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ILMU PENGETAHUAN BERPARADIGMA UNITY OF SCIENCE

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ABSTRACT

Unity of science is the unification of human science, both in the ontological, epistemological, and axiological aspects of that knowledge, in one unified truth of essential knowledge, and monotheism as the main basis. As explained that science is knowledge collected by scientific methods, it is also explained that science is a systematic collection of knowledge that is built through experimentation and observation. In other words, science will only be realized if it is cultivated, built, and developed. Based on this explanation, this article aims to find out how to develop science based on Unity of Science. The method used in this study is a type of library research (library), in this study using library data as the object of study in the research, using books, articles as data sources. The results of the study concluded that Unity Of Science includes a matter that every existing science cannot stand alone. There is a connection between one science and another. Every science is multidimensional, where in writing and studying a branch of science requires the involvement and assistance of other auxiliary sciences. Research in this context is the basis for increasing scientific development. Research activity is an effort to formulate problems, ask these questions, by finding facts and providing correct interpretations.

ABSTRAK

Kesatuan ilmu adalah penyatuan ilmu manusia, baik secara ontologis, epistemologis, maupun aksiologis dari ilmu itu, dalam satu kesatuan kebenaran ilmu esensial, dan tauhid sebagai landasan utama. Sebagaimana dijelaskan bahwa sains adalah pengetahuan yang dikumpulkan dengan metode ilmiah, dijelaskan juga bahwa sains adalah kumpulan pengetahuan yang sistematis yang dibangun melalui eksperimen dan observasi. Dengan kata lain, ilmu pengetahuan hanya akan terwujud jika dipupuk, dibangun, dan dikembangkan. Berdasarkan penjelasan tersebut, artikel ini bertujuan untuk mengetahui bagaimana mengembangkan ilmu pengetahuan berdasarkan Kesatuan Ilmu. Metode yang digunakan dalam penelitian ini adalah jenis penelitian kepustakaan (library research), dalam penelitian ini menggunakan data pustaka sebagai objek kajian dalam penelitian, menggunakan buku, artikel sebagai sumber data. Hasil penelitian menyimpulkan bahwa Kesatuan Ilmu mencakup suatu hal yang tidak dapat berdiri sendiri oleh setiap ilmu yang ada. Ada keterkaitan antara satu ilmu dengan ilmu lainnya. Setiap ilmu bersifat multidimensi, dimana dalam menulis dan mempelajari suatu cabang ilmu memerlukan keterlibatan dan bantuan ilmu-ilmu penunjang lainnya. Penelitian dalam konteks ini menjadi dasar untuk meningkatkan perkembangan ilmu pengetahuan. Kegiatan penelitian merupakan upaya merumuskan masalah, mengajukan pertanyaan-pertanyaan tersebut, dengan menemukan fakta-fakta dan memberikan interpretasi yang benar.

Keywords: Science Development, Unity of Science.

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PRELIMINARY

Improving the quality of education is an obligation for every nation, including Indonesia. Therefore, every nation formulates the goals of national education. The purpose of Indonesian education as stated in Article 3 of Law NO. 20 of 2003, among others, to develop the potential that exists in each student so that they can become human beings who believe and fear God Almighty, become physically and mentally healthy human beings, have noble character, knowledge, creativity, and responsibility (Government of the Republic of Indonesia).[1] In improving the quality of education can not be separated from the development of science and technology, it is closely related to the progress of the quality of the nation. With the development of science and technology, it is easier for humans to do anything and communicate with anyone, anytime, and anywhere. In the current era of globalization, where the progress of science and technology, especially information technology, is the main driver, with all the impacts, the development of science is based on Unity of Science (UoS).[2] Thus the author wants to discuss about how the development of science based on the Unity of Science.

RESEARCH METHODS

The method used in this study is a type of library research (library), in this study using library data as the object of study in the research, using books, articles as data sources. In his research, the researcher used the technique used by the researcher in collecting data, namely the library research method, namely library research.

RESULTS AND DISCUSSION

The Nature of Science

According to the Big Indonesian Dictionary (KBBI), knowledge means everything that is known, intelligence or everything that is known regarding things (subjects).[3] According to Pudjawidjana, knowledge is a reaction from humans to stimulation by the surrounding nature through contact through objects with the senses and knowledge is the result that occurs after people sense a certain object. So it can be said that knowledge is fact, truth, and information from what is known or realized by someone. And knowledge is not

[1] Farida Septiana Wati, Ulya Lathifa, and Wirda Udaibah, 'Pengembangan Modul Kesetimbangan Kimia Berbasis Unity of Sciences (Uos) Dan Multilevel Representasi', *Thabiea : Journal of Natural Science Teaching*, 2.2 (2019) <https://doi.org/10.21043/thabiea.v2i2.5972>.

[2] Fatah Syukur and Mahfud Junaedi, 'Pengembangan Profesi Guru Berbasis Unity of Science', 2017, 317 <http://eprints.walisongo.ac.id/9542/1/Mahfud_Junaini-BUKU 1. PENGEMBANGAN PROFESI GURU.pdf>.

[3] Depdiknas, *KBBI Daring* (Pusat Bahasa, 2008).

limited to descriptions, hypotheses, concepts, theories, principles and procedures that are correct or useful.[4]

The word "Science" comes from the Arabic 'Alima which means knowledge. In Indonesian, science is often equated with science, which comes from the English language Science. The word "Science" comes from the Greek "s cio", "scire" which means knowledge. Science (from the Latin "Scientia") which means knowledge is a systematic activity that builds and organizes knowledge in the form of explanations and predictions about the universe.[5] According to the Oxford Dictionary, science is defined as intellectual and practical activity which includes the systematic study of the structure and behavior of the physical and natural world through observation and experimentation.

The Liang Gie defines science as a series of research activities that seek an explanation of a method to obtain an empirically rational understanding of the world in its various aspects and the overall systematic knowledge that explains various phenomena that humans want to understand.[6]

Based on the above definition it can be concluded that science is not just knowledge (Knowladge), but is a summary of a collection of knowledge or the results of knowledge and facts based on agreed/generally accepted theories, obtained through a series of systematic procedures, tested with a set of methods recognized in the field of science. certain. So Science is a systematic effort with the scientific method in developing knowledge that is proven by explanation and predicting it. Then test it as a human understanding of the universe, society, and the mind. From the definitions put forward, it can be understood that science includes 3 interrelated components and is a logical unity that must exist and be sequential:

a. Dimensions of Science Ontology

The ontology of science includes what is the nature of science, what is the nature of truth and reality that is closely related to scientific knowledge, which cannot be separated from the philosophical perception of what and how "there" is (being).

In terms of ontology, science discusses everything that exists (being), whether that exists in the form of physical material or in the form of non-physical immaterial. In such a way, human science is not only related to physical objects, empirical, but non-physical

[4] Jujun S. Suriasumantri, *Ilmu Dalam Perspektif*, ed. by Raharjo, 16th edn (Jakarta: Yayasan Obor Indonesia, 2001).

[5] Soejono Soemargono, *Filsafat Ilmu Pengetahuan*, 1st edn (Yogjakarta: Nur Cahaya, 1983) <https://doi.org/https://katalogdisperpusiptulungagung.perpusnas.go.id/detail-opac?id=35934>.

[6] Ahmad Tufik Nasution, *Filsafat Ilmu Hakikat Mencari Pengetahuan*, ed. by Herlambang Rahmadhani (Yogjakarta: Yogjakarta Deepublish, 2016).

objects, non-empirical. Islamic religious knowledge tends to be rational, non-physical, non-empirical compared to the natural sciences and social sciences.

b. Dimensions of Epistemology of Science

Epistemology or theory of science, discusses in depth all the processes seen in our efforts to acquire knowledge. Science is knowledge obtained through a certain process called the scientific method. Epistemology is related to several problems, including: what is the process that allows the acquisition of knowledge in the form of science? How does this work? What things must be considered in order for us to gain true knowledge? What is truth itself? What are the criteria? What methods/techniques/means help us in gaining knowledge in the form of knowledge?[7]

As for the sources of knowledge: (1) the five senses that have produced knowledge, where the nature of this knowledge is "a phenomenon or a show of the known object"; (2) the ratio or verstand, a concept or understanding of the object you want to know, then knowledge here is the same as cognition; (3) authority or mastery of science; and (4) revelation, where the knowledge he gets is no longer based on reasoning but on his beliefs and beliefs about something that is believed.

c. Dimensions of Axiology of Science

In this axiological dimension of science, a question arises: what is the use of science for us? Axiology of science includes values that are normative in giving meaning to truth or reality as we encounter in our lives exploring various areas, such as social areas, symbolic areas, or physical material. More than that, values are also shown by axiology as a condition quanon that must be obeyed in research activities and in the application of science. Basically, science must be used for the benefit of mankind. Science is a system developed by humans to know the circumstances and their environment or adapt their environment to themselves in the context of their life strategies, in this case science can be used as a means or tool in improving the standard of human life by paying attention to human nature, environmental sustainability, and the balance of nature.

Unity of Science Paradigm

Paradigm according to the Big Indonesian Dictionary is seen as something important because of its ability to dissect the reality of its flexibility in addressing the problems to be solved.[8] According to Thomas S. Kuhn explained that the paradigm is closely related to an

[7] Jujun S Suriasumantri, *Filsafat Ilmu Sebuah Pengantar Populer* (Jakarta: Pustaka Sinar Harapan, 1993).

[8] Depdiknas, *KBBI Daring* (Pusat Bahasa, 2008)

established scientific tradition which has become a pattern or model in which it contains propositions, theories, applications and instrumentation. Paradigm means the whole constellation of beliefs, values, techniques, and so on that are shared by members of a particular scientific community, and if used as a model or example, it can replace explicit rules as the basis for solving scientific problems that are still lagging behind.[9]

The history of the Unity of Science in the early Greeks, became the history of different lines of thought and tendencies that eventually coalesced. Among the strands are (I) empirical and critical as opposed to speculative thinking, (2) natural science, (3) mathematical knowledge, (4) science, including logic, (5) linguistics, (6) the changing conception mind, (7) progress in the understanding of civilization or culture.[10]

Unity of Sciences or wahdatul ulum is that all knowledge on earth is a unity that cannot be separated. This also means that all existing knowledge is a development and originates from the same thing. So it is not surprising that western scientists in the past said that all existing science was a philosophy. Unity of Sciences covers a matter that every existing science cannot stand alone. There is a connection between one science and another. In another sense, every science is multidimensional, where in writing and studying a branch of science requires the involvement and assistance of other auxiliary sciences.

Unity of science is the unification of human science, both in the ontological, epistemological, and axiological aspects of that knowledge, in one unified truth of essential knowledge, and monotheism as the main basis. First, the ontological dimension is the whole of reality, both metaphysical and physical. Second, the epistemological dimension recognizes that there are two sources of knowledge, namely from God and from humans, both through the potential of the senses, reason and intuition. Finally, the third dimension is axiological which has two value orientations, namely divine values and human values at the same time. Thus, the development of science axiologically rejects the dichotomous view between orientations on divine values or purely human values, especially the view that science is value-free.

Meanwhile, in the view of Islam, the paradigm of unity of sciences emphasizes that all knowledge is basically a unity that originates from and leads to God through His revelations, either directly or indirectly. Therefore, all knowledge should have dialogue with each other and lead to one goal and always go hand in hand. This should apply not only to the

[9] Thomas S. Kuhn, 'The Structure of Scientific Revolutions Revisited', *Journal for General Philosophy of Science*.

[10] Lee Byrne, 'Education and Unity of Science', *Educational Forum*, 5.2 (1941), 191–207 <https://doi.org/10.1080/00131724109339858>.

science of religion but also to science. So that religion and science should always go hand in hand and not contradict each other.[11]

In other words, God's knowledge is the source of all human knowledge. So, the unity of science can be understood as a close linkage or integration of human science, both in the ontological, epistemological and axiological aspects of that knowledge, in one unified truth of essential knowledge and monotheism as the main basis.

Classification of Science

1. Classification and grouping of knowledge has become an issue in the study of scientific philosophy of linguistics which includes: (a) syntax; (b) grammar; (c) pronunciation and speech; and (with) (d) poetry.
2. Logic
3. Propaedietic science which includes: (a) arithmetic; (b) geometry; (c) optics; (d) space science which includes: astrology and the association of celestial bodies; (e) the science of weighing scales; and (f) knowledge of the use of tools/instruments.
4. Physics (natural science) includes: (a) physics; (b) metaphysics.
5. Social sciences which include: (a) legal studies; (b) rhetoric.

from time to time and the impact until now. Through the method and approach of autonomy and authority, the most accurate is to prove and find the scope of the discussion and its specific use. This can be seen from several philosophers, such as al-Farabi, Ibn Sina, Ibn Rushd intends to make wisdom (wisdom) as his crown. They also believe in the height of knowledge crowned by metaphysics or divine, as involved in al-Farabi's work on Ihsan al-Ulum and all of Ibn Sina's philosophies entitled al-Syifa.

Furthermore, al-Farabi classified science in detail, as follows:

Ibn Khaldun classified science into two, namely the philosophical or intellectual sciences and the derived sciences. In the philosophical or intellectual sciences, including: (a) logic; (b) physics; (c) metaphysics; and (d) the sciences of quality which include geometry and space, arithmetic, astronomy, and music. While the sciences that were revealed, include: (a) the Qur'an; (b) Hadith; (c) legal science; (d) theology; (e) Sufism; (f) linguistic sciences consisting of grammar, lexicography, and literature.

By looking at the essence and classification of religious knowledge, as can be grouped into the eternal sciences (parential knowledge), and so on, it can be grouped into social sciences, but the nature of Islamic religion is an interdisciplinary study. Because in reality the

[11] Ach Maimun, 'Integrasi Agama Dan Sains Melalui Tafsīr 'Ilmī (Mempertimbangkan Signifikansi Dan Kritiknya)', *'Anil Islam: Jurnal Kebudayaan Dan Ilmu Keislaman, Vol 12, No 1, June 2019*, 12.1 (2019), 36–62.

science of Islam does not only study religious issues but talks about: social society, law, anthropology, education, and other aspects of life.

According to Simuh, he proposed two divisions of Islamic religious knowledge, namely classical Islamic religious sciences and Islamic sciences. In classical Islamic religious sciences, which includes two fields, namely: (1) Islamic source sciences, ulum Al-Qur'an, ulum al-Hadith, and the date of the Prophet; (2) the development of classical thought: the science of kalam, fiqh and ushul fiqh; mysticism; Islamic philosophy, and Islamic philosophy of moral life. Meanwhile, Islamic sciences, which cover six fields, namely: (1) the history of Islamic civilization, (2) Islamic language and literature; (3) Islamic education and da'wah; (4) comparative religion; (5) modern schools in Islam; and (6) complementary or auxiliary sciences; English, philosophy and science of mantiq, anthropology, sociology, economics, psychology and social psychology, history, and political science and management.

The intertwining of Islamic religious knowledge with other sciences can be applied through the determination of the paradigmatic background for the emergence of branches or other religious disciplines. The same is true of Islamic religious knowledge. Explained by Anton Baker, that although clearly distinguished, the sciences are not completely separated from each other. Knowledge of lower values is needed as a basis and guide for knowledge of higher values. Thus, lower science determines certain parameters for higher knowledge. But that does not mean that lower knowledge can master higher knowledge.

Definition of A.F. Aslanikashvili on the Science of Cartography (1968), is a science that has the subject of understanding the concrete space of objects and phenomena of object reality, and places cartography entirely in science. But maps don't just show "spaces of objects and phenomena"; they also include the characteristics of objects and phenomena and their spatial combinations and interactions. This makes it possible to look at cartography in its most general form, and define it as a science that involves the presentation and investigation of natural and social phenomena, using maps as graphic-symbolic models that reproduce the aspect of reality being studied. Thus, it can build bridges from property science to many object sciences. Cartography will thus become an interdisciplinary science, linked by many threads with other sciences in the future, multidimensional science classification.

Development of Islamic Education Science

Changes or advances in science and technology have caused a crisis in epistemological construction, Islamic thought, especially Islamic education which is still preoccupied with its identity as a scientific paradigm. Conceptually it is very clear, that Islamic science, including Islamic education science, is basically born and developed as a consequence of human

efforts, both to accompany the reality of life and the universe, as well as to solve life problems faced, as well as develop and preserve the results of efforts achieved by previous generations.

The science of Islamic education is not an eternal building, because science is actually something that is never finished. It is a never ending process. Although science is based on an objective, rational, systematic, logical and empirical framework, in its development, science cannot be separated from the mechanism of openness to reality. The truth of science is not absolute but relative truth that is why we are required to always look for alternative developments.

Islamic education as an empirical science is more appropriate to be approached using an open approach. And this approach is more relevant to the developments and demands of the times. This approach is applied in Islamic education, so that this knowledge will still exist and be up to date. One type of scientific development with an open approach is a multidisciplinary approach, namely developing a scientific discipline, in this case Islamic education. By utilizing the help of other sciences, such as psychology, sociology, philosophy, Sufism, kalam, and history.[12]

Unity Of Science-Based Science Development

Science is not an eternal monument, which has been patented cannot be reviewed. Science (knowledge) is a continuous process, "It will never end", it will continue to continue as long as this life ends.[13] The development of knowledge in general can be divided into three strategies, which Kunto Wibisono describes as follows:

1. Science is developed from context or closed. In this context the scientist is in an ivory tower and has no effect on anyone and what is in society. So that what happens is the values of communalism, universalism which is nothing more than an endless relationship.
2. Science is fused in context, science tends to change which sometimes becomes an ideology dedicated to achieving certain goals. So that science does not have a specific identity and identity and its role is pseudo.
3. Science and context influence each other, complement and need each other. In this context, there is a functional relationship between science, ethics, religion, art, and even the intertwining of scientific disciplines with one another.

[12] K. A. Salishchev, 'The Relation of Cartography to the Laws and Classification of Science', *Mapping Sciences and Remote Sensing*, 21.4 (1984), 267–75 <https://doi.org/10.1080/07493878.1984.10641557>.

[13] Mahfud Junaedi, *Filsafat Pendidikan Islam*, ed. by Endang Wahyudin, 2nd edn (Jakarta: Prenadamedia Group, 2017).

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Of these three strategies (context) that can support the development of Islamic religious knowledge as a whole and consistently. This strategy of developing Islamic religious knowledge must remain based on the basic philosophy of science, the pillars of science, namely ontology, epistemology, and axiology. [14]

As explained that science is knowledge collected by scientific methods, it is also explained that science is a systematic collection of knowledge that is built through experimentation and observation. In other words, science will only be realized if it is cultivated, built, and developed. A "sacral" statement in the world of scientific development, "without research, science will not progress." Research in this context is the basis for increasing scientific development. Research activity is an effort to formulate problems, ask these questions, by finding facts and providing correct interpretations.

CONCLUSION

From the description above, it can be concluded that Science is a systematic effort with the scientific method in developing knowledge as evidenced by explanations and predictions. Then test it as a human understanding of the universe, society, and the mind. Science is not an eternal monument, which has been patented cannot be reviewed. Science (knowledge) is a continuous process, "It will never end", it will continue to continue as long as this life ends.

Unity of Sciences covers a matter that every existing science cannot stand alone. There is a connection between one science and another. In another sense, every science is multidimensional, where in writing and studying a branch of science requires the involvement and assistance of other auxiliary sciences. One type of scientific development with an open approach is a multidisciplinary approach, namely developing a scientific discipline, in this case Islamic education. By utilizing the help of other sciences, such as psychology, sociology, philosophy, Sufism, kalam, and history. As explained that science is knowledge collected by scientific methods, it is also explained that science is a systematic collection of knowledge that is built through experimentation and observation. In other words, science will only be realized if it is cultivated, built, and developed.

[14] Junaedi, Mahfud, *Filsafat Pendidikan Islam*, ed. by Endang Wahyudin, 2nd edn (Jakarta: Prenadamedia Group, 2017)

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