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# INTERCONNECTION OF SCIENCE, ISLAMIC RELIGION, AND PHILOSOPHY OF SCIENCE

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## HIGHLIGHT

- The relation between science and philosophy of science is evidenced by the structure of objectivity, the subjectivity of scientists, and attempts at control or judgment.

## ARTICLE HISTORY

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## ABSTRACT

*This paper seeks to highlight the similarities and differences of science, Islam, and the philosophy of science. The discussion of this paper begins with the assignment of definitions of these three topics.. The relation between science and philosophy of science is evidenced from the structure of objectivity, the subjectivity of scientists, and the efforts of control or judgment. The relationship between religion and philosophy of science can be seen from the dominance of morality in the ideal imagination as a standard of product, attitude, and activity. Another proof of the relationship between Islam and the philosophy of science is the variant of Islamic epistemology in the form of bayānī, burhānī, and 'irfānī. The relationship between science and religion of Islam is reflected in the appreciation of al-Qur'ān and al-Ḥadīth which is responded by the presence of religious educational institutions primordially.*

**Keyword :** ***science, Islam, and philosophy of science.***

## A. INTRODUCTION

Religion comes from Arabic language with the word *dīn*. The term *dīn* in Islam which means religion has other words like *millah* and *sharī'ah* (Wahid, 2012: 226). *Religion* in English language is taken from the word "relegere" (verb) which etymologically means "read back" or "read repeatedly" (Bagus, 1996: 12). Another opinion states that *religion* taken from the word *religare* has an etymology which means "fast tie" or "fast binding" (Nasution, 1985: 10). Daudy involves the word *al-Ḥuda* to define the word *al-dīn*, which means a set of guidelines or instructions for each follower (Daudy, 1997: 12). Rejection of the terminology put forward by Daudy arose from Djuned, who defined religion as the demand and order of the *ilaḥiyyah* which was revealed by Allah through the apostle for understanding humanity for its benefit in the world and the hereafter. Djuned's definition of religion is based on one of the functions of religion, namely "the savior of reason" (Djuned, 2004: 82). The religious terminology conveyed by the two figures cannot be understood as a definition that can be accepted by all religions because the two terms are subjectively through Islamic intervention as one of many religions. The two terminologies were broken by Darraz who put forward terminology more accommodatively without any religious intervention. Darraz argues that the terminology of religion is the belief in existence (wujūd) a essence or some supernatural verses of the supreme, he has feelings and will, he has the authority to manage and regulate matters relating to human destiny. Simplified religious terminology by containing nuances of partiality towards a particular religion (Islam) according to Darraz is a belief (faith) about a dhat (ilaḥiyyah) that deserves to receive obedience and worship (offerings) (Al-Qaradhawy, 2000: 15). The etymological diversity and religious terminology essentially emphasizes two things, including: the existence of a bond between humans and God; and the existence of certain normative texts or textual principles that must be readings for followers of a religion (Wahid, 2012: 227).

The various terminologies of "Islam" have vertical, mystical or metaphysical nuances. Effendi argued that Islam was the religion of Allah which he commanded to teach about the subjects and regulations to the Prophet Muhammad SAW and commissioned him to convey the religion to all humans by inviting them to embrace him (Effendi, 2001: 500). Different opinions on the terminology emerged in Nasution's thinking which defined Islam with religion whose teachings were revealed by God to human society through the prophet Muhammad SAW as an *rasūl* (Nasution, 1979: 17). The terminology carried out by Nasution was based on efforts to convey the teachings contained in Islam (the Qur'an and hadith)

which contained various aspects of human life. The opinion of Nasution and Effendi regarding the terminology "Islam" cannot be understood as a way of life or a way of self-actualization. Both figures subjectively direct the term "Islam" in the realm of institutions or institutions, namely Islam. This situation is certainly not in line with non-Muslims living in Arab countries in understanding Islam as a neutral way of life without institutional religious intervention. The terms and terminology of "Islam" need to be understood as something that is free of value so that the proportionality of the distribution of justice can be measured if faced with the term Islamic religion (*Dīn al-Islām*).

The terminology of Islam which consists of Diksi din and Islām (in Arabic) can be explored through normative and subjective views. The normative view to understanding Islam is conceptually can be seen the orientation of the process mechanisms that exist in QS. 3: 9. This view needs to be understood that Islam according to the verse is a tool in ensuring the quality of human life in the future (Hasyim, 2013: 129).

The definition of etymology in science and various terminology needs to be understood as a whole. Science in English is called science. The terminology of science or science goes from the subjective understanding of the characters who define it. Montaque argues that science is an arrangement of knowledge obtained from observation or observation, study, and experimentation to determine the properties of the principles or the basics of what is being studied (Montaque, 1959: 289).[1] Feyerabend rejected Montaque's opinion by describing the terminology of science with free practice and scientific discoveries that did not have absolute laws to follow. The terminology of science was also born from Kirom which states that the definition of science is a series of rational and cognitive human activities consisting of several methods in the form of various procedures and work steps resulting in a systematic compilation of knowledge about the symptoms of the state, society or individuals for the purpose of achieving truth, gain understanding, provide explanation, or apply (Kirom, 2011: 102). The scientific terminology presented by Kirom received support from Van Peursen, who stated that science can be seen as a system that is interconnected and obedient to the principles (consistent) of expressions that can be determined (Peursen, 1985).

[1] Terminologi tersebut hadir secara verbatim dengan redaksi *science is systemized knowledge derived from observation, study and experimentation carried on order to determine the nature or principles of the what being studied*. Ashley Montaque, *The Cultured Man* (New York: Tp, 1959), 289.


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"Philosophy" as a term that is present not from the womb of the Indonesian language needs to be understood by tracing the etymology and terminology. The word "philosophy" was born from Greek which consists of two words namely philo and sophia. The word philo means love and in a broader context can also mean desire. The word sophia means wisdom or truth. The practical definition of philosophia is to love wisdom (Bakhtiar, 2009: 6). The term "philosophy" has diversity. The Ministry of Education and Culture defines "philosophy" as knowledge and investigation with reason through the nature of all that exists, the cause, origin, and law (Departemen Pendidikan dan Kebudayaan, 1988: 242). Poejawijatno opposes the terminology by explaining that "philosophy" is a science that seeks the most basic cause of everything that exists and has a probability of being through mind (Poejawijatno, 2009: 69). The two terminology conflicts were welcomed by Asmoro in the term "philosophy" which he expressed as a human effort in increasing human dignity and dignity through a plurality of thoughts to be more cultured, civilized and enjoy life (Achmadi, 2009: 1).

Terminology "philosophy of science" is a separate discussion that is more specific than philosophy. "Philosophy of science" according to Beerling, Kwee, Mooij, and Van Peursen is an investigation of scientific knowledge and ways of acquiring it using reason as its basic model (Juwariyah, 2004: 11; Beerling, Kwee, Mooij, & Peursen, 1990: 86). The definition presents the consequence that investigations on how to obtain scientific knowledge cannot be intervened by the individual's mental processes, conditions, and environment that exist and are determined by the organizers of science. Investigation of scientific knowledge can only be intervened by the arrangement of logic and methodology (Beerling, Kwee, Mooij, & Peursen, 1990: 86). Kirom denied the terminology "philosophy of science" expressed by Beerling and his friends. The term "philosophy of science" in Kirom's thinking is a critical analysis of the methods used to study certain sciences, both empirically and rationally (Kirom, 2011: 99-100). Kirom's opinion received support from Gie who stated that philosophy does two things, including: building theories about humans and the universe and presenting them as the foundations for beliefs and actions; and philosophy examines critically everything that can be presented as a basis for certain beliefs and actions (The Liang Gie, 2007: 59).

## B. METHOD

This paper uses a descriptive analysis method. This method aims to describe or give a picture of a research object through the collected samples or data and make conclusions that are generally accepted (Yunus, 2017: 80). Research data related to science, Islam, and philosophy of science in "descriptive mechanisms" are interpreted separately (Waljinah & Prayitno, 2018) and delivered systematically, actually, and accurately through sample data or populations as they are (Tanjung & Nababan, 2016: 39). The description of science, Islam, and philosophy of science that has been described goes to the "mechanism of analysis" which seeks to criticize the initial understanding so as to produce the desired new understanding related to an integration that connects the three themes (Islam, science, and philosophy of science). This is in line with Suriasumantri's opinion and states that the descriptive analysis method is a method used to examine ideas or products of human thought that have been contained in print (primary or secondary) by conducting critical studies on it (Suriasumantri, 2005; Nurwicaksono & Amelia, 2018: 143). The integration of science, Islam, and philosophy of science certainly has a great opportunity to be understood from many sides so as to facilitate understanding that is worthy of acceptance. The most important stage in the "mechanism of analysis" in this context is trying to describe, discuss, and criticize the primary ideas which are then confronted with other primary ideas in an effort to conduct studies such as comparison, relationships, and model development. This stage will produce a view of the integration of science, Islam, and philosophy of science to be more robust and resistant to testing.

## C. RESULT AND DISCUSSION

### 1. Concept of Science

Science has instruments. Pirhat Abbas suggests five instruments that exist in science including experience, thinking (ratio) or reasoning, intuition, fatwa, and revelation (*wahy*) (Abbas, 2010: 134). The five instruments of science will refer to the form of science itself which begins with its sensory and non-sensory nature. Science can take the form of consciousness at the simplest level (Juwariyah, 2004: 7).

The five instruments are elements to guarantee the task of science. The first task of science is to form the most plausible hypothesis in terms that can be explained by nature.

The second task of science is to explain scientific data using scientific hypotheses (Benjamin, 1938: 422-423). Every difference that determines two scientific disciplines will also be a kind of scientific hypothesis from scientific data (Benjamin, 1938: 426). The task of science is based on his condition which has a special relationship with rationality and objectivity and / or special claims to knowledge about the world (Psillos, 2012: 94).

The component of science consists of hypotheses, theories, and legal propositions (Gazalba, 1992: 40). Gazalba argues that the hypothesis of something can be right or wrong because it is not permanent. Determination of right and wrong must be based on the theory used. The theory used is present on the basis of the arguments and rules of applicable law (Abbas, 2010: 133). The interconnectedness of hypothesis elements, theories, and integrated legal propositions is an effort to present productive objectivity to humans. This situation causes the birth of science by humans to be used to uncover things that are subjective-metaphysical, such as magic, mythology, religion, or primitive metaphysics to be objective (Liu, Liu, & Xin: 577-579; Fayerabend, 1999: 60). The hypothesis as one component of science has a subjective nature. The subjectivity of this nature is justified by Foucault who states that the function of science is ideology (Foucault, 2003: 4-5; Liu, Liu, & Xin, 2009: 585-586).

Science has terms and rules as a further discussion of the components of science. Bahm argues that the requirement for science is curiosity, speculative and objective behavior, revealing new or innovative knowledge horizons and being able to provide judgment, and be tentative in nature (Bahm, 1985: 45). Bahm's opinion was denied by I.R. Poedjowijatno, who stated that the requirements of science are object, method, systematic and universal (Mintaredja, 1987: 4). The first condition can be understood by presenting a material object which means the target or study material; and formal objects which mean the point of view of a scientific approach to the object. The second condition is a procedure or a certain method of science in an effort to find the truth. The purpose of the third condition is science which consists of several elements as one unit. The relationship or relationship between one part and another part is an additional explanation related to the systematization of the third requirement of science. The purpose of the Fourth condition is that science is considered as a whole that applies, does not cover a certain place or time. In simple terms, this fourth condition means that science is projected to be as widespread as possible. Robert Merton quoted by Wibisono stated that the rules of science are universalism, communalism, disinterestedness, and directed skepticism (Siswomiharjo, 2009: 2; Kirom, 2011: 102).

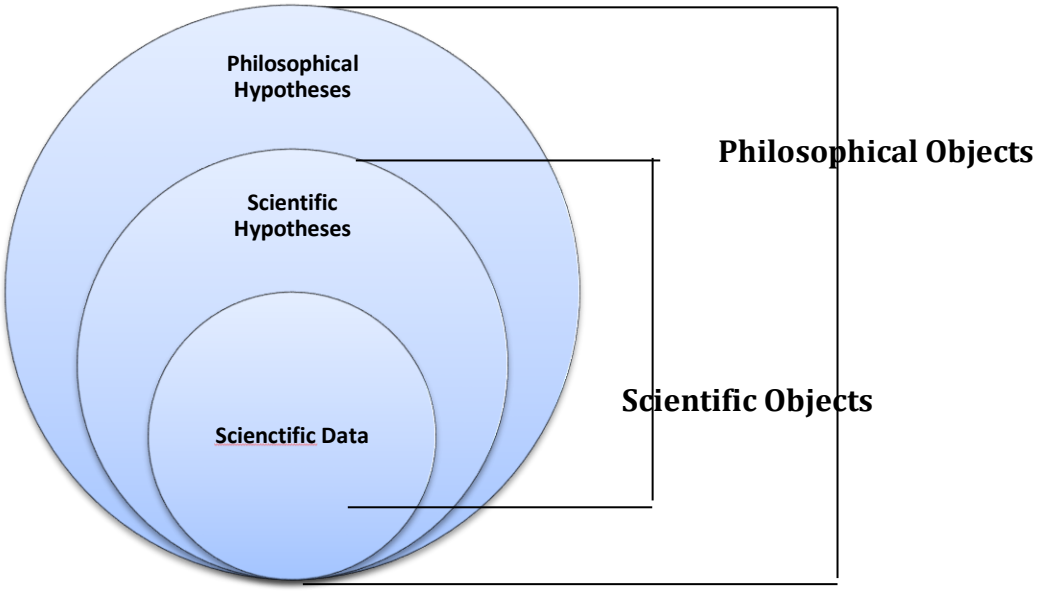
## 2. Concept of Islam

Islam has teachings as other religions. Rasjidi argues that religious teachings are not knowledge of God, but the relationship between a human being and God generally (Rasjidi, 2002: 3). Dedication or contentment is a positive response from followers of religion to the teachings of religion as well as being a benchmark for the existence of religious teachings.

The purpose of Islam can be understood as a productive effort in developing humanitarian interactions and improving the standard of living of the followers of Islam subjectively. The purpose of developing humanitarian interactions can be understood by presenting Suraiya's opinion which states that the goals of Islam are divided into two, namely fundamental goals and accommodative-adaptative goals. The aim of Islam is fundamentally to develop the moral literacy of the people towards global values of brotherhood, equality, and social justice. The purpose of Islam in the context of accommodation and adaptation of the times is to present a complete and comprehensive treatise on Islamic civilization, both spiritually, morally and materially (Suraiya IT, 2011: 22).

## 3. The Concept of Philosophy of Science

The philosophy of science has two tasks. First, describe science (science) and formulate the most plausible hypothesis in terms of which knowledge can be explained. Second, explain philosophical data using philosophical hypotheses, but the philosophical data is actually a scientific hypothesis in their relationship with scientific data (Benjamin, 1938: 422-423). The two tasks of philosophy of science are based on the philosophy of science itself which has an independent and distinctive role in building the structure of scientific knowledge (Psillos, 2012: 9; Cassirer, 1950: 11).




The progress of science became an important issue in the philosophy of science. The Progress of science talks about how science can be said to develop. The response that comes from the discussion of the Progress of Science is the presence of assumptions for the development of science (Muslih, 2014: 12-13). In simple terms, assumptions about the development of science largely determine its development efforts. This situation was strengthened by adherents of positivistic schools who viewed science as developing if a theory could be proven. The discovery of many evidences has an effect on the strength of the theory and has an impact on the conditions of the development of science. The development of science depends on the process of accumulating evidence. Individually, subjectively, the responsibility of scientists in the development of science is to discover and exploit as much evidence as possible based on the use of certain theories. This fact causes the truth of the theory to be the dominant factor for the truth of science, even the theory determines the course of the process of proof. The selection of facts that support the theory is useful for avoiding mistakes. Science and philosophy of science are related in terms of revealing the structure of objectivity. This situation is evidenced by the tendency of positivists as hypotheseophobia who insist that the task of science only describes data (Benjamin, 1938: 421-433). Science and philosophy of science are both in need of something that can be proposed or a simpler one commonly called a "hypothesis." Hypotheses are useful for explaining the nature of the philosophical relation of science to science. Determination of scientific results in any type of knowledge is based on a philosophical foundation consisting of theoretical frameworks, scientific paradigms, and basic assumptions. The three things

commonly referred to as the philosophy of science or scientific philosophy mean the philosophical basis underlying the building of science and scientific activity generally (Muslih, 2014: 18). The discovery of one or more than one theory actually produces one or several methodological offers as a framework in the scientific process. The cycle makes each theory interact with each other related to methodological issues which ultimately can improve the structure of science or certain disciplines (Muslih, 2014: 18).

The journey of science (sciences) and philosophy of science is sometimes determined by the subjectivity of scientists (individuals who are experts in the field of science). This fact can be proven by the existence of scientists who insult the philosophy of science and scientists who value the philosophy of science. Scientists who insult the philosophy of possible anti-metaphysical science, deride all investigations from being "ultimates", or only anti-logic, even insisting that science is the fastest to develop without involving the philosophy of science. Scientists who value the philosophy of science feel that inquiry into technique, presupposition, and integration has important contributions to science (Benjamin, 1938: 428-429). The most important consideration of the debate over the attitude of conflicting scientists lies in decision making and accepting the consequences of accepting or rejecting the philosophy of science.

Cross the opinions of scientists in addressing the philosophy of science is an arbitrary character. Scientists can be categorized as those who doubt the philosophy of science because it is considered vague or too speculative. Another fact rejects this opinion by stating that sometimes major discoveries actually come from scientific hypotheses that are not clear and specific to scientific data; or at least recognize the possibility that the philosophical hypothesis has certain levels of benefits (Benjamin, 1938: 428-429).

The philosophy of science has three models of scientific development. Firstly, the development of science which focuses on the basis of scientific methodology. This model is consistent with the contributive views of Francis Bacon and positivism. Scientists who only recognize and appreciate scientific methodology and theory as philosophical bases of science must reject the sociological and historical aspects of science; harsher refusal is aimed at the theological-metaphysical aspects. Secondly, the development of science gives more attention to the basis of scientific methodology and socio-historical basis. This view is contributed by Thomas Kuhn. Recognition of this paradigm requires scientists to understand and understand that science is also human and social construction. Thirdly, the development of science while paying attention to the three elements of the philosophy of science, including

the basis of scientific methodology, socio-historical basis, and theological-metaphysical basis. This view is contributed by Lukatos. It is this third development of science that further enables religion-based science such as Islamic Science to be scientific (Muslih, 2014: 23-24). Simply stated, the relation between science, philosophy of science, and religion is present by stating that Islamic beliefs or beliefs as a theological-metaphysical basis of scientists have a clear position as an inseparable part of scientific building.

| **Model I** | **Model II** | **Model III** |
|---|---|---|
| Basis of Scientific Methodology | Basis of Scientific Methodology | Basis of Scientific Methodology |
| | Socio-Historical Basis | Socio-Historical Basis |
| | | Theological-Metaphysical Basis |

The philosophy of science as a branch of philosophy has goals and characteristics. Jujun argues that the purpose of the philosophy of science is to answer three questions, including: existence or existence, process-way, and moral-use (Kontjojo, 2009: 7-8; Suriasumantri, 2005: 33-34). Kuntjojo conveyed the characteristics of the philosophy of science based on the terminology of various characters. The characteristics of the philosophy of science are divided into two, including: first, the philosophy of science is a branch of philosophy; second, the philosophy of science attempts to examine science philosophically from an ontological, epistemological, and axiological point of view (Kuntjojo, 2009: 8).

The series of branches of philosophy consists of three categories that are interdependent. The branch of philosophy in the first level is ontology, epistemology, methodology, logic, ethics, and aesthetics. The branch of philosophy in the second level is social philosophy, political philosophy, legal philosophy, economic philosophy, and religious philosophy. The third branch of philosophy is the philosophy of science, philosophy of culture, philosophy of language, and philosophy of environment (Wilujeng, 2013: 80-81).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| Branch of Philosophy | | |
|---|---|---|
| **First Level** | **Second Level** | **Third Level** |
| Ontology | Political philosophy | Science phylosophy |
| Epistemology | Religious philosophy | Environmental philosophy |
| Methodology | Economic philosophy | Philosophy of language |
| Logic | Philosophy of law | Cultural philosophy |
| Ethics | Social philosophy | - |
| Aesthetics | - | - |

The objects and benefits of studying the philosophy of science are normative understandings that need to be understood before carrying out a more contextual-thematic development. The object of philosophy of science is divided into two, namely material objects of philosophy of science and formal objects of philosophy of science. The material object of philosophy of science is science. The formal object of the philosophy of science is science that is based on philosophical reviews such as ontologically, epistemologically, and axiologically. The benefits of studying the philosophy of science are divided into three. Firstly, train students' critical attitudes towards the various theories learned. Secondly, explore the scientific method and use it in scientific research. It will present a complete understanding of science and can use that knowledge as a foundation in scientific research and the learning process. Thirdly, solve problems that begin with an analysis of various things related to the problems faced so that these individuals are increasingly trained in the application of the philosophy of science in practice (Kuntjojo, 2009: 8-9).

## 4. The Relationship between Religion and Philosophy of Science

Religion and philosophy are ideals of imagination that prioritize morality as a standard for product evaluation, activity, and attitude. The encounter between philosophy and religion into a philosophy of religion will present a responsive-interactive definition resembling a discussion effort related to the fundamental elements of religion fundamentally, comprehensively, systematically, logically, and freely (Bakhtiar, 2009: 14). Islam as a product of idealism and philosophy of science as a means of integration of various scientific disciplines has a meeting point in terms of its formal object. The formal object of philosophy is the search for causes in depth by using the mind as a tool and ability to think.

The search process because it is carried out freely or without limiting itself, but has a limitation of human nature, namely morals or *budi* (Indonesian and Java) (Poejawijatno, 2009: 68). Different things can be seen from the tools found in Islam, which are dubbed "revelations" or “waḥyu.” Humans try to exploit their abilities in understanding things that are revealed with their heart; trying to deduce the truths spoken by God; and presenting proofs of truth that are "natural" or “adi kodrati” (a mixture of natural and sensory) through contemplation of truth in religious teachings. The contemplation of the teachings of religion was later called theology.

Epistemology of Islamic thought is proof of the rigidity of the teachings of Islam which pay attention to many aspects, including thinking. The three systems of thinking in Islam are *bayanī*, *irfāni*, and *burhāni* (Al-Shaṭibi, tt: 249-254).

The *bayanī* epistemology is a method of typical Arabic thought that departs from the authority of the text (*naṣṣ*) directly or indirectly. al-Jabiri argues that the epistemology of al-Jabiri is supported by the pattern of fiqh and kalam. The pattern of Islamic thinking is a dominative and hegemonic model so that it is difficult to dialogue with the epistemological tradition of *burḥāni* and *'irfāni* (Musliadi, 2014: 34). Thinking based on the authority of the text directly means understanding the text as a finished product and realizing it — applying it without the need for any thoughts or considerations. Thinking based on the authority of the text indirectly means understanding the text as a semi-finished product so that it needs further interpretation and reasoning. It does not mean releasing thoughts and interpretations freely without control because this indirect model tries to determine the meaning and purpose on the basis of the text as well (Al-Jabiri, 1991: 116).

The consequence of *Bayanī* epistemology is the attention to the authorits of the oldest texts as genuine, namely the Al-Qurān and hadith. This type of epistemology is very concerned about the transmission of text from generation to other generation (Al-Jabiri, 1991: 58-62) to safeguard its political-normative-ideological-dogmatic power. Whether or not the text transmission that produces legal products will be held accountable. This fact has caused the period of "tadwīn hadith" (codification) to be carried out very tightly by scientists in the selection of the texts they have received before.

The source and method of *bayāni* is a reflection of the dogma of certain religious institutions and disciplinary authorities. The main problem of *bayanī* which emphasizes text


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is the disclosure of *lafaz* - meaning and *ushūl - furū*'. This explanation will lead to the realm of text discourse which is interpreted in a context or as it is. The domain of the discourse can be translated by the analogy of words or terms not found in the text and the meaning of special terms (Al-Jabiri, 1991: 58-62). Obtaining knowledge on the basis of the text has consequences for applying 2 methods. Firstly, maintain editorials by using Arabic rules or theories such as nahw and ṣarf. Secondly, using the meaning of text by activating logic, reasoning, and ratio in the analysis process (Al-Jabiri, 1991: 530). The second method is carried out with four technical steps. The first step is oriented towards the main goal (*al-Maqāṣīd al-Shāriah*) which consists of five basic interests such as maintaining the safety of religion, soul, mind, lineage, and wealth. The use of this second method is thematic induction (*al-Istiqrā 'al-Mauḍū'i*) because the induction has the dominant level in the form of rational reasoning. The second step, the nuances of divine texts. The discovery of the "illah" text requires a means that requires reasoning in the "path of the *illah*" or *masālik al-Illah* which consists of three things. The three "illah" referred to are "illah" which has been set by naṣ; "Illah" agreed upon by the mujtahid; *al-Sibr wa al-Taqsīm* (trial) by summarizing the praiseworthy qualities to be made *illat* at the origin (*naṣ*), then "illat" is returned to these traits so that the "illah" can be said to be this or that. This second step gave rise to the *qiyās* and *istihsān* methods (Jamil, 1997: 139-141; Usman, 1994). Step Three, maintain the secondary purpose of the text. Secondary objectives function to support the implementation of the main objectives. The use of means in discovering the secondary purpose of the text is *istidlāl*. *Istidlāl* is looking for propositions from outside the text and this is a contradiction with *istimbāt* which seeks theorem from within the text. Step Four, consistent with shār'i (Allah SWT and Rasul SAW). Activating this fourth step is done if there are no provisions in the text and cannot be done by qiyas. The technique of implementing this fourth step is by returning to the main or principal law that has been understood and known together. This method gives birth to *istishāb* theory which means setting something on the basis of the previous validity as long as there is no argument or indication that shows change (Khalaf, 1996: 154). Epistemology 'Irfāni is a way of uncovering something that is based on the subjectivity of certain individuals, kaff in revealing the secrets of the reality of God. Spiritual Olah which is based on the sanctity of the heart will in obtaining knowledge from God and delivered to the lan people logically. Irfani's knowledge acquisition phase consists of preparation, acceptance, and disclosure. Disclosure in question can be either written or oral. The first stage consists of several levels of spiritual life that must be carried out including


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repentance, *warā'*, *zuḥud*, *faqir*, patience, *tawakkal*, and *riḍā* (al-Qushairi, tt: 89-350; Nashr, 1994: 89-96; Muthahhari, 1997: 120-155). The second stage (acceptance) is the illumination of knowledge by God so that the acquisition of one's self-consciousness is absolute (*kashf*). This stage will lead to the ability to see self reality (*mushāḥadah*) as an object known by itself. Awareness and reality that are realized are not differences, but the same existence. The third stage (disclosure) is not classified in the order of conception and representation, but is related to the unity of God's presence in self and vice versa. This is the reason that not all experiences like this can be communicated. The acquisition of inner meanings or dimensions obtained from kashf is expressed in two ways, *I'tibār* or *Qiyās* and *Shṭaṭāt* (verbal confection related to feelings or *al-Wijdān*).

*Burḥāni* epistemology is a picture of the power of ratio or reason through logical propositions. *Burḥāni* produces knowledge through the principles of logic to previous knowledge that has been believed to be true. The source of *burḥāni* knowledge is a ratio that serves to provide judgment and decisions on information that enters through the senses (Rushd, tt: 56). The acquisition of burḥāni knowledge that uses syllogism includes a number of conditions including: knowing the historicity of the preparation of the premise, the logical consistency between conclusions and reason, and conclusions having definite and true content without giving space to the presence of truth or other certainty. The right premise (which is convincing) must escape from three conditions, including: the belief that the premise is something that exists or is not in a specific condition; the belief that the premise is something other than it; and the belief that second trust is not possible otherwise. Dialectical silogism ranks under the syllogism of burḥāni. Dialectical silogism is a form of syllogism which consists of premises which only exist at the level of close to belief and does not reach the level of convincing as demonstrative syllogism. The premise material of dialectical syllogism is the opinions received (mashḥurah) without undergoing rational testing.

**Balance Sheet Comparison of Islamic Epistemology**

| **Categories** | ***Bayanī*** | ***'Irfāni*** | ***Burḥani*** |
|---|---|---|---|
| **Sources** | Religious Text or *Naṣ* | Inspiration or intuition | Rasio |
| **Methods** | Linguistics or *Dilālah al-Lughawiyah* | *Kashf* (*Experience*) | *Tahlīli* (analytic) and discourse |


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| **Approaches** | | Psikho – Gnostik | Logika |
|---|---|---|---|
| **Central Theme** | *Aṣl –Furū'*<br>Words - Meanings | Zahīr –Batin<br>Wilayah – Nubuwwah | Essence - Existence<br>Language - Logic |
| **Data Validity** | Correspondence | Intersubjective | Coherence of Consistency |
| **Supporting** | Theologians, Fiqh Experts, and Linguists | Sufis | Philosophers |

**5. Relationship between Philosophy of Science and Science**

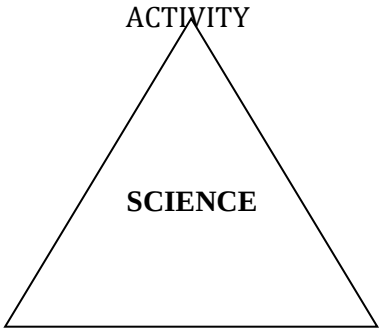
Modern times are difficult times in bringing together philosophy and science interactively. It can be felt with the rapid development of science that gave birth to branches of derivative science and the slow development of philosophy which only dialectics with five branches of philosophy (logic, aesthetics, ethics, politics, and metaphysics) only (Juwariyah, 2004: 3). The science which always starts from philosophy (as *fitrah* or inevitability) and ends with art (as a form of wisdom or *ḥikmah*) is a dualism that has fanatical sympathizers respectively (Juwariyah, 2004: 8).

Science and philosophy of science has a close relationship in the framework of efforts to control or assess. The study and assessment of an object of science must be done in a deep or philosophical way. The study and assessment in question can be ontological, epistemological, and axiological nuances. One of the questions that commonly appears in ontological nuances is what object is studied by science? One of the epistemological questions is how is the process that enables the acquisition of knowledge in the form of knowledge? One question that is axiologically nuanced is for what knowledge in the form of knowledge is used and disseminated (Pandia, tt: 4)?

The main discussion on the philosophy of science or the support of the existence of science is ontology, epistemology, and axiology. Ontology addresses what the reality is; is reality born of one element (monism), two elements (dualism), or more than two elements (pluralism ) ? Understanding ontology will determine the final opinion in the form of

conviction as the manifestation of the truth we are looking for (Siswomiharjo, 1996: 14). Epistemology seeks to show the process of obtaining material knowledge (scientific), methods, structure, validity, and compile it into a construction of knowledge (body of knowledge). Axiology seeks to uncover the benefits of science and the value of science for the interests and goodness of humans as a means of improving living standards while still observing human nature and dignity and the preservation of nature (Adjie, 2006:368).

The conversation ontology seeks to present a discourse in the form of a paradigm in seeing science as a process, procedure, and product. Science as a process is a research activity. Science as a procedure is a scientific method. science as a product is knowledge that is arranged systematically. The unity of interaction between activities, methods, and science is a logical unit that must be presented sequentially (Kuntjojo, 2009: 12-13).




The epistemology conversation leads to actions or ways of acquiring knowledge. Non-scientific acquisition consists of common sense; prejudice; intuition; coincidence and trial and error; and opinions of authority and critical thoughts, as well as scientific actions. The exposure of knowledge by means of the acquisition of truth can be divided into five namely experience truth, intuition truth, religious truth, philosophical truth, and scientific truth (Kuntjojo, 2009: 22-24). Way to obtain truth from a science based on epistemology can refer to truth theories such as coherence theory of truth, correspondence theory of truth, and the theory of pragmatism (pragmatic theory of truth).

Axiology discussion of the values, criteria, considerations, and decisions. It will lead to disagreements between the necessity of neutral and valuable knowledge; and the neutrality of knowledge that exists in the scientific metaphysical domain only and the neutrality of science is not included in the use and selection of research objects (Suriasumantri, 2005: 235).

## 6. Relationship between Science and Religion

Science and religion have completely different developments in modern times. Science is able to transform into products that are consumed by humans with increasingly extensive and realistic use-practical value. Religion in general or Islam in particular is only able to develop at the dialectical level of jurisprudence, aqeedah, and morals statically without producing physical-contributive effects. Science and religion have a comparison that is not parallel to religion in use. This is based on the fact that humans need knowledge in actualizing all activities of their lives. The opposite is the fact of humanity which states that not all humans need and use religion in their lives, atheists.

Islam accommodates knowledge with its normative view through the al-Qur'an and hadith. Islamic accommodation of knowledge can be proven by reading activity instructions (Surah al-'Alaq). The action of reading in normativity is not only understood as a religious alignment with science, but also as a collaborative effort to equip humans to improve their quality of life. One example of al-Qur'ān's appreciation of science is by mentioning the knowledge division of 780 times. This opinion is strengthened by stating that the prophetic traditions also accommodate knowledgeable people and instruct them to study sciences (al-Munziri, 1993: 129-149).

The position of science and religion of Islam is an interesting theme in the context of modern times like today. It is evidenced by the Qur'an's appreciation of knowledgeable subjects or individuals who will get their own awards or increase the level of humanity (Surat al-Mujādalah). Classical Muslim intellectuals tried to minimize their use and did not even want to use a scientific approach outside the normativity of Islam. This has been rejected by the emergence of an opinion that seeks to utilize the methods (theories) and findings of sciences originating from other than Islam to be used in the re-reconstruction of Islamic scientific structures and methodologies (Suraiya IT, 2011: 24).

Interrelated relations between Islam as a religious institution and science as one of the derivative types produce Islamic scholarship. The knowledge of Islam in Abdullah's thinking is divided into three. Firstly, the area of practice of belief and understanding of revelation which has been interpreted in such a way as forgotten by ulama, community role models, and experts in their fields and by members of society in general. Secondly, the area of scientific theories designed and structured systematically and methodologically by scientists, experts, scholars according to their respective fields. Some terms such as *ulūm al-tafsīr*, *ulūm al-ḥadīth*, Islamic thought (*kalām*, philosophy, *taṣawuf*), social law and institutions (fiqh), Islamic history and civilization, Islamic thought, and Islamic da'wah are included in this second region. Thirdly, it is a critical study commonly known as the meta discourse, in the history of advanced development and the fall of anchovy construction which is composed by a group of scientists and scholars in the second tier (Musliadi, 2014: 30-31).

## D. CONCLUSION

Science, Islam, philosophy of science has interconnection. Proof of interconnection can be seen from the relation between science and philosophy of science; relations between religion and philosophy of science; and the relationship between religion and science. The relation between science and philosophy of science is evidenced by the structure of objectivity, the subjectivity of scientists, and attempts at control or judgment. The relation between religion and philosophy of science can be seen from the dominance of morality in ideal imagination as a standard for product quality, attitudes, and activities. Other proofs of Islamic relations and philosophy of science are variants of the Islamic epistemology of the burupa *bayanī*, *burhānī*, and *'irfānī*. The relation between Islamic science and religion is reflected in the appreciation of the Qur'an and *al-Ḥadīth* which are responded to by the presence of religious institutions in a primordial manner.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