

# UNITY OF SCIENCES ACCORDING TO AL-GHAZALI

**Abdul Muhaya**

Universitas Islam Negeri (UIN) Walisongo, Semarang  
e-mail: muhayacholil@yahoo.com

## Abstract

The dichotomy of sciences caused both the positive and negative effects for development of civilizations; such as poverty, economic colonialism and dehumanization. Therefore, the unity of sciences is an interesting and important to be discussed for developing a new and prosperous civilization. This paper discussed the unity of sciences according to Imam al-Ghazali (d. 1111) and its urgency to the issue of human life. For al-Ghazali, science must be unified in the aspects of ontology, epistemology, and axiology. These three aspects of knowledge united in one entity; such as three angles in a triangle. From the perspective of ontology, knowledge comes from God and cannot be separated from God, so all sciences are commendable. Epistemologically, the nature of science is the light coming from the illumination light of God. Science can be obtained by optimizing the function of reason and through revelation or inspiration. The validity of science is depended on how and sources used to obtain it. Knowledge is not for knowledge, but knowledge for human prosperity. To realize the concept of the unity of sciences it is needed a hard work, patience and many-stage processes; namely equal treatment on scientific and religious knowledge, dialogue, integration and interconnection between science and the end is the unity of sciences..

\*\*\*

Dikhotomi ilmu pengetahuan mengakibatkan efek positif dan negatif bagi perkembangan peradaban, seperti kemiskinan kolonialisme ekonomi, dan dehumanisasi. Oleh karena itu kesatuan ilmu menarik dan penting untuk didiskusikan untuk pengembangan peradaban yang baru dan sejahtera. Tulisan ini membahas tentang kesatuan ilmu menurut Imam al-Ghazali (w. 1111) serta arti pentingnya bagi kehidupan manusia. Menurut Ghazali ilmu harus disatukan dalam suatu kesatuan; seperti halnya tiga sudut dalam sebuah segitiga. Dari perspektif ontologi, pengetahuan berasal dari Tuhan dan tidak dapat dipisahkan dari Tuhan, sehingga semua ilmu. Secara epistemologi, hakikat ilmu adalah cahaya yang berasal dari cahaya Tuhan. Ilmu dapat diperoleh dengan mengoptimalkan fungsi akal serta melalui wahyu atau inspirasi. Validitas ilmu tergantung pada cara serta sumber yang digunakan untuk memperolehnya. Untuk merealisasikan konsep kesatuan ilmu dibutuhkan kerja keras, kesabaran, dan proses yang bertahap; yaitu perlakuan sama terhadap ilmu pengetahuan dan ilmu agama, dialog, integrasi dan interkoneksi antara ilmu dan akhirnya adalah kesatuan ilmu.

**Keywords:** al-Ghazali, unity of sciences, dichotomy of sciences, epistemology, ontology

## A. Preface

The debate on the issue of epistemology has a very long root. The debate happened in the Ancient Greece. Heraclitus example, argued that the universe is always changing and the world is always in motion. The implications of this ideology is that the truth which became the subject of scientific study will always be changing and the truth is only temporal and not eternal. Parmenides even question what is captured by the senses. He rejected the results of perception captured by the senses as knowledge, otherwise he just accept the only real truth; in the form of concepts possessed by the mind; such as  $7 + 4 = 11$ . For him, truth is based on the senses, as snow is white does not have any basis of the clarity and uncertainty.<sup>1</sup> Such opinion was followed by Plato. He stated that there is an idea beyond sensory scope, it is fixed, unchanged, and eternal.<sup>2</sup>

Plato was criticized by Aristotle. According to Aristotle the terms and understanding are not the result of an innate universal but both are the result of a long process of human observation. Aristotle recognized the limitations of the senses in understanding the reality of the object, but the observation and investigation repeatedly causes the mind has capability to abstract the object from the concrete one.<sup>3</sup> Furthermore, there was a movement pioneered by Neo Platonism. Plotinus tried to combine the opinion of Plato and Aristotle. Plotinus was more inclined to the opinion of Plato. For him, The One is the base of everything. The One is the origin, which is perfect, being the First Cause of all existing. Such opinion was followed by Islamic philosophers; such as al-Farabi, Ibn Sina, al-Suhrawardi al-Maqtul and others.

The efforts for integration between science and religion has been discussed by the Moslem philosophers of Islam as, firstly, Abu Nasr al-Farabi (870-950 AD), known as the Second Teacher. Al-Farabi is very famous with his efforts to harmonize the paradigm of Plato and Aristotle. Al-Farabi argued Aristotle even denies the existence of Plato's ideas, but he found it difficult to understand the

---

<sup>1</sup> Imam Wahyudi, *Pengantar Epistemologi*, (Yogyakarta: LIMA, 2007), p. 87.

<sup>2</sup> Mufid, Fathul, "Epistemologi Mulla Sadra: Kajian tentang Ilmu Husuli dan Ilmu Huduri," *Dissertation*, Program Pascasarjana IAIN Walisongo Semarang, 2012., p. 103.

<sup>3</sup> Musa Asy'ari, *Filsafat Islam Kajian Ontologis, Epistemologis dan Aksiologis dan Perspektif*, (Yogyakarta: LESFI, 1992), p. 23-24.

first cause of the universe. He was difficult in understanding the issues of divine forms.<sup>4</sup> Secondly is the Ibn Sina. As a Moslem philosopher, he synthesized the Platonic and Aristotelian epistemology with philosophical ideas that is based on God's word in Qur'an Surat al-Nur verse 35. Based on the content of the verse, Ibn Sina stated that human beings have a receptive ability (*quwwat isti'dādiy-yah*) which likened to a niche (*mishkāt*) that can emit light. Furthermore, the human mind has other power to acquire the knowledge through the perceptions. This capability was illustrated by God as a lantern (*al-miṣbāh*). The emergence of a primary manifestation is the foundation for a secondary form that is understood by the human mind. This is the ability of the human mind as a glass (*zujajah*). Acquisition process can be through the primary form of contemplation is referred to as the olive tree (*shajarah zaytunah*) or the deep thinking that is described as oil from olive trees. The highest glory of the ability of the human mind is described as the ability of divine oil (*zayt*) that seemed to shine although it is not touched by the fire (*yakādu zaytuhā yuḍ'ī walaw tamsashu al-nār*).<sup>5</sup> Although Imam al-Ghazali through his book *Tahāfut al-Falāsifah*, strongly criticized the previous Moslem philosophers including Avicenna, but he agreed with Avicenna's interpretation of of *Surat al-Nur: 35*.<sup>6</sup> The concept of Light is became the basic principle unity of science.

## B. Discourse on the Unity of Sciences

The concept of cosmology since pre-Socratic Greece, especially in the question of which one (the one) and many (the many) implied epistemological debates among scientist. Philosophers have different views about the existence of this world. Parmenides viewed the world as a "static substance", on the other hand, Heraclitus thought the world is always changing (becoming), Empedocles viewed the world consisted of four elements, Democritus argued the world is atomic. Pythagoras assumed that the world is a number, Plato thought it as a form and Aristotle thought it as a category. According to Plato, knowledge is one,

<sup>4</sup>Mehdi Ha'iry Yazdi, *Ilmu Hudhuri: Prinsip Epistemologi dalam Filsafat Islam*, (Bandung: Mizan, 1994), p. 29-30.

<sup>5</sup>Ibn Sina, *Kitāb al-Ishārāt wa al-Tanbīhāt*, (Kairo: 1060), Vol. II, p. 390.

<sup>6</sup>al-Ghazali elaborates the concept of Light in his *Mishkāt al-Anwār wa Maṣāfāt al-Asrār*, (Beirut: 'Alam al-Kutub, 1986).

while the diversity of knowledge is parts of the one. Therefore, Plato recognized language, arts and other as part of knowledge.<sup>7</sup>

In the history of Islamic science the discourse of knowledge has also emerged. Al-Kindi, known as the father of the Moslem philosophers, argued that human knowledge can be classified into two, namely the knowledge of senses that originated from the senses and the idea's knowledge. First knowledge associated with the empirical objects. Human observation causes human concept of the object and the image is stored in retentive faculty to be maintained and perpetuated. Instead, the ideas of knowledge related to the non-material object, the truth based on logical and inevitable inference from the principle of intuition. The object of rational knowledge is also associated with other forms achieved through abstraction of objects that are sensory.<sup>8</sup> The division carried out by al-Kindi above is actually based on different sources of knowledge and not on the nature of science itself, because both are attempts to describe the object as it is.

Al-Farabi divided knowledge into three kinds; physical science, philosophy and psychology. First, the object of physical science is human physical; such as heat, cold, smell, see and feel. Second, Psychology is the science that deals with the ability of the soul; the science generated by the ability of the human imagination, such as imaginative power or imagination to combine or separate the whole impression there resulting in pieces, and the results can be right and could be wrong. Third, philosophy ( *'ilm al-'aqli*) is the science which is based on the power of thought which enables human to understand the various terms, so that they can distinguish between the noble and the useless, good and bad and any other values and meaning.<sup>9</sup> The concept of emanation that was carried by al-Farabi also shows the ability of humans to acquire knowledge derived from the path of an angel (angelic) through capacity human ideas. This indicates that the reality of science (*haqīqat al-'ulūm*) cannot be separated from the reality the matter that as a result of the process of emanation.

---

<sup>7</sup>The Metaphysics Research Lab, "The Unity of Science," *The Stanford Encyclopedia of Philosophy*, Stanford: Stanford University, 2014, p. 3.

<sup>8</sup>Majid Fakhry, *a History of Islamic Philosophy*, (New York: Columbia University, 1987), p. 116-117.

<sup>9</sup>Ahmad Zainul Hamdi, *Tujuh Filosof Muslim: Pembuka Pintu Gerbang Filsafat Barat dan Moderen*, Yogyakarta: LKiS, 2004, p. 76-77.

Ibn Sina argued that knowledge is an abstraction in understanding the shape of the object. He stated that true science can be obtained through reason. Besides, Ibn Sina also had a theory of purified soul (*al-Rūh al-Muqaddas*) which has connection to the Universal Soul through the process of inspiration and revelation.<sup>10</sup> After Ibn Sina, Imam al-Ghazali also discussed the issue of knowledge in the *Ihyā' 'Ulūm al-Dīn*. In general, Imam al-Ghazali acknowledged the existence of two sources of knowledge; namely reason and inspiration or revelation. Discourse on science continues after Imam al-Ghazali; such as al-Suhrawardi Maqṭul, Ibn Arabi, Mulla Sadra and other's scholars.

Scientific discourse is never stopped and continued even during the age of renaissance. At the end of the 16th century, Francis Bacon stated that the unity of science is the result of the organization of material object that is found in the form of a pyramid with different levels of generalization, these are classified according to the disciplines related to human ability. In accordance with Pythagoras, Galileo stated that *The Book of Nature* (Natural Law) was written by God in the language of mathematical symbols and geometric truth. In the 17th century, and the systematization of Newton's mechanical philosophy which is based on the basic concepts and the first law of mechanics becomes the most promising framework for the unification of natural philosophy.

According to Christian monotheism, knowledge reflects the idea that the world is governed by laws dictated by God. From this tradition emerged unification efforts such etymologies science compiled in the sixth century by the Andalusia Isadora, Bishop of Seville, the works of the Catalan Ramon Llull in the Middle Ages and the works of Peter Ramos France during the Renaissance. Llull introduces the icons of trees and forests as a description of the organization representing different disciplines, including law, medicine, theology and logic. Nevertheless, all knowledge united in the knowledge of the secrets of creation.

For both Descartes and Leibniz,<sup>11</sup> as Ramon Llull, the unity of science is determined by the rules of analysis into elements of an idea, and synthesis in combination. According to Descartes, the science of geometry, with a demonstrative reason is simple and obvious, is a paradigm for the purpose of

---

<sup>10</sup>Abu Ali Ibn Sina, *Aḥwāl al-Nafs*, translated by M.S Nasrullah, (Bandung: Pustaka Hidayah, 2009), p. 167-168.

<sup>11</sup>Garber, D., *Descartes' Metaphysical Physics*, (Chicago: University of Chicago Press, 1992), dan Gaukroger, S., *Descartes' System of Natural Philosophy*, (Cambridge: Cambridge University Press, 2002).

bringing together all the knowledge. According to him, metaphysics is the root, physics is a tree and its branches are mechanical science, medicine and morals. In addition, Kant states that unity is the principle of the rule of reason, an ideal guiding of empirical science, the process of inquiry to complete based on the concept and empirical principles (concepts and principles of the understanding and realization of empirical phenomena).<sup>12</sup> Kant's idea set the terms of reference for a discussion of the unification of the sciences in Germany thought throughout the nineteenth century.<sup>13</sup>

Wilhelm Ostwald stated that the 20th century was "the century monistic". In 1904, German psychologist and Harvard professor Hugo Munsterberg held a congress entitled "Unity of Knowledge". The invited speakers were Ostwald, Ludwig Boltzmann, Ernest Rutherford, Edward Lamington Nichols, Paul Langevin and Henri Poincaré. In 1911 the International Committee led by Ostwald's Monism held its first meeting in Hamburg. Two years later Ostwald published a monograph entitled "Monism as objective Civilization" (monism as the Goal of Civilization). In 1912, Mach, Felix Klein, David Hilbert, Einstein, and others signed a manifesto aimed at the development of a comprehensive view of the world based on the unification of science. In the 20th century, the unity of science becomes a typical theme of philosophy of empiricism. The follower of logical empires, known as the positivistic logic and especially the founding members of the Vienna Circle manifesto adopted the "unity of sciences without metaphysics", a unification models based on the demarcation between science and metaphysics: the unity of method and language in all sciences.

At the end of the International Congress of Philosophy, held in Prague in September 1934, Erath proposed a series of International Congress for the Unity of Science. This Congress took place in Paris, 1935; Copenhagen, 1936; Paris, 1937; Cambridge, UK, 1938; Cambridge, Massachusetts, 1939 and Chicago, 1941. For activities of congress and organization, Neurath founded The Unity of Science Institute in 1936.<sup>14</sup>

After World War II, the discussion of the unity of science involved both philosophers and scientists at the Inter-scientist group discussions were held in

<sup>12</sup>Kitcher, P., "Projecting the Order of Nature" in *Kant's Philosophy of Physical Science*, R.E. Butts (eds.), (Dordrecht: D. Reidel Publishing Company, 1986).

<sup>13</sup>Wood, A. and S.S. Hahn, *The Cambridge History of Philosophy in Nineteenth Century (1790-1870)*, (Cambridge: Cambridge University Press, 2011).

<sup>14</sup>The Metaphysics Research Lab, "The Unity of Science," ..., p. 9.

Cambridge, Massachusetts. The group was joined by scientists from various disciplines, from quantum mechanics experts (Kemble and Van Vleck), cyberneticians (Wiener) and economists (Morgenstern).<sup>15</sup> In the late 1960s, Michael Polanyi and Marjorie G. organized a series of conferences funded by the Ford Foundation, which focused on the theme of the unity of sciences. Their general character is interdisciplinary and anti-reductionist. The group was originally a discussion group called "Study Group on Foundations of Cultural Unity" but later changed to "Study Group Unity of Knowledge." At that time a number of US and international agencies have been promoting interdisciplinary projects in the academic field.<sup>16</sup>

In the modern Islamic intellectual history, the separation between religion and science knowledge happened. Even some Islamic societies still think that both these sciences have different entities that cannot be harmonized. They assume both have different areas, and also have different formal and material objects, research methods, criteria of truth and the status of each theory.<sup>17</sup>

At least there are various pattern of the relationship between religion and science: The first is the conflict (conflicting); the assumption that between religion and science are incompatible. Second is the independence, the assumption is that there is no relation between the science of religion with science of knowledge. Third is a dialogue, there is interaction between religion and science. Fourth is the idea that religious knowledge and science is a unified as one entity (*wahdat al-'ulūm*).

Those are the reasons why Moslem thinkers encouraged the integration between the science of religion with science; such as Fazlur Rahman, who viewed the importance of anthropological approaches in the Islamic study, Abdul Karim Soroush stating that Islamic study and science both have relative characteristic, because both are the result of human interpretation, Ibrahim M. Abu Rabi who drives the need for historical approach, hermeneutic and a dialog between religion and contemporary issues, Abdullah Saeed and Jasser Auda is pushing the need for fresh and progressive *ijtihad* applying the methods of modern science even Nidhal Guessoum in his book, *Islam's Quantum Question: Reconciling Moslem Tradition and modern science* stated that the theologians

---

<sup>15</sup>Galison, P., *The Americanization of Unity of Science*, in *Deadalus*, Winter 1998, p. 127.

<sup>16</sup>The Metaphysics Research Lab, "The Unity of Science," ..., p. 11.

<sup>17</sup>M. Zaenuddin, "Paradigma Pendidikan Islam Holistik", *Jurnal Ulumuna*, Vol. XV, No. 1, 2011, p. 81.

should encouraging scientists to inform their findings to scholars of religion as part of a religious treasures. If not then the role of religion would be threatened and replaced by science in the future.<sup>18</sup>

## C. Unity of Science According to al-Ghazali

### 1. Unity of Science in the Side of Epistemology

Epistemology is the branch of philosophy that discusses the nature of science, its source as well as its validity. Epistemology is the systematic knowledge about sciences.<sup>19</sup> In Islam, there is no distinction between science and knowledge. Islam only uses term of *'ilm* for both. The word *'ilm* can be defined in terms of knowing things according to the thing itself. Thus there is no different between knowledge and sciences, both observe the true nature of the object.

Etymologically, *'ilm* means to know, the word *'ilm* is derived from the Arabic *'alima, ya'lamu, ilman* which means to know or find out. Imam al-Ghazali defines science as follows: *al-'ilm ma'rifat al-shay' 'alā mā huwa bihi*.<sup>20</sup> It means "the science is knowing something (object) according to the thing itself". This definition supports the notion that there is correspondence between subject and object. There is a match between the knowledge of the subject with the objective conditions on an object.

In line with the Imam al-Ghazali, Mulla Sadra stated that science is the obtaining of the essence of the object to a separate reality of its existence or form, as the acquisition of which is essential and formal.<sup>21</sup> For Sadra, there are requirements for true knowledge; first, the science should be able to know the essence of the object that is free from the existence or the outer shape of the object. Secondly, the knowledge must be up to the ability of the subject's perception either intrinsic or formal. Such science is referred to acquired knowledge which is obtained by the subject through the conception of thought. Imam al-Ghazali also acknowledges the gnostic knowledge (*'ilm mukāshafah*), *ladunī* or *ḥuḍurī* (knowledge by present). He stated that *'ilm mukāshafah* occurs

<sup>18</sup>Nidhal Guessoum, *Islam Question: Reconciling Muslim Tradition & Modern Science* cited by Prof. Dr. M. Amin Abdullah., presented in Pentoloka at Hotel Horison, Semarang, Oktober 9th, 2014.

<sup>19</sup>Imam Wahyudi, *Pengantar Epistemologi*, p. 1.

<sup>20</sup>Abu Hamid Muhammad al-Ghazali, *Iḥyā' Ulum al-Din*, (Semarang, Thoha Putra, n.d.), Vol. I, p. 29.

<sup>21</sup>Mulla, Sadra, *Mafātiḥ al-Ghayb*, (Teheran: Academy of Philosophy, 1984), p. 108.



through the illumination of the light on the pure heart, as the result the heart knows the appearance of truth (*al-Ḥaqq*).<sup>22</sup> The appearance is clear and real without any doubt in it. This knowledge only occurs in the pure soul of human kind.

Mulla Sadra also stated another definition of science. He said that knowledge is human potency or ability to describe the perception of the object.<sup>23</sup> In the book of *al-Ḥikmah al-Muta'aliyyah*, Sadra also asserts that knowledge is a picture of the presence object in the perception of humans. Sadra defines the knowledge as the presence of self-image concerning the object. This definition suggests the unity between objects (*al-ma'lūm*) and subject (*al-'ālim*). Imam al-Ghazali only approve the true knowledge; the knowledge to reveal the object correctly without error and mistakes.<sup>24</sup> This knowledge only acquired through illumination. *Bi nūr qadhafahu Allāh Ta'ālā fi 'l-ṣadr wa dhālika al-nūr huwa miftāḥ akthar al-ma'ārif*<sup>25</sup> (through the light illuminated by Allah in heart and the light is the key to most knowledge).

From the elaboration mentioned above it can be seen that according to al-Ghazali the essence of knowledge is the light. Furthermore, Imam al-Ghazali explains the meaning of light. For the layman, light refers to something that possible to be seen, it's also cause another thing possible to be observed; such as the sun.<sup>26</sup> For the selected people (*ahl al-khawāṣ*), light is defined as the soul which has power to know the object (*al-rūh al-baṣīrah*). The soul has power to know him and the real object (*al-mudrikah*) instead of light illuminating the object. As for selected people (*khawāṣ al-khawāṣ*), the actual light is God, while the other light is nothing. He says that *anna al-nūr al-Ḥaqq huwa Allāh Ta'ālā wa anna isma al-nūr li ghayrihi majāzun makhdhūn lā haqīqata lahu*.<sup>27</sup> Imam al-Ghazali did not deny that the potency of human perceptions to recognize the object, but the human perception has limitations comparing to the power of the light of human intellect (*'aql*). Human Intellect able to know himself and others, able to capture objects that are very close and very far away, can see the thing behind the veil, can capture aspects of the inner sense. Intellect capable of

<sup>22</sup>al-Ghazali, *Ihyā'*, Vol. I, p. 21.

<sup>23</sup>Mula Sadra, *al-Madhāhir al-Ilāhiyyah*, (Qumm: Maktab al-'Alam al-Islami, 1377 H.), p. 89.

<sup>24</sup>Abu Hamid Muhammad al-Ghazali, *al-Munqidh min al-Dalāl*, (Mesir: Ali Shabih wa Auladuh, 1952), p. 26.

<sup>25</sup>al-Ghazali, *al-Munqidh*, p. 31

<sup>26</sup>al-Ghazali, *al-Munqidh*, p. 120.

<sup>27</sup>al-Ghazali, *al-Munqidh*, p. 119

knowing untouchable object, know the object more accurate than the eye.<sup>28</sup> Furthermore, the ability of intellect may be fooled by a variety of imagination and opinions. To save the mind from influence of various imaginations is very difficult (*wa fī tajrīdihī amrun aẓīmun*<sup>29</sup>). The intellect will be free from the influence of the imagination and the other after the dead. At that time, the veil of the human mind is opened (*mukāshafah*) and eventually even human reason can know the various secrets and also shown throughout their deeds.<sup>30</sup>

Furthermore, Imam al-Ghazali explained that the heart or soul is the place of knowledge either the knowledge by present or acquired knowledge. Both types of knowledge dwell in the heart. The first knowledge is divine grace, while the second acquired by human efforts; such study, observation and others. For Imam al-Ghazali, the knowledge by present is a divine grace, so it depends on the God will.<sup>31</sup> Basically, the relationship between physics and metaphysics is like the relationship between the objects depicted in the mirror and its image. Thus, the image in the mirror is like something that exists in nature (physic), it is nothing but the actual reality is in the realm of metaphysics. Thus, direct observation of something is more convincing than knowing something through its picture. So '*ilm mukāshafah* is the noblest knowledge. It is the highest quality of knowledge.<sup>32</sup> The top one is the knowledge of the prophets, because they can know the reality of the thing through the process opening kasyf (*tankasyif lahu kulla al-ḥaqā'iq*) without any effort. It is divine grace and it is also happen in a very short time. Finally, the servant will be close to God in the sense of meaning and the essence and character, not in the sense of a place and distance (*qurban bi 'l-ma'nā wa al-ḥaqīqah wa al-ṣifah la bi 'l-makān wa al-masāfah*).<sup>33</sup>

In general, there are three paradigm of knowledge; rationalism, empiricism and intuitionism or revelation. Imam al-Ghazali in *Ihyā' 'Ulūm al-Dīn* divides into two sources of knowledge; reason and revelation. The knowledge originated from the reason is called rational knowledge (*'ilm ḡhayir al-shar'iyyah*) while knowledge derived from the prophets is called (religious

<sup>28</sup>al-Ghazali, *al-Munqidh*, p. 121 -127.

<sup>29</sup>al-Ghazali, *Mishkāt*, p. 127.

<sup>30</sup>al-Ghazali, *Mishkāt*, p. 128. See also QS. Qaf [50]: 22.

<sup>31</sup>al-Ghazali, *Mishkāt*, p. 128. See also QS. Qaf [50]: 22.

<sup>32</sup>al-Ghazali, *Ihyā'*, Vol. I, p. 20.

<sup>33</sup>al-Ghazali, *Ihyā'*, Vol. III, p. 8.

knowledge) (*ilm al-shar'iyah*).<sup>34</sup> This classification of knowledge followed by Mula Sadra in his book *Iksir al-Ārifin*.<sup>35</sup>

Generally, the object is the source of knowledge. The object is something can be found by the subject. It is only existence that is possible to be the real object. All existence (*wujūd*) has two dimensions; the first is the inner dimension (it is called as metaphysics) and the second is the outer dimension (it is called as physics). The relationship between outer and inner dimensions of the existence is like content and the cover or skin. Inner dimensions of the existence are on the angelic realm (*'ālam al-malakūt*), while the external dimension of the existence are the real realm (*'ālam al-shahādah*). Thus, every existing in the angelic realm have a tangible manifestation in this world, on the other hand, all of existing in this angelic realm exist in this world.<sup>36</sup>

Existence (*wujūd*) is a basic of reality, it is obvious and clear, so it is impossible to define an existence because its existence impossible to be restricted by the words or anything. The existence (*wujūd*) is what we found. It includes anything that is found either in the form of action, all causality, all the ideas, imagination and others. *Wujūd* (existence) in the term of Islamic epistemology oppose *mahiyah* (essence). *Wujūd* (existence) is an objective reality, whereas *mahiyah* (essence) is the notion of objective reality in particular. Each of the entities must have *mahiyah* (essence), because *mahiyah* (essence) is not possible without being (existence) and not necessarily vice versa.

According to Imam al-Ghazali, the *wujūd* (existence) consists of four levels. The first is the existence in *Lawh al-Makhfūz*; it is an existence according to God's determination. Only God knows this existence for God is the One Who Knows both the unseen and real thing. Human get this knowledge through a process of revelation. The third is the *wujūd khayalī* (imaginative existence); it is an image in the mind of human. Fourth is a *wujūd al-'aqlī* (rational existence); namely the existence derived from the imagination into the heart of human kind.<sup>37</sup> The first and second levels are spiritual and metaphysical existences, while the third and the fourth are physic.<sup>38</sup>

<sup>34</sup>al-Ghazali, *Ihyā'*, Vol. I, p. 72-74.

<sup>35</sup>Mulla, Sadra, *Iksir al-Ārifin*, (Tokyo: Jam'ah Tokyo, 1984), p. 133.

<sup>36</sup>Mufid, Fathul, "Epistemologi Mulla Sadra ...", p. 148-149.

<sup>37</sup>al-Ghazali, *Ihyā'*, Vol. II, p. 20.

<sup>38</sup>al-Ghazali, *Ihyā'*, Vol. II, p. 20.

As a philosopher and mystic, Imam Ghazali admitted the power of reason and intuition (*dhawq*) as the source of knowledge. Furthermore, Imam al-Ghazali acknowledges the gradation of the quality and validity of the science. First the knowledge obtained by following the others (*taqlid*). Following the opinion of others is the lowest kind of science. The second is knowledge of the reason. Imam al-Ghazali explains that the reason is the source and principle of science. Knowledge for the mind is like the fruit of the tree, the sun and its light and sight and the eyes.<sup>39</sup> The statement asserts that science would not exist without reason. Furthermore, al-Ghazali admits that humans have a different ability to get the knowledge. In general, all people having primer knowledge: like an ability to distinguish between the possible and impossible things. In addition, the human mind has difference ability to master and control the lust. As the result, humans have different ability in understanding the object. Human's mind is like the lights. Although the light is one but its qualities and colors are many.<sup>40</sup> The third is knowledge of felling. This knowledge is more accurate and trusted one. It is the result of unity between the subject and the object (*wujdan*). In end, al-Ghazali states that knowledge is more trusted than faith, while the felling is highest than the science.<sup>41</sup>

Imam al-Ghazali explained five reasons why the heart has no power to illuminate the truth. The first is because the quality of heart is not perfect. Secondly, the heart is dirty and full of lust. Third, the heart is facing to the other than Allah. Fourth, the heart veiled by knowledge. Fifth, the heart does not know true direction (*al-jahl bi 'l-jihat*).<sup>42</sup> If the heart was free from five things mentioned above, the heart knows the reality of existence because the heart is divine, deity (*amr rabbanī*) and noble.<sup>43</sup>

The ability of human beings to reveal the essence of something is depended on the quality of intelligence possessed by human kind. For Imam al-Ghazali, human intelligence has five levels: First is the intelligence that is sensory (*ihsāsī*); the intelligence to recognize objects through the senses. This intelligence is the primary intelligence possessed by all animals. The second is imaginative intelligence (*imaginary*); The ability to absorb and store images

<sup>39</sup>al-Ghazali, *Ihyā'*, Vol. I, p. 82-83.

<sup>40</sup>al-Ghazali, *Ihyā'*, Vol. I, p. 87-88.

<sup>41</sup>al-Ghazali, *Mishkāt*, p. 167.

<sup>42</sup>al-Ghazali, *Ihyā'*, Vol. III, p. 13.

<sup>43</sup>al-Ghazali, *Ihyā'*, Vol. III, p. 14.

that are recognized through the senses. Third is the rational intelligence (*'aqlī*); i.e. intellectual ability on understanding meaning of the thing. This is the essence of human kind. Fourth is the intelligence of thinking (*fikrī*); i.e. intellectual ability to finds creative innovation and new knowledge. The last is pure or prophetic intellect. This intelligence will get an illumination of God and finally has divine knowledge (*al-ma'ārif al-rabbaniyyah*). This intellect has an ability to understand the metaphysical object, state beyond reason (*thur wara' al-'aql*). The last intelligence possessed by the prophets and saints, it is given by God. All of the above intelligences are lights that cause objects to be known.<sup>44</sup>

## 2. Unity of Science in the Side of Ontology

According to Aristotle, ontology is the theory or study of being (existence) as the basic of all reality. Ontology is synonymous with metaphysics, philosophical studies to reveal the real nature of the original (real nature) of the object to determine the meaning, structure and principle of the thing. For Imam Muhammad al-Ghazali, knowledge is one of God's characters. In the book of *Ihyā' 'Ulūm al-Dīn*, he stated: *al-'ilm ma'rifat al-shay' 'alā mā huwa bihi. Wa huwa min šifātillāh ta'ālā. Fakayfa yakūnū al-shay'i 'ilman wa yakūnū ma'a kawnihi 'ilman madhmūman.*<sup>45</sup> Meaning: "Knowledge is knowing something according to the thing itself. He is of the nature of God, the Most High. How is it possible that a so-called knowledge while it is bad." Then al-Ghazali asserted that all sciences are prestigious knowledge.

According to the Qur'an, God knows everything.<sup>46</sup> Even "He knows the unseen, everything in the ocean and on land, the fallen leaves and seeds are wet and dry all known to God."<sup>47</sup> God knows all things by His knowledge. Knowledge may not substantively limited by boundaries, because science can break through all boundaries.<sup>48</sup> All science is the science of God, whereas the Essence of God can not be known, except to the extent of God's mercy to His Essence introduced through the His names and attributes.<sup>49</sup> The claim that

<sup>44</sup>al-Ghazali, *Mishkāt*, p. 165-167.

<sup>45</sup>al-Ghazali, *Ihyā'*, Vol. I, p. 29.

<sup>46</sup>QS. al-Nisa' [4]: 176.

<sup>47</sup>QS. al-An'am [6]: 59.

<sup>48</sup>William C. Chittick, *The Sufi Path of Knowledge*, (New York: State University of New York Press, 1989), p. 148.

<sup>49</sup>William C. Chittick, *The Sufi Path of Knowledge*, p. 153-152.

science is one of the attributes of God shows that the ontological knowledge is unity with God. God character is unifying with God (*lā hiya lā huwa walā hiya ghayiruhu*). For al-Ghazali God is The Light and knowledge is also light. The quality of the knowledge depends on the quality to approach the source of the knowledge, God. The Prophet stated that "God has seventy veils that are composed of light and darkness, suppose if all veils opened than everything can be seen will burn with the glory of His face."<sup>50</sup>

Furthermore, Imam al-Ghazali divided humans into four characteristics; people who are veiled by darkness, people are veiled by the darkness and his light simultaneously, people are veiled by light alone and the last one is the one who arrives to the Reality of Light (God). The first group is divided into groups of atheists; namely that the naturalism that recognizes the natural law is the order of nature itself. The group of people who are busy with the affairs of his life and his soul veiled dirty and lust.<sup>51</sup> The second group is veiled by both light and darkness. In general they can be classified into three categories; firstly, people are veiled by the darkness of sense, imagination and divine light. The third group is veiled by light. This group divided into three kinds. the first theologian who knows the meaning of God's nature but he believes that God is the mover of the nature. Second is the theologian who recognizes the nature of God and he believes that the angel is the mover of creature. Third believes that God is the mover all creature though His command to the angel. They are all veiled by the light of their knowledge. The last group is the one who reach God. In this state, human lost his awareness (*fanā'*) and unify with God.<sup>52</sup>

### 3. Unity of Science in Axiology

Axiology is part of the philosophy of science that questioned how humans use their knowledge. Axiology is a term derived from the Greek meaning Axios "value" and logos meaning "theory" or "science". Imam al-Ghazali gives a high value on science. The assessment is based on both of revelation and the reason. Al-Ghazali cites many verses of the Qur'an and several *hadits* and words of the scholars associated with the primacy of science. In addition, that human love something because of three kinds of reasons; loved for other reasons, loved for

<sup>50</sup>al-Ghazali, *Mishkāt*, p. 175.

<sup>51</sup>al-Ghazali, *Mishkāt*, p. 177-179.

<sup>52</sup>al-Ghazali, *Mishkāt*, p. 183-185.

the essence, loved because of both reason simultaneously. Money is loved not because its essence, but for others. Happiness in hereafter and to see God in the Hereafter is loved by their essences. Healthy body and science are loved for both reasons. That's why science is categorized as something very precious.<sup>53</sup>

Because science is a very noble and beneficial to humans, the Imam al-Ghazali require people to seek knowledge. If a science is needed and should be owned by any individual, then science becomes science become mandatory knowledge upon him. If such knowledge is needed for social life, then look for that knowledge is mandatory for all member of society. This mandatory is not linked to religious issues, but depending on the needs of a person or group for their social welfare.<sup>54</sup> Al-Ghazali divided knowledge into two; knowledge for life, it is a science which deals with issues relating to the ordinary issues; as the science of architecture, trade and arithmetic, and so forth. Second is knowledge of hereafter. This knowledge governs and directs humans to save them in the Hereafter. This knowledge covers the method to manage and purify the heart and knowledge by present.

From the side of axiology, al-Ghazali classified Islamic scholar into two groups; worldly scholars and hereafter scholars. The division is based on their different motivations. Worldly scholars looking for wealth, while the pious scholar looking for God's pleasure. Imam al-Ghazali describes the characteristics of pious scholars as follows: (a) They are experts in worship (*'ābidan*). (b) They are ascetic person (*zāhidan*). (c) They are master on the afterlife knowledge. (d) They understand about the benefit of being in the world. (e) They are sincere person.<sup>55</sup>

In detail, al-Ghazali mentioned the characteristics of scholars' hereafter as follows: first they do not use science to find the world's wealth, because people who have knowledge will knows that the world is not worth. Second, they only obtain useful knowledge. Third, they do not like luxurious clothing, food and other living accessories. Fourth, they stay away from the ruler to maintain purity of their heart. Fifth, they are very careful in their fatwa. Sixth, they are more tend to inner science; the science that deals with how to cleanse the heart, knowing the science of the hereafter and others. Seventh, they always strive to

---

<sup>53</sup>al-Ghazali, *Ihyā'*, Vol. I, p. 13.

<sup>54</sup>al-Ghazali, *Ihyā'*, Vol. I, p. 15-16.

<sup>55</sup>al-Ghazali, *Ihyā'*, Vol. I, p. 25.

strengthen their religious beliefs. Eighth, they are sad and silent because they are very afraid of God. Such an attitude is reflected in their clothing, behavior, silence, speech and so forth. Ninth, they have more confidence in the knowledge that originates in the heart compared with the theoretical sciences in the book. Tenth, they are keeping away from the teachings of heresy; they maintain their action according to the behavior of the prophet's companions.<sup>56</sup>

#### D. Discussion

It is known that the concept of unity of science in the thought of Imam al-Ghazali is the whole holistic and integrative concept. It involves all aspect of philosophy of science; i.e. an ontology, epistemology and axiology. Ontologically, knowledge is one of the attributes of God. It is impossible to be separated from His Essence; attribute is not God but not others. Epistemologically, the essence of knowledge is light and true light is God. This light illuminates the heart of human. There are two methods for the knowledge: The first is through the process of illumination of the light of God into the heart. The second is through optimization of senses.

Axiologically, all sciences have the same final goals. Al-Ghazali always gathers knowledge (*al-'ilm*), condition of the heart (*al-hāl*) and actions (*al-'amal*) in one concept. The concept of al-Ghazali's *waḥdat al-'ulūm* is not the same as the concept of *tawḥīd al-'ulūm*; because the concept of *waḥdat al-'ulūm* not required islamization of the knowledge because science can not be separated from the Essence of God. *Waḥdat al-'ulūm* is different from an islamization and the integration of science as conceived by Isma'il Raji al-Faruqi,<sup>57</sup> Naquib al-Attas,<sup>58</sup> Amin Abdullah and others. Both islamization and integration recognizes the dichotomy of science. Islamization of sciences, integration and interconnection are method and process toward unity of sciences (*waḥdat al-'ulūm*).

The concept of *waḥdat al-'ulūm* rests on truth and belief that all knowledge comes from God. God gives His knowledge to human through two ways; His speech and His creation. Both have the same function; both are symbol of Truth

<sup>56</sup>al-Ghazali, *Iḥyā'*, Vol. I, p. 60-72.

<sup>57</sup>See: Ismali Raji *al-Faruqi, Islamisasi Pengetahuan*, translated by Anas Mahyuddin, (Bandung: Pustaka, 1984). p. 98.

<sup>58</sup>Syed Muhammad Naquib al-Attas, *Islam and Secularism*, (Kuala Lumpur: ISTAC, 1933), p. 174.



(*al-Haqq*). Both contains (fixed) *muḥkamat* verses and also unclear verses (*mutashābihāt*). The classification of the Qur'anic verses (*āyāt qur'ānī*) and natural verses (*āyāt kawnī*) into *muḥkamat* and *mutashābihāt* is still debatable among Islamic scholars. It is caused by different quality of the Islamic scholar on understanding both Islamic teaching and sciences. Therefore, unity of science requires equal treatment between the Qur'anic verses and kauni verses. Because the truth is one, while both Quran and the nature contains symbol or sign of the truth. This approach is called by Theo – antropocentris.

*Waḥdat al-'ulūm* denies the separation between scientific knowledge and religion. Knowledge is the result of the process of knowing or understanding the object. While the objects are either physics or metaphysics object. Physics objects can be known by human intellect through their senses, while the metaphysical object obtained through illumination from the light of God through the optimization of spiritual intelligence (spirits) possessed by humans. Therefore, humans have two abilities; the ability to capture objects that are in the area of intellect (*ṣūr al-'aql*) and the ability to capture objects that are beyond the reason (*ṣūr warā' al-'aql*).

*Waḥdat al-'ulūm* acknowledges human intellect and revelation as a source of knowledge. As a result, *Waḥdat al-'ulūm* will lead human civilization in harmony for the human prosperity, because the concept of *waḥdat al-'ulūm* makes serious efforts to unify all aspect of knowledge; epistemology, ontology and of axiology.

To refuse dichotomy of science and religion, *waḥdat al-'ulūm* offer alternative strategy and solution. The strategy includes several stages: First is the stage of equal treatment toward religious knowledge and scientific knowledge. In this phase, both are seen as the science produced by the human mind, so there are aspects of rationality in both. The next stage is the dialogue between religious sciences with other sciences through process of integration and interconnection for new comer on science. This new science is not enough but it must appear in the form of action.

## E. Conclusion

The concept of the unity of science (*waḥdat al-'ulūm*) restore the position of science in the position of a holy and righteous; Science is the light coming from the Light of The Light (Allah), it must be applied with the sincere intention for God's pleasure. The concept of *waḥdat al-'ulūm* al-Ghazali covers three main aspects of the philosophy of science; ontology, epistemology and axiology.

The unity is one as a whole; like the three angles in a triangle. Thus the concept of the unity of sciences will cause *Islām raḥmatan li'l-'ālamīn*. Unity of science requires serious work and patience. For the implementation, its need gradual strategy; beginning from equal treatment of sciences, dialogue among the sciences, integration and interconnection and finally unity of sciences. [w]

## BIBLIOGRAPHY

- al-Attas, Syed Muhammad Naquib, *Islam and Secularism*, Kuala Lumpur: ISTAC, 1933.
- Asy'ari, Musa. *Filsafat Islam Kajian Ontologis, Epistemologis dan Aksiologis dan Perspektif (Philosophy of Islam: Ontological, Epistemological and Axiological Study and Perspective)*, Yogyakarta: LESFI, 1992.
- Chittick, C. William, *The Sufi Path of Knowledge*, New York: State University of New York Press, 1989.
- Fakhry, Majid, *a History of Islamic Philosophy*, New York: Columbia University, 1987.
- al-Faruqi, Ismail Raji. *Islamisasi Pengetahuan (Islamization of Science)*, translated by Anas Mahyuddin, Bandung: Pustaka, 1984.
- Galison, P., *The Americanization of Unity of Science*, in *Deadalus* 127, Winter 1998.
- al-Ghazali, Abu Hamid Muhammad, *Mishkāt al-Anwār wa Maṣafāt al-Asrār (Lantern of Light and Secrets Refinery)*, Beirut: 'Alam al-Kutub, 1986.
- al-Ghazali, Abu Hamid Muhammad, *Ihya' Ulum al-Din (Living of Islamic Science)*, Vol. I, II, III & IV, Semarang: Thoha Putra, , n.d.,
- al-Ghazali, Abu Hamid Muhammad, *al-Munqidh min 'l-Ḍalāl (The Rescuers from Straying)*, Mesir: Ali Shabih wa Auladuh, 1952.
- Garber, D., *Descartes' Metaphysical Physics*, Chicago: University of Chicago Press, 1992.
- Gaukroger, S., *Descartes' System of Natural Philosophy*, Cambridge: Cambridge University Press, 2002.
- Ha'iry Yazdi, Mehdi, *Ilmu Hudhuri: Prinsip Epistemologi dalam Filsafat Islam (Science of Presence: Principle of Epistemology in Islamic Philosophy)*. Bandung: Mizan, n.d.
- Hamdi, Ahmad Zainul, *Tujuh Filosof Muslim: Pembuka Pintu Gerbang Filsafat Barat dan Modern (Seven of Islamic Philosophers: The Gate Opener of Western and Modern Philosophy)* Yogyakarta: LKiS Pelangi Aksara, 2004.
- Ibn Sina, Abu Ali, *Kitāb al-Ishārāt wa al-Tanbihāt (The Book of Signs and Warnings)*, Kairo: n.p., 1960.

- Ibn Sina, Abu Ali, *Aḥwāl al-Nafs (The Conditions of Ego)*, translated by M.S Nasrullah, Bandung: Pustaka Hidayah, 2009.
- Kitcher, P., "Projecting the Order of Nature" in *Kant's Philosophy of Physical Science*, R.E. Butts (eds.), Dordrecht: D. Reidel Publishing Company, 1986.
- Mufid, Fathul, "Epistemologi Mulla Sadra: Kajian tentang Ilmu Husuli dan Ilmu Huduri" (Epistemology of Mulla Sadra: A Study of Science of Husuli and Huduri), *Dissertation*, Program Pascasarjana IAIN Walisongo Semarang, 2012.
- The Metaphysics Research Lab., "The Unity of Science," *The Stanford Encyclopedia of Philosophy*, Stanford: Stanford University, Vol. III, 2014.
- Sadra, Mulla, *Mafātiḥ al-Ghayb (The Keys of Supernatural)*, Teheran: Academy of Philosophy, 1984.
- Sadra, Mulla, *al-Madhāhir al-Ilāhiyyah (The Phenomena of God)*, Qumm.: Maktab al-'Alam al-Islami, 1377 H.
- Sadra, Mulla, *Iksīr al-'ārifīn (The Elixir of the Gnostics)*, Tokyo: Jami'ah Tokyo, 1984.
- Wahyudi, Imam, *Pengantar Epistemologi (Introduction to Epistemology)*, Yogyakarta: LIMA, 2007.
- Wood, A. and S.S. Hahn, *The Cambridge History of Philosophy in Nineteenth Century (1790-1870)*, Cambridge: Cambridge University Press, 2011
- Zaenuddin, M., "Paradigma Pendidikan Islam Holistik" (Paradigm of Holistic Islamic Education)" in *Jurnal Ulumuna*, Vol. XV, No. 1, 2011.