the bayani method in studying and exploring the knowledge contained in the Qur'an, the philosophers apply the burhani method in understanding non-physical objects, the scientists apply the tajribi method to study physical objects and the Sufis apply the irfani method to witnessing non-physical objects. Al-Quran contains matters relating to faith, sciences, regulations that regulate the behavior and procedures for human life. Al-Quran is also an inspiration for morals and life (Nuraini, 2020).

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